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Knowledge, Attitudes and Practice of Primary Care Nurse Practitioners

Regarding Skin Cancer Assessments: Validity and Reliability of a New Instrument

by

Debra Shelby

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
College of Nursing
University of South Florida

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Date of Approval:
February 27, 2014

Keywords: KAP, practice surveys, nurse practitioner practice,
instrument development, dermatology education, dermatology practice

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Abstract

Background: Despite the rise in the occurrence of skin cancer, primary care nurse practitioners are reluctant to perform skin cancer assessments during patient visits. Melanoma is almost always curable if detected in the early stages, but invasive disease accounts for 9,000 deaths per year (American Cancer Society, 2013). Changing knowledge, attitudes and practice regarding skin cancer assessments potentially leads to early detection and treatment of skin cancers and impacts patient outcomes. However, in order to change knowledge and attitudes, we must first assess them. **Purpose**: The purpose of this research was to validate a new skin cancer assessment tool instrument called KAP-SCA to measure knowledge, attitude, and practice in primary care NPs. **Methods:** Sequential mixed methods were used. First, focus group interviews with 14 primary care nurse practitioners were conducted during Phase I. Interviews were audio-recorded then transcribed verbatim and imported into ATLAS.ti. Phase II involved instrument development from a blueprint and calculation of content validity indexes (CVI) for items and subscales. Phase III of this study included testing the validity and reliability of a KAP instrument using quantitative methods. This new instrument assesses primary care nurse practitioner knowledge, attitudes, and practice regarding skin cancer assessment. **Results:** Content validity for the subscales was evaluated by CVI ranged from .90 to .95. The Cronbach's alpha was highest for the practice subscale (alpha =.89) while the lowest was seen with the knowledge subscales (alpha =.50). Construct validity assessed by exploratory factor analysis indicated the presence of three underlying factors, confidence in practice, confidence relating to education and NP role in practice. **Implications for Practice:** Interventions need to be developed based on the knowledge deficits and barriers to practice identified by these NPs including educational

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programs that focus on increasing primary care NPs' knowledge and confidence levels regarding skin cancer assessments and identification of malignant lesions. **Conclusion:** Beginning evidence of validity and reliability were found for the Knowledge, Attitudes and Practice-Skin Cancer Assessments (KAP-SCA), however further studies are warranted.

Chapter One: Introduction

Skin cancer is the most common form of cancer in the United States. More than 3.5 million skin cancers in over two million people are diagnosed annually. An estimated 76,760 new cases of melanoma are diagnosed in the U.S. annually with more than 9,000 cases resulting in death (ACS, 2013). Early detection and treatment are crucial for the survival of patients with melanoma, but this can be affected by the availability of qualified nurses trained to recognize the early stages of malignancy. While the American Cancer Society recommends routine skin examinations, the U.S. Preventative Services Task Force (USPSTF) states that there is not enough evidence to support this practice (Martires, Kurlander, Minwell, Dahms, & Bordeaux, 2014). The USPSTF (2010) states that there is insufficient evidence shows that early detection of melanoma improves morbidity and mortality. Potential harms from skin cancer screenings include: misdiagnosis, overdiagnosis, and complications from biopsies and overtreatment.

In 1997, the Centers for Disease Control and Prevention (CDC) created a national skin cancer agenda that included a curriculum for the teaching of skin cancer prevention and detection for all health care professionals. The educational initiative was based on studies which showed that improving the skills for early detection of dermatological malignances improves patient outcomes. Even with this 15 year old initiative, nurse practitioners still report deficiencies in assessment skills that would give them the confidence to perform skin cancer screenings in practice (Shelby, 2008). With the incidence of melanoma rising, it will be crucial for primary

care practitioners to be able to differentiate malignant versus benign lesions (Corbo & Wismer, 2012).

The Agency for Health Care Research and Quality (2010) discuss guidelines that include recognizing the signs and symptoms of a skin cancer diagnosis, referral to a specialist`, obtaining histology from skin lesions, and managing superficial basal cell carcinoma in the primary care setting with mandatory with follow-up.

Nurse practitioners play a major role in skin cancer assessment and education (Furfaro, Bernaix, Schmidt, and Clement, 2008). However, due to limited studies, it is uncertain whether nurse practitioners have the knowledge necessary to fulfill this role. More studies are needed to explore the knowledge base and barriers to practice regarding skin cancer assessments.

Statement of Problem

Skin cancer is a national epidemic and patient outcomes are directly related to early detection and treatment. Nurse practitioners in primary care practices are an effective solution for the early detection of non-melanoma and melanoma skin cancers. However, there are barriers to practice that limit primary care nurse practitioners when they are performing comprehensive skin cancer assessments. There are limited studies available on nurse practitioner knowledge, attitudes and practice regarding skin cancer assessments or studies that examine the barriers to performing these exams. However, measures to determine the knowledge, attitudes and practices of primary care NPs related to skin assessment are not currently available. The purpose of this sequential, three-phase mixed method study was to develop and validate an instrument to gather data that will help increase insight into the knowledge, attitudes and practice of primary care nurse practitioners regarding skin cancer assessments .

Specific Aims

The following specific aims guided each phase of the study.

Phase I: Qualitative Focus Groups. The aims for Phase I were:

Aim 1.1: Determine themes from the focus group interviews that will lead to the development of an instrument to assess knowledge, attitudes, and practice of primary care nurse practitioners in assessing skin lesions.

Aim 1.2: To explore barriers to primary care nurse practitioner practice regarding skin cancer assessments.

Aim 1.3: To assess the level and impact of confidence on primary care nurse practitioner practice of skin cancer assessment.

Aim 1.4: To determine the perception of the NPs about whether the amount of skin cancer education and assessment training is given in nurse practitioner curriculum and amount of ongoing continuing education relating to dermatology, specifically skin cancer assessment, diagnosing and treatment prepared them for basic dermatology practice.

Phase II: Quantitative Instrument Development. The aims for Phase II were:

Aim 2.1: To develop a draft of an instrument that measures knowledge, attitudes and practice of primary care nurse practitioners regarding skin cancer assessments.

Aim 2.2: To evaluate the content validity of the items in the newly drafted instrument.

Phase III: Instrument Testing. The aims for Phase III were:

Aim 3.1: To evaluate the validity and reliability in the revised KAP instrument.

Definition of Terms

For the purpose of this study, the following definitions are used:

Knowledge: "The capacity to acquire, retain, and use information; a mixture of comprehension, experience, discernment and skill." (Badran, 1995, p.8)

Attitude: "Inclinations to react a certain way to certain situations; to see and interpret events according to certain predispositions; or to organize opinions into coherent and interrelated structures" (Badran, 1995, p.8).

Practice: "The application of rules and knowledge that leads to action" (Badran, 1995, p.8).

Professional Practice: Professional practice encompasses caring, compassion, competence, commitment, comportment and confidence (Roach, 1992).

Confidence: Professional confidence is defined as an internal feeling of self-assurance and comfort, as well as being tested and/or reaffirmed by other nurses, patients and friends (Mason-Whitehead, McIntosh, Bryan & Mason, 2008).

Significance of the Study

Research has shown that cancer outcomes are dependent on early detection, intervention and treatment (American Cancer Society Skin Cancer Facts, 2012). There are many geographic areas in America that have no access to dermatology specialists. It is imperative that primary care practitioners have the skills necessary to detect non-melanoma skin cancer and melanoma skin cancer . The skin cancer rates are increasing every year despite educational initiatives created for the public. Past generations are now experiencing the effects of sun exposure and need to be assessed for early interventions.

This study goal was to develop a valid and reliable tool to evaluate the knowledge, attitudes and practice of primary care NPs regarding skin cancer assessment. Assessing areas of strengths

and deficits within NP dermatology practice would guide future studies and educational programs that may lead to increasing frequencies of skin cancer exams and improving proficiencies with dermatology knowledge and procedures. If research can explore the barriers to primary care nurse practitioner practice regarding skin cancer assessments, later research may develop and evaluate educational interventions to change knowledge and attitudes through increasing confidence with performing these exams. Consequently, primary care nurse practitioners can play an important role in improving and significantly impacting patient morbidity and mortality with regard to skin cancers.

Chapter Two: Review of Literature

This chapter presents the conceptual framework and review of literature used in this study. A literature review on the variables knowledge, attitudes, practice and confidence is presented. These variables are the focus of the interviews and instrument development in this study.

The literature review was accomplished by computer search of PubMed, Web of Knowledge, PsycINFO, CINAHL, internet search engines of Google, Bing, and Yahoo. Key words and terms used in the search included: NP practice, NP education, KAP, surveys, skin cancer, dermatology education, skin cancer exams, NPs and skin cancer, dermatology programs, and skin cancer outcomes . Manual searches were accomplished by reviewing professional peer reviewed journals from the American Academy of Nurse Practitioners, American College of Nurse Practitioners, Dermatology Nurses Association, and American Academy of Dermatologists.

A challenge of this chapter came with the extremely limited research of nurse practitioner knowledge, attitudes and practice. Additional reviews of KAP studies involving other health care providers were included to illustrate the methods used in other studies. Information found help guide this study's methods.

Conceptual Framework

Bennett's (1976) knowledge, attitude, skills, and aspirations (KASA) change hierarchy model has been used in evaluating the basic principles for change and will be used in this research. It is one of the first models created to impact change in practice.

This theoretical change model targets outcomes. Before developing an educational program to improve practice, the researcher must identify what knowledge is needed and assess the participants' attitudes, skills, and desire to change (Bennett, 1976).

Figure 1. KAP Instrument Design based on Bennett's Change Model, this model has been revised to study impact of the independent variables knowledge, attitudes, and confidence on the dependent variable practice.

Nurse Practitioner Knowledge

Nationally, the need for improving dermatology education has been identified based on the high rate of skin disease, especially in the elderly. Increased proficiency in the area of assessment and management of skin disease, especially in the older patient with increased risk for skin malignancies, is imperative for nurse practitioner training programs (Hristakieva, 2003).

According to Furfaro et al. (2008), researchers state that nurse practitioners can play a pivotal role in screening, their competence to fulfill this role has not been established. The purpose of their study was to explore whether nurse practitioners were prepared to perform melanoma screening and prevention of melanoma.

Loescher, Harris, and Curiel-Lewandroski, (2011) conducted a systematic review of the literature that explored skin cancer assessment barriers, skin cancer recognition skills, and skin cancer training. Limited studies were found on the ability of NPs to identify cancerous lesions. Studies reported that NPs felt confident in their skin cancer assessment skills, but not

confident in their ability to identify malignant lesions . NPs show inconsistencies in their ability to accurately identify lesions that are skin cancers or benign lesions.

Nurse Practitioner Attitudes

Nurses are a valuable aspect of the dermatological malignancy detection and treatment process (Harris, 2000). Nursing has been found to be in favor of enhanced education in the role of screening and detection of early staged skin cancer. It was found that 94% of nurse participants believed that learning screening skills would be generally beneficial, 89% believed that it would benefit patients, and 61% felt that it was in their scope of practice. Barriers to learning these skills included lack of money (43%), not knowing how to get the education (41%), and 63% believed that there is a lack of national guidelines (Christos et al., 2004). Wender's (1995) study showed that due to multiple of factors, skin cancer detection is a low priority for primary care providers. It will take the collaboration of all health care providers to increase the efforts toward skin cancer prevention and detection.

Nurse Practitioner Confidence

Confidence is an attitude that can be a result of knowledge and can impact practice. Mikkilineni et al. (2001) discussed how low confidence and lack of training limited skin cancer screening. Their intervention study set out to evaluate the effects of a 2-hour educational intervention to improve provider's skin cancer practices. Pre and post-intervention surveys using a Likert-type scale was used on a convenience sample of 28 primary care providers which included nurse practitioners. Positive statements towards screening increased after intervention 4.20 to 4.60 (p<.0001) and negative attitudes decreased 2.38-1.79 (P<.0001). While this study

mentioned confidence of nurse practitioners, confidence was not a focus of the study. No studies were found that have evaluated nurse practitioner confidence in skin cancer screening practices.

According to Oliveria et al (2002), nurse practitioners have been shown to have interest in cancer prevention. Their study suggests that while nurse practitioners have reported having the knowledge, skills, interest, and education for cancer prevention and early detection, they are performing very little skin cancer screenings. They report that diagnostic skills and confidence need to be improved through educational interventions.

Nurse Practitioner Education

Limited research was found regarding NP dermatology education relating to skin cancer assessments. However, the American Academy of Dermatology, in a focus on medical students, surveyed 120 medical school deans to determine the amount of dermatological training medical students typically receive. Based on the survey, the average medical student receives 18 hours or less of dermatological didactic content and training (Solomon et al., 1996). Moreover, in a study of over 300 fourth-year medical students, 52% considered themselves unskilled in skin cancer examinations, 28% of the students never observed a skin cancer examination, 40% received no training, and 35% had never practiced the skin exam (Geller et al., 2002).

Despite research (Wagner et al, 1985; Wender, 1995; Solomon et al, 1996) that demonstrates that dermatologists are better at diagnosing skin lesions compared to primary care physicians, managed care has promoted primary care providers as the "gatekeepers" for dermatology referrals (Bioko et al, 1996; Gerbert et al., 1996; Jackson et al, 1995; Wagner et al, 1985). Internal medicine and dermatology practitioners are questioning the skills of these gatekeepers, especially the ability to diagnose, treat, and evaluate patients with potentially deadly lesions including squamous cell carcinoma and malignant melanoma (Gerbert et al., 1996).

Nationally, the need for improving dermatology education has been identified based on the high rate of skin disease, especially in the elderly (Hristakieva, 2003). Increased proficiency in the area of assessment and management of skin disease, especially in the older patient with increased risk for skin malignancies, is imperative for nurse practitioner training programs (Hristakieva, 2003). Currently, there is minimal dedication toward dermatology training evident with respect to the clinical requirements of any advanced practice or nursing program. The Nurse Practitioner Primary Care Competencies in Adult, Family, Gerontological, Pediatric, and Women's Health by the US Department of Health and Human Services (2002) do not specifically address the requirement for dermatologic curriculum and outcomes as a part of these specialty core competencies. In earlier studies NPs were found to be less productive in recognizing melanoma 54- 68% sensitivity with premalignant lesions to be less recognized when compared to non-advanced practice oncology and dermatology nurses (Maguire-Eisen & Frost, 1994).

The Essentials for Master's Education in Nursing (The American Association of Colleges of Nursing, 2011) outlines nine core essentials. In Essential IX "Master's-level nursing graduates must have an advanced level of understanding of nursing and relevant sciences as well as the ability to integrate this knowledge into practice. Nursing practice interventions include both direct and indirect care". These educational essentials give nurse practitioners the foundation to expand their role and take their place in the collaborative health care team. Through advanced knowledge and practice, they have the opportunity to help fill the gaps in dermatology care.

Another study has shown that nurse practitioners who participated in a training program were able to refer, with 100% sensitivity and 53% specificity both benign and malignant lesions.

Referral of patients with suspicious lesions to the dermatology specialists resulted in an accurate intervention with a 67% to 100% sensitivity and 62%-100% specificity. Furthermore, NPs completing these screening training programs demonstrated and accurate recognition of all skin cancers types within a range of a 50%-100% sensitivity and 99%-100% specificity (Oliveria et al. 2001) for NPs trained in dermatological screening and treatment. Maguire-Eisen and Frost, (2004) showed that dermatology nurses' ability to recognize cancerous lesions were higher than oncology nurses or general practice nurse practitioners. Another study by Carli et al., (2005) demonstrated that a 4 hour formal training program for nurses can improve detection of malignant lesions and the subsequent appropriate referral to the dermatologist.

Barriers to Practice

In a systematic literature review by Loescher et al. (2011) there were only two descriptive studies that focused on the barriers to performing skin cancer assessments. In the study by Christos et al. (2004) only 30 of the 457 respondents were considered advanced practice nurses. The barrier rated the highest was "lack of guidelines on who gets screened" (69%). In the other study, conducted by Furfaro et al. (2008), time limitations were ranked as the most significant barrier. Education was found to lower barriers to skin cancer assessments.

The Furfaro et al. (2008) study used a purposive randomized sample of 100 Illinois and 100 California NPs obtained through the American Academy of Nurse Practitioners. A modified version of The Malignant Melanoma Prevention and Detection Survey was used to evaluate knowledge of melanoma, preventive measure for melanoma, risk factors of melanoma, barriers to performing melanoma assessments and lesion recognition. The survey was reviewed for content validity and the test/retest reliability coefficient was 0.87. The survey consisted of three sections: Demographic data, Prevention Knowledge and Patient

Teaching, and Risk Factor Knowledge and Patient Teaching. The number one rated barrier based on participant response was time limitation. Comparison of years of practice to performance of skin assessment showed that NPs who were in practice longer performed less skin assessments (r=-.319, p=.035) (Furfaro et al. 2008, 371-372).

Development of KAP Surveys

Existing studies designed to explore knowledge, attitudes and practice of health care professionals included descriptive studies and a variety of instrumentation. Examples of research on knowledge, attitudes and practice (KAP) surveys may include the opinions of health care workers before and after an intervention. This may involve qualitative questionnaires that were analyzed using descriptive or phenomenology methods. Themes that were identified included: fear, communication, trust, team working, role conflict, role division and role boundaries.

Roelens, Verstelen, Van Egmond, and Temmerman (2006) studied the knowledge, attitudes and practice among obstetrician-gynecologists on intimate partner violence in Flanders, Belgium. The questionnaire was designed to assess a knowledge, attitude, screening and referral practice (Roelens, Verstelen, Van Egmond, & Temmerman, 2006).

Barriers identified were placed into three major groups: Physician knowledge, behavior, or practice. The research model assumed that before health-related information can change behavior it must first affect the physician's knowledge, then physician's attitude, and then physician's behavior and practice.

Results indicated that education about partner abuse needs to be incorporated into medical training. The majority of survey participants felt a lack of skills necessary to discuss partner abuse and not knowledgeable on the referral practices when an abuse case was identified. Very few physicians followed screening guidelines (only 8.4% of participants) and the barriers most

commonly cited were lack of time and fear of insulting or offending patients. Confidence in relying on their clinical index of suspicion in their screening practice was reported by the participants (Roelens et al, 2006).

Approaches to understanding medical decision making are complex. It is not clear why practitioners deviate from standards. While the concept of pediatric assent (the patient's ability to assent or dissent for procedures that are not necessary to save their life) has been discussed and strongly supported in a policy statement, it is poorly understood whether or not clinicians practice the concept. In a descriptive study by Lee, Havens, Sato, Hoffman & Leuther (2006), the researchers set out to assess the clinician's knowledge, attitudes, and practice of obtaining pediatric assent in a pediatric hospital.

Results showed that only nine of the thirty-five participants new that there was a 1995 American Academy of Pediatric (AAP) policy statement made on pediatric assent. Attitudes towards pediatric assent showed that twenty-eight of the participants thought obtaining assent in addition to parental assent was important. The respondents who completed training before 1995 were significantly more likely to ask for the child's agreement as part of seeking assent (p=.01). This variable was the only one associated with significant association with attitude and practice (Roelens et al., 2006). Limited knowledge of the policy did not affect the participants' attitudes and felt including children in their discussions was important. However, most clinicians did not follow the AAP policy with regards to assent. This is an example of how clinical practice does not follow recommended practice and how knowledge deficit impacts practice. The researchers' suggest that a model based on education and discussion is more appropriate than the current model of assent. A limitation of this study was the small sample size, so it would be difficult to draw conclusions based on such a small number.

Suchitra and Lakshmi (2007) studied hospital-acquired infections which cause 80,000 deaths annually. Non-compliance to standard infection control includes not washing hands between patients and not using gloves. This is another example of how patient outcomes are greatly impacted by practice, yet barriers exist that stop health care workers from performing these tasks. This KAP survey involved various health care workers. One hundred and fifty doctors, nurses, and aides were surveyed on their knowledge, attitudes and practices on nosocomial infections. An educational intervention was developed for each category of health care worker. The 26 item questionnaire was administered at 6, 12, and 24 months. There was significant difference in the pre-education and first post-education responses. Total compliance was 63.3% (adjusted Wald 95% CI= 58.80-88.48). However, over time the improvement declined with the second and third post-education testing. The group identified barriers to practicing good hand hygiene as a lack of education and high work load. Individually, it was identified that lack of knowledge of institutional guidelines and experience contributed to non-compliance. High work load was associated with poor compliance to hand washing (Suchitra & Lakshmi, 2007).

In many of the studies reviewed, the number one barrier cited was lack of time. Brown, Wickline, Ecoff and Giaser (2009) conducted a descriptive, cross sectional study using a convenience sample of 458 nurses in an academic medical setting in California. This study set out to explore nursing practice, knowledge and attitudes and perceived barriers to evidence based practice. While evidenced based practice has been shown to improve patient outcomes, this study demonstrated resistance in practice.

The work of Ergun, Uzel, Celik, and Ekerbicer (2007) supports the concept that ongoing educational programs may influence practice. This study design was a cross-sectional, pre-

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posttest. The sample was 155 primary care and 208 secondary care nurse-midwife practitioners. The questionnaire contained 28 items measuring knowledge and attitudes of developmental dysplasia of the hip. Results showed a deficiency in knowledge and practice. No standards for to educational guidelines or suggested intervals for the education were given.

Dissemination of current practice standards is important for impacting practice. In nursing and medicine, practitioners must keep informed with evidenced based practice. As we have seen in the other studies, knowledge impacts practice. In the study by Shahid, Bhider, and Dhanjai (2007), a pretested questionnaire was given to 440 family physicians. The questions pertained to their management of asthma. The conclusion of this study was that isolated physicians were not providing up to date treatments for children with asthma.

Giuseppe, Nobile, Marinelli, and Angelillo (2006) describe their study as a cross-sectional study with systematic random sample of 1,000 pediatricians. The participants received a questionnaire on socio-demographic and practice characteristics. Results showed that pediatricians with a higher level of knowledge about oral disease believed that they had an important role in prevention of oral disease (OR 3.36; 95% CI 1.41-8.04, p=0.006). The investigators concluded that the pediatricians had a lack of knowledge of the main risk factors for oral disease even though the pediatricians know how important their responsibility is for prevention and screening.

Mathew, Mathew and Singhi (2011) KAP study on pediatric critical care nurses and pain management consisted of a questionnaire given to 56 nurses. Logistic regression was used to identify variables impacting practice. Lack of training was identified as a major reason for improperly controlling pain.

Lawvere et al. (2003) used a descriptive, cross-sectional study to examine how nurse practitioners approach smoking cessation. A KAP survey from 175 participants showed that NPs appropriately counseled patients, but had a knowledge deficit in first-line pharmaceutical interventions. The study concluded that educational programs were needed to impact practice. However, there were no details on what that educational program should include.

In contrast, the study by Myers et al. (2011) was a well-organized example of a KAP study. The methods were clearly written and the instrument well described. Two-hundred and thirty-four responses were obtained from a sample of over 14,000 general practice dentists. The instrument was a four page, closed ended questionnaire. One deficiency noted was the validity of using an established tool on a different sample other than what it was originally intended. The tool was adjusted for the sample. The conclusion of this study did not report lack of time as a barrier to practice. In fact, the providers knew of the guidelines and their risk of exposures. Poor skin condition was cited as a barrier to practice. Increasing knowledge of the Center for Disease Control and establishing guidelines were indicated to improve compliance.

Keilman and Dunn (2010) study on KAP of NPs regarding urinary incontinence in older adult women was one of the studies that used Benner's (1984) novice to expert conceptual model. Purposive sampling was used in this cross-sectional, descriptive and correlational study. Fifty-four participants completed the questionnaire. Methodology was not discussed in detail. Conclusions of this study showed NPs had positive perceptions and knowledge, but had difficulty applying it to the clinical setting. Researchers suggest more emphasis on urinary incontinence in nursing curriculum.

Nurse Practitioner KAP Studies

There are limited studies on assessing nurse practitioner's knowledge, attitudes, and practice regarding skin cancer assessment. Gaining insight into how to conduct research and developing a valid and reliable tool may be obtained by reviewing the literature on KAP studies completed in other populations. Knowledge, attitude and practice surveys are widely used in all areas of research. Most studies did not use mixed method (qualitative and quantitative) designs. Sample size ranged from <50 to over 500. The most common instrument used was a questionnaire. Others used a mix of questionnaire and free-text questions. Statistical analysis was made by using a variety of statistical software, but most used a multivariate logistic regression model to analyze the data. The results showed that knowledge deficits affected practice. Educational initiatives were recommended in most of the studies. While the studies pointed out knowledge deficits and deficits in practice, none of the studies described an educational initiative that would improve these deficits. The most common barrier to practice was lack of time, but no suggestions to overcome this barrier were discussed.

Nursing research needs to continue in areas that impact practice and patient outcomes. Understanding the barriers to evidenced based practice guidelines is crucial. KAP surveys are an excellent way to determine specific areas that need improvement. Thus, this study is designed to develop and test a KAP instrument related to skin assessment

Chapter Three: Methods

This chapter presents the three phases of the instrument development. To reduce bias and strengthen the validity and reliability of the instrument, a combination of qualitative and quantitative methods was used. Phase I presents the qualitative methods used to understand the issues. Phase II describes the development of the instrument and methods used for the content validity index. Phase III describes testing of the newly revised instrument with a group of primary care nurse practitioners.

Phase I: Focus Group Interviews

In 1959, Campbell and Fisk introduced sequential mixed method (Creswell, 2009). These researchers believed that a single method had limitations and combining methods could reduce bias (Creswell, 2009). The qualitative data identified themes that helped to guide the development of the questions for the instrument.

For this study, focus group interview and phenomenology was selected. "Spiegelberg (1965, 1975) identified a three step process for descriptive phenomenology: Intuiting, analyzing, and describing. In intuiting process, the researcher must be "immersed" in the phenomenon and becomes a tool for the study. Analyzing process involves identifying the "essences" of the phenomenon and describing process is aimed at communicating both with verbal and written descriptions" (Steubert, 2011, p. 81-82).

As cited by Streubert and Carpenter (2011, p. 78): "The purpose of phenomenological inquiry is to explicate the structure or essence of lived experience of a phenomenon in the search for

the unity of meaning which is the identification of essence of a phenomenon, and its accurate description through the everyday lived experience" (Rose, Beeby, &Parker, 1995, p. 1124). Descriptive phenomenology involves "direct exploration, analysis, analysis, and description of particular phenomena, as free as possible from unexamined presuppositions, aiming at maximum intuitive presentation" (Spiegelberg, 1975, p.57) "The philosophical underpinnings of phenomenology are critical to the discipline" (Streubert and Carpenter, 2011, p. 78). Historically, there are different methodological interpretations and procedural steps from Colaizzi (1978), Giorgi (1985), Peterson & Zderad (1976), VanKaam (1984), Van Manen (1990) and Steubert (1991) that can be used for phenomenology. Streubert (2011) cites six core steps for phenomenology investigation from Spiegelberg (1975): Descriptive phenomenology, phenomenology of essences, phenomenology of appearances, constitutive phenomenology, reductive phenomenology, and hermeutic phenomenology.

Phenomenology is the most effective method for getting to the heart of the lived experiences of the nurse practitioner. It offers the opportunity to explore the depths of why NPs may or may not participate in skin cancer management. The focus group offers a vast amount of clinical experience that can be collected in a single interview. Open-ended interview techniques are used for questioning subjects. The research focuses on how people work and play. Interpretation is influenced by the researcher's own experiences and beliefs (Creswell, 2009).

Focus group interview and phenomenology was used for Phase I. Streubert and Carpenter (2011) describe the purpose of phenomenological inquiry as the lived experience of a phenomenon and to search for the meaning which is the essence of a phenomenon and the lived experience. Descriptive phenomenology involves direct exploration, analysis, analysis, and description of a particular phenomenon (Spiegelberg, 1975). Themes that emerged from the focus group interviews

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were used in the blueprint for the knowledge, attitude, and practice questionnaire. Quantitative methods were used to identify significant factors to be included in the instrument. Based on results, a draft of the instrument was developed during Phase II of the study.

Setting and Sample. During Phase I, two focus groups were used. After approval letters were received from the organizations (Appendices A & B), **t**he first focus group interview took place in a private conference room located at the Florida Nurse Practitioner Network Conference being held in Orlando, Florida. The second interview was held at the Massachusetts Coalition Chapter meeting and was conducted in a local hospital conference room.

The Phase I sample consisted of nurse practitioners who were practicing part-time or full-time in a primary care setting. The first focus group consisted of a convenience sample of three nurse practitioners found at the Florida Nurse Practitioner Network (FNPN) conference. A recruitment flyer (Appendix C) was distributed to the attendees via email by the president of the FNPN and an announcement was made at the conference about the opportunity to participate in the interview The second focus group consisted of a sample of eleven primary care NPs attending a Massachusetts Coalition Chapter meeting. Flyers (Appendix C) were emailed to members by the Chapter president in advance of the meeting, inviting the NPs to participate in the study.

The inclusion criteria for the sample included Family and Adult nurse practitioners, ages 26 to 65 years, with at least one year practicing part-time or full-time in a primary care setting. The participants had to be able to read and write English. Nurse practitioners practicing in specialty settings were excluded. Two instruments were used for this study. A demographic data form was used to describe the sample and an interview guide was used for the focus group sessions.

Demographic Data Form. The focus groups were given a demographic sheet prior to the interview (Appendix D). Data collected included: Gender, age, NP specialty, years of practice and practice description.

Interview Guide. A semi-structured interview was conducted using an interview guide with 12 questions (Appendix E). The interview was a free dialogue with minimal guidance. Questions were clarified as needed and participant's answers were explored further. Data was audio-recorded and transcribed.

Procedures. For the protection of human subjects, Phase I of this study was submitted to the University of South Florida's Institutional Review Board. The study was approved July 28, 2011.

Participants consented (Appendix F) to participate in a single focus group interview. The interview length was approximately 45to 60 minutes. The focus group session was tape recorded and transcribed. During the focus group, the participants were able to refuse to any question he/she felt uncomfortable answering. Participants received $20.00 Visa gift cards for their participation in the study. The participants gave their consent for audio-recording. No participant identifiers were used. Code numbers were assigned to the recorded and transcribed sessions. The audio-recording was erased after accuracy of the transcription was verified. The electronic and paper copy of the interview is stored in a secure computer file and locked file cabinet in a locked office.

Data Analysis. The transcriptions of the focus group sessions were coded and analyzed for themes using Atlas ti 6.2 (Appendix G). Content analysis was used to evaluate the data. Dominant themes were identified and used in instrument design. Descriptive frequencies and

percentages using the software SPSS was used to characterize nurse practitioner demographics and identified themes.

Phase II: Instrument Development

Phase II involved the development and initial study of the instrument. Study of the first draft of the instrument involved using experts to obtain a content validity index (CVI).

Content Experts. Content validity can be assessed by content expert review and by using content validity index (McMillan, Williams, Chatfield, & Camp, 1988). Content experts were asked to evaluate the initial draft of the instrument. The group of content experts consisted of four primary care nurse practitioners, two dermatology nurse practitioners and one dermatologist. The experts were chosen based on years of practice involvement in nurse practitioner education and expertise in their practice. The questionnaire was sent to the group to evaluate its accuracy and clarity.

Instrument. After the transcribed data was analyzed and themes identified, a blueprint (Appendix H) for the instrument was developed based on themes in order to clarify the specific scope and the emphasis of the measure The scope of the measure were defined by the cell in the blueprint and reflected content of the items to be measured as well as the level of the cognitive domain.(Waltz, Strickland, & Lenz, 2010).

The instrument was named Knowledge, Attitudes and Practice of Skin Cancer Assessments (KAP-SCA). The KAP-SCA measures the knowledge, attitudes, practice, education, confidence and the role of NPs regarding skin cancer assessments. The items were given to the content experts to evaluate the adequacy of the items as reflected in the blueprint, the fairness of the items, and the fit of the method to the blueprint from which it was derived (Waltz, Strickland, and Lenz, 2010, p. 105). Content experts were asked to judge each individual item in the scale. From their new item ratings, CVIs were calculated

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for the items and the subscales. Judgments about each item were reported as +1 (matches the blueprint). -1 (does not match) or 0 (unsure) (Appendix I).

Procedures. For the protection of human subjects, submission of this study was submitted to University of South Florida's Institutional Review Board. Content expert evaluation began after the study was approved (Appendix J).

Data Analysis: Content Validity. Each reviewer's rating for each item was added to the rest of the reviewers' ratings and mean ratings were calculated by dividing by the number of raters. This resulted in CVIs for items that ranged from -1 to +1. Items were revised or replaced based on the CVI generated by the content experts. Items scoring .70 or higher were retained in the questionnaire. Items with CVI scores under .70 were revised or evaluated for retention. Following the revision of the scale, it was further studied for construct validity as well as reliability using quantitative methods.

Phase III: Reliability and Validity of Instrument

A measurement instrument that is considered reliable is one that demonstrates internal consistency (Kerlinger, 1986). Validity assesses how well the instrument measures the construct it sets out to measure (Kerlinger, 1986). Without reliability and validity, the resulting data may be meaningless. This phase outlines the evaluation of reliability and further estimation of validity of this instrument. Rigor of data analysis is imperative, especially for this instrument which is the first of its kind.

Sample and Setting. The sample for the instrument testing were collected from mailing lists of various state nursing boards. To determine sample size, a review of the literature was completed. Osborne and Costello (2004) discussed relevant guidelines to determining sample sizes. According their review, Hatcher (1994, p. 73) recommended "a minimum

subject to item ratio of at least 5:1 in exploratory factor analysis, but note that higher ratios are better." Another guideline by Nunnally (1978, p. 421) states "the subject to item ratio for exploratory factor analysis should be at least 10:1, but that recommendation was not supported by published research."

Based on the suggested guidelines, a total of 300 participants were sought to be entered in the study. The inclusion criteria for the sample included Family and Adult nurse practitioners, ages 26 to 65 years, with at least one year practicing part-time or full-time in a primary care setting. The participants must read and write English. Nurse practitioners practicing in specialty settings were excluded.

Instrument. Following the CVI, the revised self-report KAP-SCA questionnaire was tested in Phase III. Each subscale was designed to be scored separately. The variable knowledge was measured in two ways. First, application of skin cancer knowledge was assessed using twenty photos for lesion identification which included a choice of treatment options of biopsy, cryotherapy, refer to specialist, or no treatment necessary based on the lesion identified in the photo. Scores could range from 0 to 20 points. The interpretation of scores for photo identification items include: 0-7 points= deficient knowledge, 8-14 points=average knowledge, and 15-20 points=proficient knowledge. In addition, fourteen general skin cancer knowledge questions measured overall knowledge relating to melanoma and non-melanoma skin cancer. Scores ranged from 0 to 14 points. The interpretation of scores for the general knowledge items include: 0-4 points= deficient knowledge, 5-9 points=average knowledge and 10-14 points=proficient knowledge.

The attitudes and practice subscales were measured with a summative rating scale that contained forty-five items. Reponses ranged from "none" = 0, "strongly disagree" = 1, "disagree" = 2, "agree" = 3,"stronglyagree" = 4.

The attitudes subscale included twenty-six items measured attitudes towards education, NP role regarding skin cancer assessments, and NP confidence relating to dermatology care. Six items measured the participants' feelings on NP curriculum and dermatology education participants received during their NP program and post-graduation. Scores ranged from 0-24 points. Five items were included to measure the participants' attitudes toward their role with skin cancer assessments. Scores ranged from 0-20 points. Fifteen items measured the participants' level of confidence relating to dermatology care. Scores ranged from 0-60 points.

Twenty questions on practice measured dermatology practice behaviors within the primary care setting. This included evaluation of dermatology procedures like biopsy techniques, cryotherapy, skin assessments, interpreting dermatopathology and patient education on skin cancer. The total scores for the attitudes and practice items ranged from 0-80 points.

Procedures. For the protection of human subjects, this study was sent to University of South Florida's Institutional Review Board and data collection began after approval (Appendix J).

Over 20,000 self-report letter of consent (Appendix K), demographic form (Appendix D) and KAP-SCA (Appendix L) were emailed and mailed to members of mailing lists obtained from various state nursing boards and group members of the American Academy of Nurse Practitioners. One hundred and eleven responses received were admitted into the study. All

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participants received a free membership to the National Academy of Dermatology Nurse Practitioners and free registration to the 2014 NADNP national conference.

Data Analysis: Validity. Construct validity was assessed with factor analysis. Factor analysis is useful when the researcher is assessing multiple dimensions and subcomponents in an instrument. Exploratory factor analysis (ETA) was chosen because the outcome of this process is to identify linear group combinations of the items that are called factors. ETA is data driven, rather than theory driven confirmatory factor analysis, it explains the variance in the data set with the fewest number of factors (Waltz, Strickland, & Lenz, 2010). The factors studied were attitudes, practice, education and confidence. Data analysis was completed using the computer software SPSS. Factors with a loading criterion of .30 or above were retained.

Reliability. Refining the factors in the KAP-SCA and evaluating internal consistency of the retained items may reduce the number of items creating a parsimonious scale that can be used in future testing. Internal consistency of the items within the subscales will be evaluated with Cronbach's Alpha (Waltz, Strickland, & Lenz, 2010, P. 228). The items measured should correlate with one another and the Cronbach's alpha increases when the correlations between the items increase. Researchers typically use a reliability coefficient of .70 or higher as acceptable (Choudhury, 2010).

Chapter Four: Results

This Chapter presents study results. First, results of the focus group interviews conducted in Phase I are presented. This is followed by the Phase II results of the content validity index based on the first draft of the instrument, and finally, the Phase III study of validity and reliability of the new tool are presented.

Phase I: Focus Group Interviews

Two focus groups were conducted. The first group consisted of ten primary care nurse practitioners from the Cape Code, Massachusetts NP Coalition. The second focus group consisted of three primary care nurse practitioners attending the Nurse Practitioner Network Conference in Orlando, Florida (Table 1). The groups were primarily female and had an average age of 50 years (Table 2). They had been in practice an average of 9 years.

Table 1.

Descriptive Statistics of Focus Group Demographics
by Gender, NP Specialty and Practice Descriptions. (N=14)

Variables	Frequencies	Percentages
Gender		
Female	13	92
Male	1	1
NP Specialty: Primary Care	14	100
Practice Setting		
Private	11	85
Other	2	15
Practice Location		
Massachusetts	11	23
Florida	3	77

Table 2.

Ranges, Means and Standard Deviations of Participants' Age and Years of Practice. (N=14)

Variable	Range	Mean	Standard Deviation
Age	28-62	50	12
Years of Practice	1-29	9	7

Coded transcriptions were reviewed for common themes. Identified themes from the focus group session included: Practice, education, barriers to skin assessments and confidence. These themes were used in the development of the subscales. The theme of confidence was repeated frequently in the interview (Table 3).

Table 3.
Frequencies of Themes Expressed by Focus Group Participants. (N=14)

Themes	Frequencies
Lack of Confidence	31
Lack of Dermatology Education	11
Lack of Time	2

The highest barrier to skin assessments was "no confidence". Participants stated they were uncomfortable with the skin exam. Participants stated that they would do focused dermatology visits, but referred patients to dermatology specialists for lesions and skin assessments because they felt uncomfortable performing the exams. Samples of supporting participants' statements for the no confidence barrier included: "A lot of nurse practitioners are not comfortable in this area (skin exams). You have the option to refer to derm", and "Other than the basics, I am still not confident."

The second highest barrier cited was lack of dermatology education. Supporting statements for the education barrier included: "Lack of education. Know what you know and refer out is the responsible thing to do" and "I think lack of education is the main issue".

Another identified barrier to performing skin cancer assessments was not having the time to do the exam. For time barrier, participants stated: "We just don't have time. It's more, what is the problem and move on" and "Because of time constraints and the type of patients we see, we don't disrobe them unless there is a problem".

Participants' comments identified educational themes and the most common response was that they had minimal dermatology education during their NP programs. While the majority of the participants stated that they refer patients to dermatology specialists, they would do more dermatology if they had the education to support their practice. Based on these responses, the blueprint for the new instrument was planned.

Phase II: Instrument Development and Content Validity

Phase II involved the development of the instrument and evaluation of content validity. The focus group interviews identified themes to be used within the knowledge, attitudes, and practice subscales. After analyzing the data and identifying themes during phase I of the study, a blueprint was created with objectives that concentrated on NP dermatology education, knowledge of skin cancer, and dermatology practice within primary care (Appendix H). The weighting of the content in the blueprint was done based on the frequency with which an issue (like not having enough time) was mentioned by the NPs in the focus groups. The literature review was also used to help create items that focused on the fundamentals dermatology care and interventions that support early detection and identification of skin cancer.

The knowledge subscale consisted of 20 photo lesion identification questions and 14 questions relating to general skin cancer facts. The attitudes subscale consisted of 26 items relating to education, roles of the NP regarding skin cancer assessments and confidence. The practice subscale consisted of 20 items relating to primary care NP dermatology practice.

Content validity was also assessed in Phase II. The blueprint and surveys were sent to a group of seven content experts. The experts were asked to evaluate each item's relevance to the domain of interest. Each item was assessed as to whether that item meets the objectives in the domain of interest. The expert was asked to evaluate each item by marking 1 = yes, the item met the domain objective, -1 = No, the item did not meet the domain objective and 0 = Uncertain if the item met the domain objective. Lines were provided for any additional comments. CVI's for individual items ranged from .60-1.0. Mean CVI scores for the subscales ranged from .90 – .95 (Table 4 & 5).

Revisions of items were made based on the expert recommendations. Thus, multiple choice responses for the lesion identification section were revised to reflect a more general category of diagnosis instead of specific skin cancer diagnoses. For example, an answer of basal cell was changed to an answer of non-melanoma skin cancer. Treatment option based diagnosis were also added. Two items relating to lesion identification and confidence were revised based on CVI's of .60. A general knowledge item with a score of .60 was retained due to the researcher's opinion of the importance to capture this information regarding NP knowledge on melanoma for future education initiatives.

Table 4.

Content Experts' Content Validity Index (CVI) on Knowledge Items: Lesion Identification via Photograph and General Knowledge of Skin Cancer. (N=7)

Knowledge Photo Identification Items	CVI	General Knowledge Items	CVI
Precancerous	1	1	1
NMSC	1	2	.90
Benign lesion	.90	3	1
Benign lesion	**.60**	4	1
Benign lesion	.90	5	1
Melanoma	.90	6	1
NMSC	.90	7	1
Benign lesion	.70	8	1
NMSC	.90	Melanoma treatment	**.60**
NMSC	1	10	.90
Melanoma	1	11	1
NMSC	1	12	1
Benign lesion	1	13	1
Melanoma	1	14	1
Benign lesion	.90	15	1
NMSC	.90	16	1
Benign lesion	.90	17	1
Benign lesion	1	18	1
Benign lesion	1	19	.70
NMSC	1	20	.90
Mean CVI	.93	Mean CVI	.95

Note: CVI scores under .70 are boldfaced.

Table 5.

Content Experts' Content Validity Index (CVI) on Attitudes, Confidence, and Practice Items.
(N=7)

Attitudes Dermatology Education, Role, and Confidence Items	CVI
1	1
2	1
3	.70
4	1
5	1
6	1
7	.90
8	1
9	1
10	1
11	1
Discussing pathology results	**.60**
13	.90
14	1
15	1
16	1
17	.90
18	1
19	1
20	1
Mean CVI	.95

Practice Items	CVI
1	1
2	1
3	1
4	1
5	.90
6	.70
7	1
8	1
9	1
10	.70
11	.70
12	.85
13	.70
14	.85
15	1
16	1
17	1
18	.70
19	1
20	1
Mean CVI	.90

Note: CVI scores under .70 are boldfaced.

Phase III: Instrument Reliability and Validity

In Phase III, the instrument was tested for reliability and validity. The surveys were sent

to primary care NPs throughout country. One hundred and eleven participants responded and

were entered into the study.

Participants' Demographics. Demographics of the sample showed a variation of practice

specialties, degrees, and practice settings. Females were the majority of the participants, had a

masters degree and were board certified. Most participants practiced with a collaborating

physician in a private practice or "other" setting (Table 6).

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Table 6.

Frequencies and Percentages of Nurses by Gender, NP Specialty, Board Certification, Highest Degree, Highest Nursing Degree, Practice Description, and Practice Supervision. (N=111)

Variables	Frequencies	Percentages
Gender		
Female	101	95
Male	5	5
NP Specialty		
Family	73	70
Adult	21	20
Primary Care	7	7
Geriatric	3	3
Other	1	1
Board Certification		
Yes	105	99
No	1	1
Highest Degree		
Masters	85	81
Doctorate	18	17
Bachelors	2	2
Highest Nursing Degree		
MSN	87	82
PhD	7	7
DNP	7	7
BSN	2	2
Practice Description		
Private Practice	45	43
Other	42	40
Hospital	13	13
University	6	6
Practice Supervision		
Collaborative	87	83
Independent	17	16
Other	1	1
Own Practice		
No	95	91
Yes	9	9

Table 7 shows Participants' ages ranged from 28 to 68 years, and the mean age was 50 years old. Years of practice ranged from 1 to 36 years, and the mean number of practice years was 11.

Table 7.
Means and Standard Deviations of Nurses' Age and Years of Practice. (N= 111)

Variable	Range	Mean	Standard Deviation
Age	28- 68	50	10.6
Years of Practice	1- 36	11	8.7

In Table 8, the sample consisted of participants from 26 states. While the sample represented multiple states, the majority of the sample consisted of participants from Florida.

Table 8.
Frequencies and Percentages of State of Practice. N=111

State	Frequency	Percentage
Florida	63	57
Texas	8	9
Minnesota	4	4
Massachusetts	3	3
Maine	2	2
New Jersey	2	2
New York	2	2
New Hampshire	2	2
Oregon	2	2
Pennsylvania	2	2
Alabama	1	1
Arizona	1	1
California	1	1
District of Columbia	1	1
Georgia	1	1
Idaho	1	1
Indiana	1	1
Missouri	1	1
Montana	1	1
North Carolina	1	1
Ohio	1	1
Nevada	1	1
South Carolina	1	1
Virginia	1	1
Washington	1	1
Military Hospital	1	1

Results of Knowledge Items. Frequency of correct answers of photo identification

knowledge items demonstrate difficulty with determining benign versus malignant lesions (Table

9). Overall, wrong scores tended toward identifying benign lesions as skin cancer. Forty-seven to

seventy-six percent of the participants were able to identify melanoma lesions.

Table 9.

Frequencies and Percentages of Correct Knowledge Photo Identification Items. (N=111)

Photo #	Item	Frequency	Percentage
6	Melanoma	86	76
14	Melanoma	82	74
8	Benign lesion	74	67
13	Benign lesion	73	66
5	Benign lesion	70	63
18	Benign lesion	70	63
2	Non-melanoma Skin Cancer	69	62
7	Non-melanoma skin cancer	67	60
17	Benign lesion	62	56
1	Precancerous	61	55
15	Benign lesion	61	55
20	Non-melanoma skin cancer	51	46
11	Melanoma	52	47
9	Non-melanoma skin cancer	45	41
16	Non-melanoma skin cancer	45	41
12	Non-melanoma skin cancer	33	30
19	Benign lesion	33	30
3	Benign lesion	29	26
4	Benign lesion	24	22
10	Non-melanoma skin cancer	24	22

In the photo identification knowledge subscale, the participant identified a treatment option

based on the diagnosis selected. Frequencies of these applied treatment options revealed higher

percentages for "refer to specialist" option (Table 10). Regardless of the participants' right or

wrong answers, benign lesion or skin cancer, they state that they would still refer the patient.

Table 10.

Frequencies and Percentages of Applying Treatment Options: Cryotherapy, Biopsy, Refer to Specialist and No Treatment Necessary based on diagnosis selected for Knowledge Photo Identification Items. (N=111)

Lesion	Biopsy		Cryotherapy		Refer Specialist		No Treatment	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Precancerous	23	21	33	30	37	33	15*	14
NMSC	53	48	5	5	49	44	3*	3
Benign lesion	21*	19	0	0	57	51	30	27
Benign lesion	32*	29	11	10	63	57	3	3
Benign lesion	24*	22	4	4	35	32	45	41
Melanoma	24	22	1	1	74	67	10*	9
NMSC	20	18	1	1	87	79	1*	1
Benign lesion	18*	16	19	17	38	35	34	31
NMSC	37	33	5	5	63	57	3*	3
NMSC	28	25	34	31	36	32	12*	11
Melanoma	17	15	0	0	57	51	35*	32
NMSC	37	33	7	6	44	40	22*	19
Benign Lesion	14*	13	15	14	20	18	60	54
NMSC	31	28	0	0	71	64	9*	8
Benign Lesion	35*	32	2	2	29	26	39	35
NMSC	28	25	12	11	31	28	39*	35
Benign Lesion	18*	16	10	9	35	32	46	41
Benign Lesion	17*	15	1	1	46	41	46	41
Benign Lesion	25*	23	17	15	52	47	14	13
NMSC	23	21	4*	4	84	76	0	0

Note: * Least Desirable Treatment Option; NMSC= Non Melanoma Skin Cancer

Participants scored higher on general knowledge items than the photo identification knowledge items. The frequencies for the number of correct answers for per item scores ranged from 29 to 89 (Table 11). The highest score was seen with the item asking the sites for melanoma metastasis and the lowest score was seen with the item asking the risk factors of squamous cell carcinoma.

Table 11.

Frequencies and Percentages of Correct General Knowledge Items. (N=111)

Item	Item Content	Frequency	Percentage
GK14	Sites for melanoma metastases	89	80
GK6	Facts on Mohs surgical procedure	85	77
GK9	Risk factors for melanoma	84	76
GK2	Skin cancer with highest incident rate	82	74
GK1	Skin lesions that metastasize	81	73
GK7	Sentinel lymph node biopsy indications	79	71
GK4	Proper biopsy technique for a pigmented lesion	72	65
GK10	Fastest growing incidence of skin cancer 15-29 yrs. old	62	56
GK11	Primary melanoma sites	60	54
GK13	Types of melanoma	53	48
GK12	Where basal cell has the ability to infiltrate	49	44
GK3	Melanoma treatment	48	43
GK5	Frequently used treatments for actinic keratoses	48	43
GK8	Risk factors for Squamous cell carcinoma	29	26

Results of Attitudes Items. The results of the attitudes towards dermatology education

subscale show that the participants perceived a deficiency in NP program dermatology

education (Table 12). Eighty-four participants did not agree that the dermatology training they

received prepared them for practice. The majority of participants disagreed that they received

education on dermatology procedures like cryotherapy or biopsies.

Table 12.

Frequencies, Means and Standard Deviations (SD) of Strongly Disagree or Disagree
Responses for Attitudes Regarding Dermatology Education and NP
Curriculum Subscale. (N=111)

Item Name	Item Content	Frequency	Mean	SD
Att Edu 1	Dermatology training prepared me for practice.	84	1.8	.8
Att Edu 3	Educated on skin biopsy techniques in NP program.	79	1.5	1
Att Edu 4	Educated on cryotherapy in my NP program.	71	1.7	1
Att Edu 2	Educated on skin cancer exams in my clinical rotations or classes in my NP program.	51	2.3	1
Att Edu 6	Received training on skin cancer exams or dermatology procedures from my supervising or collaborating physician	49	2.3	1
Att Edu 5	Supplemented dermatology education with dermatology workshop or conference.	25	2.5	1

The results of the attitudes towards NP role regarding the skin cancer assessments

subscale show that the majority of participants reported that it was important to look for skin

cancers when examining the patient and that it was their responsibility to educate patients on

skin cancer (Table 13). One hundred and five participants responded that it was their

responsibility to know how to do a full body exam and 97 participants stated that lack of time is

a barrier to performing a full body skin exam.

Table 13.

Frequencies, Means, and Standard Deviations of Strongly Agree or Agree Responses for Attitudes Regarding NP Roles in Dermatology Subscale.. (N=111)

Item Name	Item	Frequency	Mean	Standard Deviation
Att Role 2	It is important to look for skin cancers when examining any patient.	110	4	.5
Att Role 5	It is my responsibility as a health care provider to educate patients on skin cancer prevention and encouraging annual skin cancer exams.	110	4	.5
Att Role 4	It is my role as a primary care provider to discuss with patients the importance of performing self-skin exams.	106	3	.7
Att Role 1	As a primary care provider, I feel it is my responsibility to know how to do a full body skin exam.	105	3	.6
Att Role 3	I find that one of the barriers to performing a full body skin exam is lack of time.	97	3	.7

The participants' confidence levels with dermatology practice varied widely. The majority of the participants did not agree that they felt confident performing dermatology procedures and most would perform biopsies even if they had training (Table 14). Participants did not feel more comfortable with skin cancer assessments after years of practice.

Table 14.

Frequencies, Means and Standard Deviations (SD) of Strongly Disagree or Disagree
Responses for Confidence Subscale. (N=111)

Item	Item	Frequency	Mean	SD
Conf 14	I felt more confident performing biopsies or cryo therapy from education received in NP program.	91	3	1
Conf 13	Upon graduation, I felt more confident practicing basic dermatology skin exams from education received during NP program.	89	1	.8
Conf 9	I am confident discussing melanoma diagnosis and treatment options with a patient.	85	2	.9
Conf 4	I find it difficult to identify abnormal moles during an exam.	65	3	.6
Conf 10	I feel confident performing full body skin exams on adolescents or young adults who have many moles.	61	3	1
Conf 3	I am confident that I can accurately identify most non-melanoma skin cancers.	58	2	.6
Conf 8	I feel confident when discussing non-melanoma skin cancer diagnoses and treatment options with a patient.	55	2	.8
Conf 1	I do not feel confident performing full body skin exams	53	3	.8
Conf 5	I am confident that I can identify a melanoma during a skin exam.	51	3	.8
Conf 2	I am afraid to miss a skin cancer so I refer to a dermatology specialist.	38	2	.7
Conf 11	I attended educational programs to help me feel more confident performing skin cancer exams or dermatologic procedures after graduating NP program.	33	3	.9
Conf 12	I became more confident performing skin cancer exams as I became experience in practice.	28	2	.8
Conf 15	Sometimes I am uncertain about what the best biopsy technique may be for a suspicious mole	16	3	1
Conf 6	I would perform biopsies if I had the training.	13	3	.9
Conf 7	If I do not understand a pathology result, I feel comfortable discussing it with a dermatology specialist.	10	3	.9

Results for Practice Items. The results for the practice subscale show that the majority of

the participants refer their patients to a dermatology specialist for skin cancer assessments if they

are unable to perform them (Table 15). The lowest frequencies were seen with performing of

dermatology procedures and the highest scores were seen in skin cancer education.

Table 15.
Frequencies, Means and Standard Deviations (SD) of Strongly Agree or Agree
Responses for Practice Subscale. (N=111)

Item Name	Item	Frequency	Mean	SD
Practice 20	I educate my patients on sun protection, including sunscreen and clothing protection.	110	3	0.9
Practice 19	I talked to my patients about skin cancer risk factors.	108	4	0.5
Practice 2	I refer patients to a dermatology specialist for skin cancer exams if, for whatever reason, I am unable to do it.	102	2	1
Practice 3	When I perform the full body skin exam, I talk to the patient about the findings of my exam.	96	3	1
Practice 7	I discuss with my patient biopsy results that come back as skin cancer.	81	3	1
Practice 1	I refer full body skin exams to a dermatology specialist.	79	3	0.7
Practice 6	When I do focused exams on a patient, I look for abnormal lesions.	79	3	0.6
Practice 5	I have my patients remove their clothing prior to performing a skin cancer exam.	79	3	1
Practice 11	I choose not to biopsy lesions on the face, ears, nose or scalp.	78	3	1
Practice 4	I perform a full body skin exam during my annual physicals.	61	3	1
Practice 8	I have access to a dermatopathologist to evaluate my skin biopsies	48	2	1
Practice 10	I question pathology results that do not correlate with my clinical diagnosis.	55	2	1
Practice 14	I perform cryo therapy on pre-cancerous lesions (AKs).	50	2	1

(continued)

Table 15. *Frequencies, Means and Standard Deviations (SD) of Strongly Agree or Agree Responses for Subscale Practice. (N=111) Continued*

Item Name	Item	Frequency	Mean	SD
Practice 15	I perform skin biopsies if indicated.	46	2	1
Practice 16	I use topical medications like 5 FU, Fluorouracil, or Imiquimod to treat AKs, superficial SCC or BCC.	33	2	1
Practice 17	I perform excisions, cryotherapy, or electrodessication/curettage to treat non- melanoma skin cancer.	32	1	1
Practice 9	I discuss treatment options for melanoma and non-melanoma skin cancer with my patient.	37	2	1
Practice 12	I have used cryotherapy on pigmented lesions.	22	2	1
Practice 18	I perform excisional biopsies on lesions suspicious of melanoma	19	4	0.6
Practice 13	I have used cryotherapy on a lesion even though I was uncertain of the diagnosis of the lesion.	17	2	0.5

Phase III: Validity and Reliability

In Phase III, construct validity was evaluated by using exploratory factor analysis. Internal consistency of the newly developed subscales was evaluated by Cronbach's Alpha to describe internal consistency.

Validity. Construct validity was assessed using factor analysis. Factors with a loading criterion of .30 or above were retained. In order to determine if a factor analysis can be evaluated, a determinant, Kaiser-Meyer-Olkin test and Bartlett's test of Sphericity were performed. A determinant = 1.002 demonstrates that we have a correlation matrix, not an identity matrix. The Kaiser-Meyer-Olkin of .75 demonstrates that the correlation matrix has enough redundancy to explore underlying factors. Bartlett's test of Sphericity results include a Chi-Square 2900.473 with degrees of freedom of 1035 and a P value of .000. Based on the Chi

Square and P Value, we can reject the null hypothesis that the correlation matrix is an identity matrix (Tabachnick & Fidell, 2007).

Table 16 lists the exploratory factor analysis for all of the subscale items. Besides practice, three underlying factors are present which include confidence in practice, confidence relating to education, and NP Role in Practice.

Table 16.

Factor Loadings for Exploratory Analysis with Varimax Rotation of All Scale Items

Item	Practice	Confidence in Practice	Confidence Relating to Education	NP Role in Practice
KAP55 Prac	**.783**	.180	.212	-.063
KAP53 Prac	**.743**	.155	.063	-.109
KAP57 Prac	**.741**	.139	.073	.102
KAP58 Prac	**.728**	.061	.089	-.148
KAP54 Prac	**.687**	.212	.234	.030
KAP46 Prac	**.681**	.080	.276	**.350**
KAP52 Prac	**.665**	.200	.040	-.076
KAP51 Conf	**.573**	.129	-.281	.161
KAP50 Prac	**.523**	.077	-.076	.197
KAP48 Prac	**.514**	.067	**.466**	.274
KAP49 Prac	**.504**	.068	**.419**	.261
KAP47 Prac	**.489**	-.100	**.351**	.131
KAP56 Prac	**.483**	.261	.263	-.064
KAP6 Att Edu	**.349**	**.321**	.269	-.021
KAP2 Att Edu	.045	**.696**	-.123	**.301**
KAP4 Att Edu	.293	**.691**	-.096	.084
KAP1 Att Edu	-.013	**.690**	-.114	.086
KAP39 Conf	.055	**.664**	.146	.113
KAP27 Conf	.153	**.619**	**.348**	.217
KAP25 Conf	-.062	**-.613**	**-.569**	-.064

(Continued)

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Table 16.

Factor Loading Analysis of All Scale Items (Continued)

Item	Practice	Confidence in Practice	Confidence Relating to Education	NP Role in Practice
KAP43 Prac	.208	**.605**	**.398**	**.301**
KAP3 Att Edu	**.318**	**.584**	-.088	-.035
KAP38 Conf	.276	**.560**	**.480**	.070
KAP44 Prac	**.320**	**.560**	**.306**	**.305**
KAP40 Conf	**.340**	**.539**	-.007	-.144
KAP34 Conf	.146	**.457**	.278	.135
KAP42 Prac	.241	**.451**	.249	**.359**
KAP28 Conf	.066	**-.443**	**-.406**	-.030
KAP24 Prac	-.249	**-.405**	**-.327**	-.083
KAP29 Conf	.013	**.397**	.140	.035
KAP32 Conf	.172	.183	**.607**	.291
KAP33 Conf	.100	.023	**.584**	.013
KAP26 Conf	-.151	**-.439**	**-.535**	.118
KAP5 Att Edu	**.413**	.284	**.492**	.045
KAP37 Conf	**.409**	.158	**.485**	.202
KAP31 Conf	-.212	-.042	**.381**	.247
KAP45 Prac	**.314**	-.002	**.380**	.192
KAP35 Att Role	.116	.182	.216	**.688**
KAP36 Att Role	.020	.110	.141	**.667**
KAP22 Att Role	.092	.147	.060	**.644**
KAP60 Prac	.032	.153	.240	**.637**
KAP59 Prac	.004	.163	**.441**	**.610**
KAP21 Att Role	-.016	**.365**	-.011	**.580**
KAP41 Prac	-.094	-.242	.032	**.459**
KAP30 Conf	.228	.055	-.021	**.356**
KAP23 Att Role	-.044	-.047	-.211	**.342**

Note: Factor loading >.30 are in boldface.

Reliability. Cronbach's Alpha was used to describe internal consistency for the new subscales.

The alpha for the Practice subscale was .89. The alpha for the Confidence in Practice subscale

was .77, and with the deletion of item KAP 25 Confidence, the alpha score increased from .77 to

.82. The alpha for the Confidence Relating to Education was .54 and with the deletion

of item KAP 26 Confidence, the alpha increased to .70. NP Role in Practice subscale had an

alpha of .73 and the knowledge subscales both had alphas of .50. No items were identified for

deletion that could raise the alpha. The alpha for the knowledge scale did not meet the acceptable

level of .70, but expected due to the diversity and variation of the knowledge being tested.. The

low score of .50 does not mean that the scale is inadequate, but shows a measure of multiple

levels of knowledge relating to melanoma, non-melanoma skin cancer and benign lesions.

Table 17.
 Cronbach's Alpha for Practice, Confidence in Practice, Confidence Relating to Education, and

Subscale	Items	Alpha	Alpha with Deleted Item
Knowledge			
Photos	20	.50	
General Facts	14	.50	
Attitudes			
Confidence in Practice	16	.77	.82 KAP25 Confidence
Confidence Relating to Education	7	.54	.70 KAP26 Confidence
NP Role in Practice	9	.73	
Practice	14	.89	

Chapter Five: Discussion, Implications and Conclusions

This chapter presents the discussion, implications and conclusions of all three

phases of the study. It also presents discussions on implications for clinical practice, formal and

continuing education, and future research.

Phase I: Focus Group Interviews

Sample. The purposive sample consisted of mainly female primary care nurse

practitioners, practicing in private practice. The setting for the focus groups was limited to two

states, Florida and Massachusetts. These states were chosen to insure some diversity in the

responses of the two groups of primary care providers. Most Floridian providers have open

access to dermatology care and have patient populations with higher incidences of skin cancer.

Massachusetts providers state that they have very limited dermatology resources.

It was expected that the Massachusetts providers would show that more skin cancer

assessments were being performed in their practice setting based on this limitation. However,

data analysis of the transcripts did not prove this to be true. Both groups expressed the same

common issues with lack of education, low confidence, and lack of time to perform the skin

cancer exam. While the beginning data received from the focus groups gives an indication that

accessible dermatology resources may not play a role as an incentive for NPs performing more

exams, more focus group interviews with participants from other regions would be needed to

explore the possibility that the lack of dermatology resources is a motive for more

comprehensive dermatology care in the primary care setting.

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The highest barrier to performing exams identified by the focus groups was lack of confidence. Participants stated that they had "low to no confidence" when it came to identifying lesions and performing basic dermatology procedures. Most participants answered that they were not prepared for dermatology care in their nurse practitioner programs, but were willing to attend or had attended a dermatology educational program or workshop to improve their skills. Regardless of their level of confidence or dermatology education, the majority of participants said that they referred patients to the dermatology specialist for dermatology skin cancer assessments and dermatology procedures. Finally, the focus group interview participants stated that time constraints prevented them from performing skin cancer assessments. With the pressures of productivity to see more patients in a day, there is a challenge of scheduling extra time to accommodate the skin cancer exam. This is consistent with earlier studies (Furfaro, Bernaix, Schmidt, & Clemens, 2008; Oliveria et al., 2011) who cite time constraints as a barrier to skin cancer screenings. The majority of the participants felt comfortable with identifying suspicious lesions during a focused exam.

The results indicate that skin cancer assessments are not performed routinely in the primary care settings where these NPs practiced. While it is understandable that full body skin cancer assessments cannot be performed during focused patient visits, there is a need for the primary care provider to take the opportunity to identify abnormal skin lesions in exposed areas during any patient encounter. This may prove critical in the early detection of skin cancer and improving patient outcomes because the primary care provider may be the first or only contact the patient has with a health care provider.

The overall goal of this study was to develop a valid and reliable instrument that will be used to identify the knowledge, attitudes and practices of primary care NPs regarding skin cancer assessments. It is important to have a tool that may lead to understanding the strengths and deficits with education, attitudes on the NP role, NP confidence with dermatology care, and barriers in practice relating to skin cancer assessments. Results of the focus groups were used to develop a blueprint for a new assessment tool.

Limitations. Several limitations of the phase I study exists. The sample size was small and consisted of only two geographical locations. The sample consisted of mostly female participants, with an average age of 50 years old and 9 years of practice in a primary care setting. Socio-economic, education, and health care resources may have vary within the sample as compared to other NPs throughout the country. The selection of the sample was purposive and may differ from those in other randomly drawn populations in other geographical regions. This will limit the generalizability of the results. An additional bias and perhaps most significant, the researcher is also a dermatology specialist and NP provider. Bias may have affected the dialogue between participants and researcher in fear of perception of not doing what may be expected as an NP or having knowledge and skills regarding dermatology care.

Phase II: Instrument Development and Content Validity

Knowledge, attitude and practice surveys are frequently used in exploring interventions that will implement change in clinical practice. The KAP-SCA was created based on a blueprint developed with domain objectives, data from the focus group interviews, and a review of literature. The knowledge subscale included both knowledge and comprehension items in the General Knowledge section as well as application items in the Photo Identification section. It is important to ascertain both whether these NPs knew important facts and how to apply the information to actual skin lesions. The attitudes subscale will evaluate whether NPs feel about their dermatology education in their NP curriculum, their role regarding skin cancer assessments and their confidence relating to dermatology care and procedures. The practice subscale will evaluate the practice of primary care NPs relating to skin cancer assessments, dermatology procedures and patient education.

Content validity of the first draft of the KAP-SCA was evaluated by a group of content experts using a content validity index. The items were evaluated by a total of seven primary care

and dermatology content experts. Results showed three items receiving CVI scores of .60 and the instrument was revised based on the recommendations of these experts. Experts identified one photo of a benign pigmented lesion as too difficult to diagnose, so it was changed to a more commonly seen lesion that was a non-melanoma skin cancer. In the attitude subscale, an item relating to the NP confidence related to interpreting dermatopathology results was also revised because three experts responded that the item did not meet the domain objective to measure NP practice relating to pathology.

A general skin cancer knowledge item involving melanoma treatment received a score of .60, but this item was retained due to the researcher's opinion that the results will help guide future educational initiatives. Two of the content experts responded that they were unsure whether primary care NPs would be able to answer the item relating to melanoma treatment. Subsequently, during Phase III, only 48 of the NPs in the sample of 111 were able to answer the question correctly, supporting the opinion of the experts. However, during the reliability study, the Cronbach's alpha did not increase significantly when this item was deleted, indicating that it consistently measured as other items did. Thus, it was retained in the scale.

Additional changes included revising the answer choices from specific diagnoses of basal cell, squamous cell, melanoma, or dysplastic nevi to a general category of non-melanoma skin cancer, melanoma, or benign lesion. Treatment options based on diagnoses were also included. When this draft of the scale was completed, it was subjected to further study during Phase III.

Limitations. Content experts consisted of 4 primary care NPs, 2 dermatology NPs, and 1 dermatology MD all from Florida. Evaluation of items and responses from the experts may vary based on geographical location of experts, years of practice, educational level and practice experiences. A deficit noted at the conclusion of the study was that a primary care physician was

not included in the group of experts. Being that content validity and CVI was also used for the reliability of knowledge subscale, further studies to evaluate the instrument's reliability is warranted.

Phase III: Instrument Validity and Reliability

Sample. The study goal of 300 participants was not met. Over 20,000 emails and mailed surveys were sent throughout the country. In addition, information on the survey was distributed to over 1,500 NPs at the American Association of Nurse Practitioners meeting. The survey was also posted on the website of the National Academy of Dermatology Nurse Practitioners. In the development of an instrument, a large and diverse sample size is needed for data analysis, but the response rate was less than 1%. The sample size of 111 participants is considered fair, therefore the study findings cannot be generalized to all primary care nurse practitioners.

Comments received from NPs who were given information on the survey included that they were too nervous to take a dermatology test and that they were sure they would fail. Many expressed that they wished they knew more about dermatology and that they felt dermatology care was very difficult and stated that it gave them "*anxiety*". This may have been a factor that impacted the response rate. In addition, the surveys have a total of 80 items, so completing the questionnaires was a daunting task. This may have implications for future use of the KAP-SCA. While dermatology care relating to skin cancers assessments includes many diverse factors that influence knowledge, attitudes and practice, future studies may include revising the instrument to a more parsimonious tool.

The majority of the participants in Phase III were female and living in Florida. While the majority of the United States was represented, the participants enrolled from each state were two or less. Geographical location may significantly impact results because of varying

socioeconomic, cultural patient populations, provider attitudes and practice and resources available to provider and patient; thus this might have biased the results to some unknown degree.

Validity. Factor analysis is a widely accepted method of studying construct validity (Waltz et al, 2010). Exploratory factor analysis with Varimax rotation evaluated items from the attitudes and practice subscales. After evaluating the factor loadings, the four subscales were named practice, confidence with practice, confidence relating to education, and NP role in practice. These four subscales included a mix of items from the two previously hypothesized subscales of attitudes and practice (knowledge was not included in the analysis) and were markedly different from the original two. Items from the practice, confidence, and attitudes subscales loaded on the "practice" factor. Two underlying factors were noted within the attitudes subscale: confidence with practice and confidence relating to education. Items from the attitudes on education, confidence and practice subscales loaded on the "confidence in practice" factor. Items from the confidence, attitudes on education, and one item from the practice subscales loaded on the "confidence relating to education" factor. Items from attitudes on role, practice, and confidence subscales loaded on the "NP role in practice" factor.

The factor loadings show association among attitudes, confidence and practice. This supports Bennett's Change Model (Chapter II) that posits that knowledge, attitudes, and levels of confidence impact practice.

Knowledge Subscales. Although the attitude and practice subscales were subjected to factor analysis to evaluate construct validity, the knowledge subscale was not included in that analysis. However, building the scale based on the blueprint and confirming content validity using a panel of experts was an important step. Although there were a few problem items identified in the CVI

that was conducted, the overall CVI for the subscale was high for both Photo Identification aspect (CVI=.93) and the General Knowledge items (CVI=.95). This provides strong support for the content validity of this knowledge test.

Attitudes Subscales. Factor analysis greatly impacted the attitudes subscales. Results identified three attitude underlying subscales. The new subscales were named "Confidence in Practice", "Confidence Relating to Education", and "NP Role in Practice".

The results of the factor analysis for Confidence in Practice item loadings ranged from .397 to .696. Most of the items for this factor related to education and confidence with mid to high loading coefficients. The second new subscale identified by the factor analysis was Confidence Relating to Education. Factor loadings ranged from .380 to .607. Most of the items for this factor related to confidence and had low to mid loading coefficients. These items will be evaluated for deletion in order to make KAP-SCA less burdensome for the participant. The third new subscale created by the factor analysis was NP Role in Practice. The factor loadings ranged from .342 to .688. Most of the items for this factor related to the NP role and the majority had mid to high loading coefficients.

Results of the new subscales reinforced the need for more education in NP curriculum. The majority of the participants responded that they were not adequately prepared for basic dermatology care or basic dermatology procedures even though almost the entire sample (n=110) felt it was their responsibility to know how to perform skin cancer assessments. When evaluating the KAP-SCA for improvement and to make it more parsimonous, deleting items relating to education and the role of the NP in practice could shorten the length of the survey. This would make the most sense based on the participants' responses, even though the majority of the factor loading coefficients were mid to high.

Practice Subscale. Results of the factor analysis retained practice as a subscale. Factor loadings ranged from .349 to .783. The items relating to practice demonstrated that they measured the domain objectives relating to practice. Most of the practice items had mid to high loading coefficients under the practice or confidence in practice factors.

Understanding the practice of NPs regarding skin cancer assessments is one of the primary goals of KAP-SCA. All practice items will be retained and results received from these items will help guide future educational initiatives that may lead to impacting practice. For example, only 50 participants responded that they perform cryotherapy and only 33 participants use pharmaceutical treatments for AKs. Targeting education to improve skills may prevent lesions from progressing into squamous cell carcinoma.

Reliability

Knowledge Subscales. Internal consistency of the knowledge subscale was evaluated using Cronbach's alpha. Resulting alpha coefficients were low for both knowledge subscales (alpha=.50). No item was identified that could be deleted that would raise the alpha. Cronbach's alpha is a reflection of all of the items measuring the same way (Waltz et al, 2010), and it appears that this was not the case for these subscales. Whether that is a reflection of the differences in the levels of difficulty of the various items or whether the NPs were answering randomly because they knew so little is unclear. Further study is warranted.

The low Cronbach's alpha for the general knowledge items (.50) was probably to be expected given the lack of knowledge of the sample. As with the photo identification items, the high level of variation among the items contributed to the low Cronbach's alpha. Again, no item was identified that would raise the alpha score if deleted.

Confidence in Practice. The Cronbach's alpha for the items was .77. Deletion of item KAP25 Confidence would raise the alpha to .82. This item stated "I do not feel confident performing skin exams". Fifty-three participants (n =111) responded that they strongly disagree or disagree to this item. Although this result is higher than expected, it supports results found in the focus group interviews. Even though the deletion of this item increased the alpha by .5, it will be deleted to make the instrument more parsimonious.

Confidence Relating to Education. The Cronbach's alpha score was .54. Items were evaluated for deletion in order to raise the alpha. With the deletion of item KAP 26 Confidence, the alpha increased to .70. The item content stated "I am afraid to miss a skin cancer so I refer to a dermatology specialist". Revision of the KAP-SCA will include the removal of this item.

NP Role in Practice Subscale. The Cronbach's alpha was .74 showed high internal consistency and no item was identified to delete that would raise the alpha. Previous studies show that NPs understand that they have a role in skin cancer prevention, education, and detection. The results show that the majority of NPs have a positive response towards their role in skin cancer assessments. While, results show that they are confident in their skin assessment skills, they do not perform the exam due to multiple factors. Christos et al (2004) and Wender (1995) reinforce this studies results with barriers to practice and showing that skin cancer detection is a low priority for primary care providers. Helping overcome these barriers and deficits is skills may improve the compliance with skin assessments.

Items relating to the NP role will be considered for deletion based on the results that there is no question that NPs understand what their role is in practice. This will help reduce the number of items within KAP-SCA.

Practice Subscale. The Cronbach's alpha for the practice subscale was .89 showed high internal consistency and no item was identified to delete that would raise the alpha. Practice items will remain within the survey and the results showing the strengths and deficits in practice are important for the future research and educational initiatives. For example, results showed that NPs do not treat pre-cancerous lesions like actinic keratosis (AKs). However, Van Rijsingen, Van Bon, Van der Wilt, Lagro-Janssen, & Gerritsen (2014) show that general practitioners are treating AKs and performing cryotherapy.

Other Findings

Knowledge Subscales. Results for photo identification knowledge items showed the lowest scores with the benign lesions which these NPs tended to identify as malignant. The highest scores seen were with the identification of melanoma lesions. When evaluating the incorrect answers for the benign lesions, it appears that many of the participants chose melanoma as an answer for most of the pigmented lesions. This may indicate an overall guess of the item based on general pigmentation of the lesion and not atypical appearance.

The overall results for general skin cancer knowledge varied with percentages of correct answers to individual items ranging from 26% to 80% of NPs answering correctly. Lowest scores were seen with an item relating to squamous cell carcinoma risk factors and the highest scores were seen with an item relating to metastatic sites for melanoma. Application of knowledge in the photo lesion identification showed a lack of ability to distinguish benign lesions from malignant lesions. Application of knowledge also was evaluated by the selected treatment option. Regardless of the diagnosis, including benign or pre-cancerous lesions, the majority of the participants selected to "refer to a specialist". This may indicate a lack of confidence on their choice of diagnosis. Based on the focus group interview, there are areas in

the country, for example Cape Cod, Massachusetts, who have limited resources for a dermatology referral and experience wait times in access of six months. Emily Tierney, MD (2012), a dermatologist in Cape Cod, writes that she recognizes high incidence of skin cancer and the extreme shortage of dermatologists in this area. She is actively recruiting for more dermatologists to meet the need in this area. Results demonstrate a need to focus future educational efforts on all aspects of identifying non-melanoma and melanoma skin cancers, risk factors, and treatments. In addition, educational programs need to include competencies on distinguishing benign lesions versus skin cancers. This may lead to reducing unnecessary and costly dermatology referrals. In addition, adding educational initiatives that includes basic procedures like a shave or punch biopsy should be included in the NP curriculum. NPs promote that are on the front lines of health care. Being prepared for basic dermatologic procedures is not unreasonable expectation and are included in other health care provider programs. It will be then left up to the NP provider to continuing the development of these skills and whether they will perform them. Oliveria (2002) research supports that nurse practitioners have shown interest in cancer prevention, but are not consistently performing cancer screenings. They conclude that diagnostic skills and confidence need to be improved with educational initiatives.

      Confidence in Practice. Mikkilineli et al. (2001) discussed confidence and how it can limit practice. Sixty-five participants disagreed that they had difficulties with identifying abnormal moles. Fifty-eight participants responded that they disagree with being confident with identifying non-melanoma and fifty-one participants disagreed with being confident with identifying melanoma skin cancers. Based on the knowledge results, specificity of lesion identification did not increase with clinical experience and confidence in practice may not be an indicator on how well a participant scores on the knowledge subscales. Focusing educational

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initiatives to increasing performance on knowledge items should begin in the early stages of the NPs curriculum and career. Targeting not just melanoma and non-melanoma skin cancers, but also benign lesion characteristics that will help them differentiate between the different diagnoses.

Confidence Relating to Education. Most participants agreed that they were not confident with basic dermatology exams based on the education they received during their NP program. Mandatory dermatology rotations with dermatology specialists might increase confidence with performing the exam and identifying basic skin lesions. Hristakieva (2003) supports the training programs that increase proficiencies in skin assessment and skin disease management, especially in the elderly where the burden of disease is the highest.

Deficiencies with dermatology education in NP programs were noted in the results of the attitudes subscale. Eighty-four participants selected that they disagreed on being prepared for dermatology practice, over 70 participants disagreed about receiving education on biopsy or cryotherapy procedures, and 51participants disagreed about being educated on skin cancer exams during their NP clinical rotations. Most participants sought dermatology education outside of their NP programs. These results were not unexpected, but one may question why these deficiencies in dermatology education in NP curriculum exist when skin cancer has been declared a national epidemic and the majority of NPs seek this knowledge outside of their program. Many NPs will admit that dermatology education was very limited or non-existent during their training and want more of it.

NP Role in Practice. The results of the NP role items showed 110 participants agreed that it was their responsibility to know how to perform a skin assessment. One hundred and ten participants indicated that it is important to look at the skin when examining the patient. The

majority of the NPs indicated that it is important to discuss skin self-exams and skin cancer prevention with their patients. It is encouraging that NPs feel that they should be performing exams and educating their patients, but overcoming barriers to actually performing the skin assessments will prove to be critical for improving patient outcomes.

Practice Subscale. One hundred and ten participants (n=111) felt it is important to look for skin cancers when examining the patient. Yet, only 61 participants stated they perform full body skin assessments during their annual physicals. As reported by Furfaro et al. (2008) time limitations was the most significant barrier. Results of this study support this finding with ninety-seven participants who felt that "lack of time" was a barrier to performing skin cancers. With experience and confidence, skin cancer exams can be performed quickly and done in minutes. As NPs become more proficient in the exams, this barrier may diminish. One hundred and two participants stated they would refer out for a skin exam if they were unable to do it, but in areas with limited dermatology resources, this may not be practical. While participants admit that skin cancers are part of their role as primary care providers, based on the results, less than half of the participants perform a full assessment and 79 participants stated they have the patients remove their clothes for the exam.

Sample. Participants' age and years of practice were evaluated for any effects on the participant's knowledge, attitudes and practice towards skin cancer assessments. The photo identification knowledge responses did not show that participants with more practice experience had a higher frequency or percentage of correct answers. Most of the participants were female, with a masters degrees and practiced in private practice and "other" settings. Even though most of the participants were from Florida, the scores were consistent throughout the national sample.

Future studies should explore other regions and focus on factors that may influence knowledge, attitudes and practice.

Implications Clinical Practice

Patient outcomes are dependent of the early detection of skin cancer. The role of the primary care NP must include comprehensive dermatology care and being vigilant at all times to recognize an abnormal lesion. In areas that have low dermatology resources, it will be critical to help NPs gain the confidence to identify and diagnose pre-cancerous lesions and skin cancers using basic dermatology procedures like biopsies and cryotherapy. New NP graduates and the experienced NP need to have a foundation in dermatology care. A level of comfort to perform the correct biopsy techniques for a suspicious lesion is needed in cases where a dermatology referral is greater than two to three months and the diagnosis may be melanoma.

The development of the KAP-SCA identifies strengths in NP's and deficits in practice that can be improved upon. Based on the beginning results of this study, improvement is needed in the frequency of skin cancer assessments being performed and the performance of dermatologic procedures by the primary care NPs. For example, NPs stated that they would perform more skin biopsies if they had more training.

Formal and Continuing Education

Workshops focusing on primary and secondary morphology of skin lesions, aspects of skin cancer diagnoses, basics of dermatology diagnostic procedures and treatment, and practicing skin cancer assessments are needed to gain confidence and to gain experience and achieve proficiency. Over 100 participants stated they would perform biopsies if they had the training. With proficiency, an increased number of skin exams should follow, as well as, the early detection of deadly skin cancers like melanoma. This change could result in lives being saved.

Exploring the knowledge, attitudes, confidence and practice of primary care NPs is an important factor for the successful development of educational programs and the KAP-SCA is a reliable assessment scale. Focusing education on increasing the confidence of NPs with skin assessment skills and identification of benign versus malignant lesions in the primary care office will increase early intervention with malignant lesions and reducing unnecessary referrals to a dermatology specialist. Most of the participants stated that they received little to no training in dermatology education in their masters programs. At this time, there are no set standards for dermatology curriculum or competencies. With dermatology disease being greater than 20% of the total primary care visits, leaders in nursing programs such as the American Association College of Nursing may need to evaluate the need to develop standards within NP programs that include skin cancer education.

Dermatology organizations like the National Academy of Dermatology Nurse Practitioners and the Dermatology Nurses Association should collaborate with NP organizations in efforts to bring pertinent dermatology education to all NPs and set standards within NP program curriculum. Educational initiatives need to be evidenced based using valid and reliable instruments that can measure deficits within primary care with regards to dermatology care.

Future Research

There is an identified deficit in dermatology nursing research. While this study is a foundation for further studies on the subject of skin cancer assessments, a continuation of this study is needed to further evaluate the validity and reliability of this instrument with an eye toward revising it as needed to make this tool a more parsimonious instrument. Based on the results, reducing the length of the survey to no more than 30-40 items is warranted to reduce the burden of taking the survey and still maintain the goal of the instrument. Perhaps reducing the

number of photo lesions to 10 items and the removing items relating to education and the role of the NP regarding skin cancer assessments being that the majority (n=110) of the participants responded that they felt that it was their role to provide patients with skin cancer education and skin assessments and 84 participants responded that they did not agree with the item relating to sufficient dermatology education. Focusing on knowledge and practice items will reduce the number of items to less than 30 items.

Further studies should focus on larger and more divers samples by gender, geography and ethnicity to seek insight on the knowledge, attitudes, and practice of NPs regarding skin cancer assessments in other geographical locations. Recognizing the limitations of this study will serve to strengthen the methodology of future research.

Limitations

The sample size for evaluating the instrument validity and reliability is poor. Obtaining an adequate sample size of 300 proved to be a challenge. Many participants responded that they felt anxiety with taking the test and felt that the survey was too burdensome. Over 20,000 surveys were sent throughout the country. Due to the low response rates and financial constraints, it was decided to end the study with 111 participants entered into the study. Most of the participants came from Florida, majority being female, with an average age of 50 years old and 11 years of practice in a primary care setting. Due to the limited geographical locations and variation in socio-economical, educational, and health care resources, and limited sample size, this study cannot be generalized to the population.

Conclusion

In the initial development, the KAP-SCA appears to be a valid tool to evaluate the knowledge, attitudes, education, confidence and practice of primary care nurse practitioners

regarding skin cancer assessments; only the reliability of the knowledge subscale is in question. Further study of this instrument is needed to increase the ability to generalize results. Conducting future studies with this instrument may lead to targeted educational interventions that will impact patient outcomes.

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Appendices

Florida Nurse Practitioner Network

June 15, 2011

Debra Shelby, DNP, ARNP
PhD Candidate, USF

RE: Permission to Conduct Nurse Practitioner Study

Dear Dr. Shelby:

The FNPN Board of Directors has reviewed your request to conduct a qualitative phenomenology study using focus group interviews to gather data that will help gain insight on NPs attitudes, knowledge and practice regarding skin cancer assessments. We are excited to assist you in your research efforts. Specifically, we will send electronic notification to our mailing list to introduce the study along with materials you provide. Members can respond to you directly during our upcoming Conference in July in Orlando, Florida, 2011 or October, 2011 in West Palm Beach, Florida. We understand the project will have IRB approval from the University of South Florida.

The topic you have selected will be of great resource to our organization as well as the newly formed Statewide Coalition of NPs as we represent the leadership of NP for practice related issues.

Please contact us when your study is approved for recruitment.

Sincerely,

Doreen Cassarino, MSN, ARNP BC
President, Florida Nurse Practitioner Network

P.O. Box 25422
Tampa, Fl 33622
www.fnpn.org

Appendix B
Organizational Letter of Support: Massachusetts NP Coalition

June 8, 2011

Attention University of South Florida IRB,

The Cape and Islands Chapter of the Massachusetts Coalition of Nurse Practitioners supports the concept of doctoral qualitative nursing research pertaining to Nurse Practitioners' performance of skin cancer assessments. Our group, therefore, is supportive of inviting members to attend a meeting at which Dr. Shelby will conduct a 45-60 minute focus group interview to gather study data regarding NPs attitudes, knowledge and practice on that topic. Please consider this letter of support for inviting our members to participate in Dr. Debra Shelby's focus group in conjunction with a regularly scheduled monthly coalition meeting.

Yours truly,
Pamela R. Banas, RN, MSN, FNP
Chairman, Cape & Islands Chapter
Massachusetts Coalition of Nurse Practitioners

University of South Florida Research Study
Attitudes, Knowledge and Practice of Nurse Practitioners
Regarding Skin Cancer Assessments

Are you a Family or Adult nurse practitioner practicing in a primary care setting with the ability to perform skin cancer assessments on the adult population?

Practicing at least one year in a primary care setting?

Age 26-65?

Read, write and speak English?

If you answered **YES** to these questions, I would like to invite you to a focus group interview that will explore the attitudes, knowledge and practice of nurse practitioners regarding skin cancer assessments. Length of interview will be approximately 45-60 minutes and will take place at the Florida Nurse Practitioner Network Conference.

Please contact me:

Dr. Debra Shelby, DNP, ARNP, DNC

PhD Candidate, USF College of Nursing

Cell: 772-708-6776

Email: dshelbyicd@aol.com

USF IRB#Pro 4769

The focus group will consist of only 7-9 participants. All participants will receive a $20.00 Visa card for their participation!

Demographic Data Collection Form

Gender:_____

Age:_____

NP Specialty: _____

Board certification: Yes _____   No_____

Highest Degree:_____

Highest Nursing Degree:_____

Years of NP practice:_____

Practice description: Circle one

Private practice   hospital   university   other:_____

Practice supervision: Circle one

Independently   With a collaborative physician

Other:_____

Do you own your own practice? _____

List state where you practice:_____

Appendix E
Focus Group Semi-structured Interview Questions

1.   Describe your typical day at your practice setting

2.   Clinicians have many priorities during their exams. Can you tell me your top priorities
       during an exam? Where does skin cancer screening fit into those priorities?

3.   Do you perform skin assessments during your exam?

4.   If yes, describe your practice.

5.   Are you confident during your exam? How did you gain knowledge and
        confidence?

6.   Describe your educational preparation for performing exam.

7.   Did you feel confident performing skin exams when you graduated?

8.   If not, when did begin to feel confident? What year of practice?

9.   If you don't perform skin exams, describe reason(s) for not performing exams

10.   Describe when you would refer to a dermatology specialist for a skin assessment or
       dermatology condition.

11.   Discuss your skin cancer educational practices for your patients

12.   Describe how important skin cancer assessments are to you.

USF
UNIVERSITY OF
SOUTH FLORIDA

Informed Consent to Participate in Research
Information to Consider Before Taking Part in this Research Study

IRB Study #   4769

You are being asked to take part in a research study. Research studies include only people who choose to take part. This document is called an informed consent form. Please read this information carefully and take your time making your decision. Ask the researcher or study staff to discuss this consent form with you, please ask him/her to explain any words or information you do not clearly understand. We encourage you to talk with your family and friends before you decide to take part in this research study. The nature of the study, risks, inconveniences, discomforts, and other important information about the study are listed below.

We are asking you to take part in a research study called:

Attitudes, Knowledge and Practice of Nurse Practitioners Regarding Skin Cancer Assessments

The person who is in charge of this research study is Debra M. Shelby**.** This person is called the Principal Investigator. However, other research staff may be involved and can act on behalf of the person in charge. She is being guided in this research by faculty mentors. The research will be conducted at The University of Florida's College of Nursing.

Purpose of Study

Early detection and treatment is crucial for the survival of melanoma patients and can be effected by the availability of qualified health care practitioners trained to recognize the early stages of malignancy. The purpose of this study is to gather data that will help gain insight on nurse practitioner's attitudes, knowledge and practice regarding skin cancer assessments. Assessing these factors can lead to interventions that can change nurse practitioner practice regarding skin cancer assessments that can lead to improving patient outcomes.

This study is being conducted by a PhD student whose dissertation is titled: Improving Attitudes, Knowledge and Practice of Nurse Practitioners regarding Skin Cancer Assessments.

This study's data will be part of the dissertation research and will contribute to the development of an instrument measuring Family and Adult nurse practitioners' confidence with skin cancer exams and education.

Study Procedures

If you take part in this study, you will be asked to:

Participant will consent to participate in a focus group with the researcher The focus group will take place at the Florida Nurse Practitioner Network Conference Site or the Massachusetts Nurse Practitioner Coalition Chapter Meeting site. The estimated interview length is approximately 45-60 minutes and will consist of 12 questions with additional questions for clarification, if needed. Data will be collected from a series of open ended questions that will be presented in an interview form. The focus group session will be tape recorded and transcribed, coded, and analyzed for themes using Atlas ti 6.2. During the focus group, the participant may chose not to answer any question he/she feels uncomfortable answering.

The participant will consent to be audiotaped. The focus group session will be audiotaped then transcribed on paper. No participant identifier will be used. Code numbers will be assigned to your taped and transcribed interview. The tape will be destroyed after accuracy of the transcription in verified. The electronic and paper copy of your interview will be stored in a secure computer file and locked file cabinet, respectively, in the researcher's home for a period of five years after the close of the study with the USF IRB.

Total Number of Participants

Approximately 14 individuals will take part in this study.

Alternatives

You have the alternative to choose not to participate in this research study.

Benefits

We are unsure if you will receive any benefits by taking part in this research study.

Risks or Discomfort

This research is considered to be minimal risk. That means that the risks associated with this study are the same as what you face every day. There are no known additional risks to those who take part in this study.

Compensation

You will receive a $20 gift card for taking part in this study.

Cost

 There will be no costs to you as a result of being in this study.

Your Rights:

You can refuse to sign this form. If you do not sign this form you will not be able to take part in this research study and therefore not be able to receive the research related interventions.

Privacy and Confidentiality

We will keep your study records private and confidential. No participant identifier will be used. Code numbers will be assigned to your taped and transcribed interview. The tape will be destroyed after accuracy of the transcription in verified. The electronic and paper copy of your interview will be stored in a secure computer file and locked file cabinet, respectively, in the researcher's home for a period of three years. Certain people may need to see your study records. By law, anyone who looks at your records must keep them completely confidential. The only people who will be allowed to see these records are:

The research team, including the Principal Investigator, faculty mentors, and all other research staff.

Certain government and university people who need to know more about the study. For example, individuals who provide oversight on this study may need to look at your records. This is done to make sure that we are doing the study in the right way. They also need to make sure that we are protecting your rights and your safety.

Any agency of the federal, state, or local government that regulates this research. This includes the Department of Health and Human Services (DHHS) and the Office for Human Research Protection (OHRP).

The USF Institutional Review Board (IRB) and its related staff who have oversight responsibilities for this study, staff in the USF Office of Research and Innovation, USF Division of Research Integrity and Compliance, and other USF offices who oversee this research.

We may publish what we learn from this study. If we do, we will not include your name. We will not publish anything that would let people know who you are.

Voluntary Participation / Withdrawal

You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study. You are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study. Decision to participate or not to participate will not affect your student status or course grade.

New information about the study

During the course of this study, we may find more information that could be important to you. This includes information that, once learned, might cause you to change your mind about being in the study. We will notify you as soon as possible if such information becomes available.

You can get the answers to your questions, concerns, or complaints

If you have questions, concerns or complaints about this study, call Debra Shelby at 772-708-6776

If you have questions about your rights as a participant in this study, general questions, or have

complaints, concerns or issues you want to discuss with someone outside the research, call the USF IRB at (813) 974-5638.

If you experience an adverse event or unanticipated problem, call Debra Shelby at 772-708-6776.

Consent to Take Part in this Research Study

It is up to you to decide whether you want to take part in this study. If you want to take part, please sign the form, if the following statements are true.

I freely give my consent to take part in this study and authorize that my health information as agreed above, be collected/disclosed in this study. I understand that by signing this form I am agreeing to take part in research. I have received a copy of this form to take with me.

I consent to being audiotaped   YES ☐   NO ☐

_____

Signature of Person Taking Part in Study

_____

Date

_____

Printed Name of Person Taking Part in Study

Statement of Person Obtaining Informed Consent

I have carefully explained to the person taking part in the study what he or she can expect from their participation. I hereby certify that when this person signs this form, to the best of my knowledge, he/ she understands:

What the study is about;

What procedures/interventions/investigational drugs or devices will be used;

What the potential benefits might be; and

What the known risks might be.

I can confirm that this research subject speaks the language that was used to explain this research and is receiving an informed consent form in the appropriate language. Additionally, this subject reads well enough to understand this document or, if not, this person is able to hear and understand when the form is read to him or her. This subject does not have a medical/psychological problem that would compromise comprehension and therefore makes it hard to understand what is being explained and can, therefore, give legally effective informed consent. This subject is not under any type of anesthesia or analgesic that may cloud their judgment or make it hard to understand what is being explained and, therefore, can be considered competent to give informed consent.

_____

Signature of Person Obtaining Informed Consent

_____

Date

_____

Printed Name of Person Obtaining Informed Consent

Knowledge Blueprint

	Objectives	# Items	% Weight
1	Identify Non-melanoma Skin Cancers and Melanoma Skin Cancers	20	50%
2	Identify Education Sources for Dermatology Knowledge	6	15%
3	Identify Knowledge of General Skin Cancer Facts	14	35%
	Totals Number	40	
	Percent		100%

Attitudes Blueprint

	Objectives	# Items	% Weight
1	Identify NP's attitudes towards their role in skin cancer detection	4	20%
2	Identify NP's confidence regarding performance of skin cancer examination	3	15%
3	Identify NP's confidence of diagnostic skills, performance of procedures, or other aspects of dermatology care	7	35%
4	Identify NP's attitudes towards patient education regarding skin cancer prevention.	2	10%
5	Identify NP's attitudes toward the dermatology education they received during their NP program or other educational program	4	20%
	Totals Number	20	
	Percent		100%

Practice Blueprint

	Objectives	# Items	% Weight
1	Identify the NP's practice regarding skin cancer examinations	5	25%
2	Identify NP practice regarding pathology	4	20%
3	Identify dermatology procedures performed by the NP	6	30%
4	Identify NP practice to treat skin cancers	3	15%
5	Identify NP's practice regarding skin cancer prevention and education	2	10%

Appendix H
Content Validity Index

Part I Knowledge	Primary NP A	Primary NP C	Primary NP M	Primary DNP D	Derm DNP R	Derm DNP A	Derm MD T	Total	CVI
Photos									
1	+1	+1	+1	+1	+1	+1	+1	7	1
2	+1	+1	+1	+1	+1	+1	+1	7	1
3	+1	+1	+1	0	+1	+1	+1	6	.85
4	+1	0	0	+1	+1	+1	0	4	.57
5	+1	+1	+1	0	+1	+1	+1	6	.85
6	+1	0	+1	+1	+1	+1	+1	6	.85
7	+1	+1	+1	0	+1	+1	+1	6	.85
8	+1	0	0	+1	+1	+1	+1	5	.71
9	+1	+1	+1	0	+1	+1	+1	6	.85
10	+1	+1	+1	+1	+1	+1	+1	7	1
11	+1	+1	+1	+1	+1	+1	+1	7	1
12	+1	+1	+1	+1	+1	+1	+1	7	1
13	+1	+1	-1	+1	+1	+1	+1	7	1
14	+1	+1	+1	+1	+1	+1	+1	7	1
15	+1	0	+1	+1	+1	+1	+1	6	.85
16	+1	+1	+1	+1	+1	+1	0	6	.85
17	+1	-1	+1	0	+1	+1	+1	6	.85
18	+1	+1	+1	+1	+1	+1	+1	7	1
19	+1	+1	+1	+1	+1	+1	+1	7	1
20	+1	+1	+1	+1	+1	+1	+1	7	1
Part II Knowledge Questions	Primary NP	Primary NP	Primary NP	Primary DNP	Derm DNP	Derm DNP	Derm MD	Total	CVI
1	+1	+1	+1	+1	+1	+1	+1	7	1
2	+1	+1	+1	+1	+1	0	+1	6	.85
3	+1	+1	+1	+1	+1	+1	+1	7	1
4	+1	+1	+1	+1	+1	+1	+1	7	1
5	+1	+1	+1	+1	+1	+1	+1	7	1
6	+1	+1	+1	+1	+1	+1	+1	7	1
7	+1	+1	+1	+1	+1	+1	+1	7	1
8	+1	+1	+1	+1	+1	+1	+1	7	1
9	+1	0	0	0	+1	+1	+1	4	.57
10	+1	0	+1	+1	+1	+1	+1	6	.85
11	+1	+1	+1	+1	+1	+1	+1	7	1
12	+1	+1	+1	+1	+1	+1	-1	7	1
13	+1	+1	+1	+1	+1	+1	+1	7	1
14	+1	+1	+1	+1	+1	+1	+1	7	1
15	+1	+1	+1	+1	+1	+1	+1	7	1
16	+1	+1	+1	+1	+1	+1	+1	7	1

	Primary NP	Primary NP	Primary NP	Primary DNP	Derm DNP	Derm DNP	Derm MD	Total	CVI
17	+1	+1	+1	+1	+1	+1	+1	7	1
18	+1	+1	+1	+1	+1	+1	+1	7	1
19	+1	0	+1	0	+1	+1	+1	5	.71
20	+1	0	+1	+1	+1	+1	+1	6	.85
Part II Edu/Att/Conf	Primary NP	Primary NP	Primary NP	Primary DNP	Derm DNP	Derm DNP	Derm MD	Total	CVI
1	+1	+1	+1	+1	+1	+1	+1	7	1
2	+1	+1	+1	+1	+1	+1	+1	7	1
3	+1	+1	+1	-1	+1	+1	+1	5	.71
4	+1	+1	+1	+1	+1	+1	+1	7	1
5	+1	+1	+1	+1	+1	+1	+1	7	1
6	+1	+1	+1	+1	+1	+1	+1	7	1
7	+1	+1	+1	0	+1	+1	+1	6	.85
8	+1	+1	+1	+1	+1	+1	+1	7	1
9	+1	+1	+1	+1	+1	+1	+1	7	1
10	+1	+1	+1	+1	+1	+1	+1	7	1
11	+1	+1	+1	+1	+1	+1	+1	7	1
12	0	+1	+1	0	0	+1	+1	4	==.57==
13	+1	0	+1	+1	+1	+1	+1	6	.85
14	+1	+1	+1	+1	+1	+1	+1	7	1
15	+1	+1	+1	+1	+1	+1	+1	7	1
16	+1	+1	+1	+1	+1	+1	+1	7	1
17	0	+1	+1	+1	+1	+1	+1	6	.85
18	+1	+1	+1	+1	+1	+1	+1	7	1
19	+1	+1	+1	+1	+1	+1	+1	7	1
20	+1	+1	+1	+1	+1	+1	+1	7	1
Part II Practice Questions	Primary NP	Primary NP	Primary NP	Primary DNP	Derm DNP	Derm DNP	Derm MD	Total	CVI
1	+1	+1	+1	+1	+1	+1	+1	7	1
2	+1	+1	+1	+1	+1	+1	+1	7	1
3	+1	+1	+1	+1	+1	+1	+1	7	1
4	+1	+1	+1	+1	+1	+1	+1	7	1
5	+1	+1	0	+1	+1	+1	+1	6	.85
6	+1	+1	+1	-1	+1	+1	+1	5	.71
7	+1	+1	+1	+1	+1	+1	+1	7	1
8	+1	+1	+1	+1	+1	+1	+1	7	1
9	+1	+1	+1	+1	+1	+1	+1	7	1
10	+1	+1	+1	-1	+1	+1	+1	5	.71
11	+1	+1	+1	-1	+1	+1	+1	5	.71
12	+1	+1	+1	0	+1	+1	+1	6	.85
13	+1	+1	+1	-1	+1	+1	+1	5	.71
14	+1	+1	+1	0	+1	+1	+1	6	.85
15	+1	+1	+1	+1	+1	+1	+1	7	1

16	+1	+1	+1	+1	+1	+1	+1	7	1
17	+1	+1	+1	+1	+1	+1	+1	7	1
18	+1	+1	+1	-1	+1	+1	+1	5	.71
19	+1	+1	+1	+1	+1	+1	+1	7	1
20	+1	+1	+1	+1	+1	+1	+1	7	1

Appendix I
IRB Approval Letter: Instrument

March 22, 2013   Debra Shelby, PhD College of Nursing MDC 22 Tampa, FL 33612
RE: Expedited Approval for Initial Review IRB#: Pro00011491 Title: Knowledge, Attitudes and
Practice of Primary Care NPs Regarding Skin Cancer Assessments Study Approval Period:
3/22/2013 to 3/22/2014

Dear Dr. Shelby:

On 3/22/2013, the Institutional Review Board (IRB) reviewed and APPROVED the above
application and all documents outlined below. Approved Item(s): Protocol Document(s):
Dshelby Dissertation Committee Proposal Paper Consent/Assent Document(s)*: Research Cover
Letter and Consent-Version 1 (Wavier of Informed Consent Doc. granted)

*Please use only the official IRB stamped informed consent/assent document(s) found under
the"Attachments" tab. Please note, these consent/assent document(s) are only valid during the
approval period indicated at the top of the form(s). (Waivers are not stamped)
(7) Research on individual or group characteristics or behavior (including, but not limited to
research on perception, cognition, motivation, identity, language, communication, cultural
beliefs or practices, and social behavior) or research employing survey, interview, oral history,
focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your study qualifies for a waiver of the requirements for the documentation of informed consent
as outlined in the federal regulations at 45CFR46.117(c) which states that an IRB may waive the
requirement for the investigator to obtain a signed consent form for some or all subjects.

As the principal investigator of this study, it is your responsibility to conduct this study in
accordance with IRB policies and procedures and as approved by the IRB. Any changes to the
approved research must be submitted to the IRB for review and approval by an amendment.

We appreciate your dedication to the ethical conduct of human subject research at the University
of South Florida and your continued commitment to human research protections. If you have
any questions regarding this matter, please call 813-974-5638.

Sincerely,

John Schinka, Ph.D., Chairperson USF Institutional Review Board

Dear Participant,

My name is Debra Shelby, DNP, FNP-BC, DNC and I am a PhD candidate at the University of South Florida's College of Nursing. I would like to invite you to participate in a two part survey about skin cancer assessments.

Study Title: Knowledge, Attitudes, and Practice of Primary Care Nurse Practitioners Regarding Skin Cancer Assessments

Purpose: Early detection and treatment is crucial for the survival of melanoma patients and can be affected by the availability of qualified health care practitioners trained to recognize the early stages of malignancy. The purpose of this study is to gather data that will help gain insight on nurse practitioner's attitudes, knowledge and practice regarding skin cancer assessments.

I am developing an instrument for my dissertation titled: Knowledge, Attitudes, and Practice Regarding Primary Care Nurse Practitioners. This instrument will be used as a pre and post-test in an intervention study that is supported by the American Cancer Society.

Risks: There are no known risks to participating in this study.

Compensation: All participants returning a survey will receive a free membership to the National Academy of Dermatology Nurse Practitioners (NADNP). The first 75 surveys returned will receive a free conference registration to the NADNP National Conference May 14-18, 2013.

Costs: There are no costs involved with this study. A self-addressed, postage paid envelope is supplied.

Study Procedure: I would appreciate 20-30 minutes of your time to complete a two part instrument exploring the knowledge, attitudes, and practices of primary nurse practitioners if you fit the following criteria:

- Family or Adult nurse practitioner practicing in a primary care setting with the ability to perform skin cancer assessments on the adult population
- At least one year experience practicing in a primary care setting
- Age 26-65
- Able to read, write and speak English

All data will be kept in locked file cabinet in a locked office. Any electronic data received will be kept in a password protected computer kept in a locked office. All data will be

kept for a period of five years after the close of the study with the USF IRB. This study is being funded by the American Cancer Society and results obtained from study may be shared with them.

The only people who will be allowed to see these records are:

- The research team, including the Principal Investigator, faculty mentors, and all other research staff**.**

- Certain government and university people who need to know more about the study. For example, individuals who provide oversight on this study may need to look at your records. This is done to make sure that we are doing the study in the right way. They also need to make sure that we are protecting your rights and your safety.

- Any agency of the federal, state, or local government that regulates this research. This includes the Department of Health and Human Services (DHHS) and the Office for Human Research Protection (OHRP).

- The USF Institutional Review Board (IRB) and its related staff who have oversight responsibilities for this study, staff in the USF Office of Research and Innovation, USF Division of Research Integrity and Compliance, and other USF offices who oversee this research.

Consent/Voluntary Participation: You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study. You are free to participate in this research or withdraw at any time. Consent is implied with the return of the survey. Please return the survey in a self-addressed postage paid envelope.

Should you have any questions related to this study, please contact me directly at (772)-xxx-xxxx or via email at xxxxxxxx@gmail.com.

If you have questions about your rights as a participant in this study, general questions, or have complaints, concerns or issues you want to discuss with someone outside the research, call the USF IRB at (813) 974-5638.

Thank you in advance for your time and participation.

Sincerely,
Debra Shelby, DNP, FNP-BC, DNC
USF CON PhD Candidate

Multiple Choice Directions: Review each item and choose the best answer. Please circle the appropriate letter and make sure that your answer is clearly marked.

Item 1: Which of the following is depicted in this picture?　　　Location: Scalp　　Size: 1-2 mm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

 A. Biopsy　　　B. Cryo　　C. Refer to a specialist　　D. Benign lesion, no treatment necessary

Item 2: Which of the following is depicted in this picture?　　Location: Forearm　　Size: 5mm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 3: Which of the following is depicted in this picture?   Location: Trunk   Size: 4mm
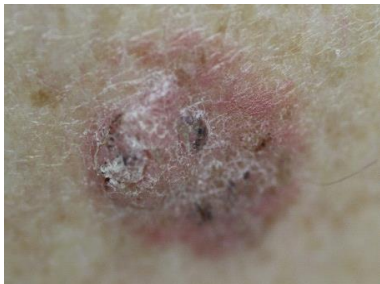

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 4: Which of the following is depicted in this picture?

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 5: Which of the following is depicted in this picture?   Location: Trunk   Size: 5mm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 6: Which of the following is depicted in this picture?   Location: Trunk   Size 4mm

91

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 7: Which of the following is depicted in this picture?   Location: Right ear   Size: 1.1cm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 8: Which of the following is depicted in this picture?   Location: Dorsal hand   Size: 8mm

- Non-melanoma skin cancer

- Non-cancerous

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 9: Which of the following is depicted in this picture? Location: Right upper extremity   Size: 7mm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 10: Which of the following is depicted in this picture?   Location: Dorsal hand   Size 5mm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 11: Which of the following is depicted in this picture?   Location: Trunk   Size: 2.7 cm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 12: Which of the following is depicted in this picture?   Location: Lower extremity   6 mm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 13: Which of the following is depicted in this picture?   Location: Upper extremity   9mm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

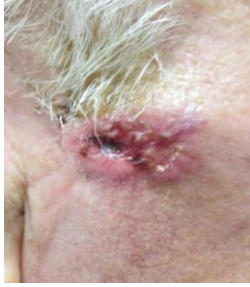A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 14: Which of the following is depicted in this picture?   Location: Trunk   Size: 4mm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 15: Which of the following is depicted in this picture?   Location: upper extremity   Size: 1.1 cm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 16: Which of the following is depicted in this picture?   Location: Trunk   Size: 1.2 cm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 17: Which of the following is depicted in this picture?   Location: Trunk   Size 1.3cm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 18: Which of the following is depicted in this picture?   Location: Lower extremity Size: 2.7 cm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 19: Which of the following is depicted in this picture?   Location: Scalp   Size: .9 cm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Item 20: Which of the following is depicted in this picture?   Location: Face   Size: 7mm

- Non-melanoma skin cancer

- Non-cancerous lesion

- Melanoma

- Pre-cancerous lesion

Based on your answer, would you:

A. Biopsy   B. Cryo   C. Refer to a specialist   D. Benign lesion, no treatment necessary

Directions:
Please read the items and circle the best answer. Make sure all answers
are clearly marked.

I received dermatology education in my NP program

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I was educated on skin cancer exams in my clinical rotations or classes in my NP program.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I was educated on skin biopsies techniques during my NP program.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I was educated on cryo surgery during my NP Program.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I have attended dermatology educational programs outside my NP
program to learn about skin cancer exams or dermatology procedures.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I have received "on the job" education on skin cancer exams or dermatology procedures.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

Knowledge on General Skin Cancer Facts
Directions: Please circle the best answer. Make sure all answers are clearly marked.

The following skin lesions have the ability to metastasize except:

- Squamous cell

- Melanoma

- Sarcoma

- Dysplastic nevus

Comments:_____
_____

The skin cancer with the highest rate of incidence reported in the US population is:

- Basal Cell

- Squamous Cell

- Merkel Cell

- Sarcoma

Comments:_____
_____

Melanoma treatment is determined by all of the following except:

- Type of melanoma

- Breslow depth

- Stage of melanoma

- Age

- Fitzpatrick skin type

Comments:_____
_____

The proper biopsy technique(s) for a pigmented lesion include:

- Excisional biopsy

- Incisional biopsy

- Saucerization

- 1, 3

Comments:_____
_____

Frequently used treatments for actinic keratoses can include all of the following except:
- Cryo surgery

- 5 FU

- Photo dynamic therapy

- Lactic acid

Comments:_____
_____

According to the American Academy of Dermatologist, appropriate use of Mohs surgery includes all of the following except:

- Recurrent squamous cell carcinoma

- Skin cancers greater than 1cm

- Primary actinic keratosis with focal squamous cell in situ in a healthy patient

- Primary basal cell carcinoma or squamous cell carcinoma arising from traumatic scar

Comments:_____
_____

A sentinel lymph node biopsy is indicated for:

- Melanoma with Breslow depth greater than 1mm

- Lentigo maligna lesions

- Dysplastic nevi

- None of the above

Comments:_____
_____

Risk factors for Squamous cell carcinoma include all of the following except:
- HPV

- Trauma

- Sun exposure

- Multiple Nevi

Comments:_____
_____

Risk factors for melanoma include all of the following except:

- Genetics

- History of vitiligo

- Sun exposure

- Having many nevi

Comments:_____
_____

The fastest growing incidence of skin cancer in children 15-29 yrs of age is:

- Squamous cell

- Basal Cell

- Melanoma

- None of the above

Comments:_____
_____

Primary site(s) for melanoma include all of the following except:

- Eye

- Lung

- Nails

- Rectum

Comments:_____
_____

Basal cell has the ability to infiltrate all of the following except:

- Skin

- Fascia and muscle

- Bone

- Meninges

Comments:_____
_____

Which of the following is not included in the types of melanoma?

- Nodular

- Lentigo maligna

- Merkle

- Desmoplastic

Comments:_____
_____

Which is the most frequently occurring site for metastatic melanoma?

- Ovaries

- Liver*

- Eye

- Kidney

Comments:_____
_____

Directions: Please circle the best answer. Make sure all answers are clearly marked.

I believe that skin cancer is a national epidemic and as a provider
it is my responsibility to know how to do a skin cancer exam.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

It is important to the health of my patients and improving patient outcomes to perform skin cancer screenings.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I do not perform skin exams because I do not have time.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I do not perform skin exams because I am not a dermatology specialist.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

Directions: Please circle the best answer. Make sure answer is clearly marked.

I do not perform skin exams because I do not feel confident to do them.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I feel confident performing skin exams.

0	1	2	3	4
None	**Strongly disagree**	**Disagree**	**Agree**	**Strongly agree**

Comments:_____

_____

I am afraid to miss a skin cancer so I do not perform skin exams.

0	1	2	3	4
None	**Strongly disagree**	**Disagree**	**Agree**	**Strongly agree**

Comments:_____

_____

Directions: Please circle the best answer. Make sure answers are clearly marked.

I confident that I accurately identify most non-melanoma skin cancers.

0	1	2	3	4
None	**Strongly disagree**	**Disagree**	**Agree**	**Strongly agree**

Comments:_____

_____

I find it difficult to identify abnormal moles during an exam.

0	1	2	3	4
None	**Strongly disagree**	**Disagree**	**Agree**	**Strongly agree**

Comments:_____

_____

I have the ability to identify skin cancer or abnormal lesions during an exam.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I would perform biopsies if I was taught how to do it.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I feel comfortable discussing pathology results that I do not understand.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I am confident discussing diagnoses and treatment options for NMSC.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I am confident discussing melanoma diagnosis, classification, and treatment options.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

Directions: Please circle the best answer. Make sure all answers are clearly marked.

It is part of my role as a primary care provider to discuss with patients
the importance of performing self-skin exams.

0	1	2	3	4
None	**Strongly disagree**	**Disagree**	**Agree**	**Strongly agree**

Comments:_____
_____

It is my responsibility as a health care provider to educate patients
on skin cancer prevention and encouraging annual skin cancer examinations.

0	1	2	3	4
None	**Strongly disagree**	**Disagree**	**Agree**	**Strongly agree**

Comments:_____
_____

Directions: Please circle the best answer. Make sure answers are clearly marked.

I attended educational programs to help me feel more confident performing skin cancer exams or dermatologic procedures after graduating from my NP program.

0	1	2	3	4
None	**Strongly disagree**	**Disagree**	**Agree**	**Strongly agree**

Comments:_____
_____

I became confident performing skin cancer exams or dermatology
procedures after receiving on the job training.

0	1	2	3	4
None	**Strongly disagree**	**Disagree**	**Agree**	**Strongly agree**

Comments:_____
_____

Upon graduation, I felt confident practicing basic dermatology skin
exams from education received during my NP program.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I felt confident performing biopsies or cryo surgery from education received in NP program.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

Directions: Please circle the best answer. Make sure the answer is clearly marked.

I refer patients to a dermatology specialist for skin cancer examinations
if, for whatever reason, I am unable to do it.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

When I perform the full body skin exam, I talk to the patient about the findings of my exam.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I perform skin cancer exams during my annual physicals.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I have my patients remove their clothing to perform skin cancer examination.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

When I do focus visits, I look for abnormal lesions.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

Directions: Please circle the best answer. Make sure the answer is clearly marked.

I have a physician discuss with my patient any biopsy results that come back as skin cancer.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I use a dermatopathologist to evaluate my skin biopsies.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I discuss biopsy results and treatment options for melanoma and NMSC with my patient.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I question pathology results that do not correlate with my clinical diagnosis.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

Directions: Please circle the best answer. Make sure all answers are clearly marked.

I will biopsy any lesion that is suspicious, regardless of location.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I perform biopsies on lesions even though I am not sure which biopsy technique is the best.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I have used cryo surgery on pigmented lesions.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I have used cryo surgery on a lesion even though I was uncertain of the diagnosis of that lesion.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I perform cryo surgery on pre-cancerous lesions (Actinic Keratoses).

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I perform skin biopsies if indicated.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

Directions: Please mark the best answer. Make sure all answers are clearly marked.

I use topical medications like liquid nitrogen (cryo surgery), photodynamic
therapy, 5 FU, Fluorouracil, or Imiquimod to treat AKs, superficial SCC or BCC.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I perform excisions, cryo surgery, or electrodessication/curettage to treat   non-melanoma skin cancer.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I perform excisions to treat melanoma skin cancer.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

Directions: Please circle the best answer. Make sure all answers are clearly marked.

I talk to my patients about skin cancer prevention.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____

I educate my patients on sun protection, including sunscreen and clothing protection.

0	1	2	3	4
None	Strongly disagree	Disagree	Agree	Strongly agree

Comments:_____
_____