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**NURSE PRACTITIONERS' PRACTICES RELATED TO TESTICULAR CANCER AND  
TESTICULAR SELF-EXAMINATION**

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Abstract

Testicular cancer remains the number one cancer for men age 15 through 35. Early detection is essential to decrease morbidity and mortality. The purpose of this study was to identify and describe the extent to which California nurse practitioners screen for testicular cancer and the frequency of teaching testicular self-examination to patients. The study surveyed 425 adult or family nurse practitioners, currently practicing in the state of California, with a patient population that includes males age 15-35. The study supported the previous findings of Sladden and Dickinson (1995). Nurse practitioners do believe that testicular self-examination is an effective screening method to detect testicular cancer. While practitioners believe they should teach the procedure to male patients, teaching inconsistently materializes in clinical practice. Similarly, nurse practitioners believe that their examination of the testes is an effective screening method to detect testicular cancer. While practitioners believe they should screen male patients for testicular cancer, screening inconsistently occurs in clinical practice. Practitioners identified several barriers that account for the discrepancy, the foremost stemming from infrequent, episodic utilization of health care by males in the affected age group.

### Nurse Practitioners' Practices Related to Testicular Cancer and Testicular Self-Examination

Testicular cancer is the number one cancer for men age 15 through 35 (American Cancer Society, 1997). Since 1905, the incidence of testicular cancer has been slowly but consistently escalating to its current all time high (Roush, Holford, Schymura, & White, 1987). An estimated 7,600 American males will be diagnosed with testicular cancer in 1998, and an additional 400 men will die from testicular cancer during this same period (Landis, Murray, Bolden, & Wingo, 1998). Testicular cancer develops in white males at a rate 4 to 5 times of that in black males (Klein, Berry, & Felice, 1990). Researchers do not know what causes testicular cancer, and the only known risk factor is cryptorchidism (Boyle & Zaridze, 1993; Hawkins & Miaskowski, 1996; Ozols & Williams, 1989). Males with a history of an undescended testis have a 35% greater chance of developing testicular cancer later in life (Lasater, 1990). Other associated factors include individuals with Klinefelter's syndrome, hermaphroditism, testicular atrophy, exposure to diethylstilbestrol (DES) in utero, and diagnosed testicular cancer in a first degree relative (Brock et al., 1993; Klein et al., 1990). Although 95% of all testicular tumors are malignant, testicular cancer is considered to be one of the most curable cancers when detected early (American Cancer Society, 1997). Unfortunately, historically there is a 3-6 month delay from the onset of symptoms to the diagnosis of testicular cancer (Hawkins & Miaskowski, 1996; Hesketh, 1987; Lasater, 1990). When detection is postponed, increased mortality and a substantial increase in the strength, duration, and extent of treatment results (Buetow, 1995). Therefore, early detection is essential (Brock et al., 1993; Harrison & Mobley, 1988; Hawkins & Miaskowski, 1996; Lasater, 1988).

For well over a decade, the American Cancer Society has recommended monthly testicular self-exam as a screening method to enhance the detection of testicular cancer. Similar to breast self-exam, testicular self-exam enables males to screen themselves for testicular neoplasms in conjunction with a physician's annual examination (Reno, 1988). Such self-screening is essential for early detection since males in the high-risk group are young, generally healthy, and may

infrequently utilize their primary care provider (Buetow, 1996). Moreover, when such visits do occur, they may address only specific acute problems. For this reason, Dewald and Zientek (1996) recommend that teaching about testicular cancer and testicular self-examination begin in adolescence and be reinforced consistently at all subsequent health care visits. As Harrison and Mobley (1988) eloquently stated, "Early detection and treatment remains the mainstay of cancer cure with minimal inconvenience and morbidity" (p. 327).

### Literature Review

To verify and describe the scope of this problem, a literature search on testicular cancer and testicular self-examination was conducted. The first research article on testicular self-examination appeared in 1978. The initial study surveyed 90 male college students from Vermont to determine their knowledge about testicular cancer and testicular self-examination and found that males most at risk were virtually unaware of testicular cancer. Only 25 % of those surveyed had heard of testicular cancer, and none knew how to perform testicular self-examination. However, 75% stated that they would perform testicular self-exam if instructed how to do so (Conklin, Klint, Morway, Sawyer, & Shepard, 1978).

In the last 10 years, the literature focusing on men's knowledge and beliefs about testicular cancer and testicular self-exam has affirmed a continuing knowledge deficit regarding testicular self-examination. In fact, despite the American Cancer Society's recommendation for monthly testicular self-examination and research supporting the benefits of early detection, at risk males are unaware of their risks for testicular cancer and are not performing regular testicular self-examinations (Bell, 1990; Katz, Meyers, & Walls, 1995; McMaster, Pitts, & Wilson, 1994; Neef, Scutchfield, Elder, & Bender, 1991; Rudolf & MacEwen-Quinn, 1988; Sheley, Kinchen, Morgan, & Gordon, 1991; Vaz, Best, & Davis, 1988).

Vaz, Best, and Davis (1988) surveyed 1,364 adolescent males about testicular cancer and testicular self-exam. Twenty eight percent of the sample had heard of testicular cancer; however,

none of the subjects knew how to perform self-examination. Although 75% of the sample reported receiving a complete physical exam in the last 15 months, less than 2% reported being taught testicular self-examination by the physician at the visit. Hauntingly, 54% of the sample predicted they would intentionally avoid discussing a self-discovered testicular problem with a physician.

While there is abundant research on men's knowledge and health beliefs about testicular cancer and testicular self-examination, only five studies in the last 10 years have addressed the health educators' beliefs, teaching, and screening practices related to testicular cancer and testicular self-examination. Stanford (1987) surveyed 31 nurses in Brighton, England, to determine the knowledge level and teaching practices of testicular self-examination. Males in the sample were more knowledgeable about testicular self-examination than females. In fact, 87.5% of the male population reported personally practicing self-examination, and 71.4% of those performed self-exams monthly. While the vast majority of the nurses believed that teaching male patients testicular self-examination indeed fell under the auspice of nurses as health educators, only two had actually taught the procedure to patients. Interestingly, nurses identified embarrassment as a barrier to teaching. The author stressed the need to educate not only males at risk but also health professionals.

Sayger, Fortenberry, and Beckman (1988) surveyed 143 Oklahoma physicians by telephone to ascertain how often testicular self-examination was taught to patients and to identify barriers to its teaching. Ninety six percent reported routine examination of patients' testicles; 17.5% reported teaching testicular self-examination on a routine basis. An additional 8% taught testicular self-examination only to patients they felt were at risk. Of those teaching self-examination, 7% did so through booklets or literature. Physicians who do not teach self-examination identified unfamiliarity with the technique and patient embarrassment as barriers to teaching. The vast majority stated that testicular self-examination was not included in the medical school or residency curricula. The researchers called for medical schools and residency programs to include content on

testicular self-examination. In addition, the researchers identified the need for testicular self-examination continuing education courses to educate currently licensed physicians about the screening technique.

Sladden and Dickinson (1995) surveyed 83 Australian general practice physicians by mailed questionnaire to determine practitioners' perceptions of the effectiveness of testicular self-examination. Seventy one percent of the physicians polled felt that the practitioner's examination of the testis was an effective screening method. While 66% of those surveyed stated physicians should screen male patients for testicular cancer by examining the testes, less than 25% of the practitioners reported actually performing testicular exams. Similarly, 67% of the physicians stated that testicular self-examination was an effective method of detecting testicular cancer. While 69% of the physicians stated that physicians should teach male patients testicular self-examination, only 21% of the physicians reported actually teaching self-examination. The researchers posit that part of the problem lies in the mixed messages physicians receive regarding screening for testicular cancer. Nationally recognized institutes promote the idea by publishing educational material for both physicians and male patients. However, no policy specifically outlining the criteria for screening has been published by an accredited body. The researchers state that such a policy must be constructed and widely disseminated if screening is to be done consistently, in an efficacious manor.

Dewald and Zientek (1996) surveyed 69 athletic trainers attending the National Athletic Trainers' Convention in Dallas, Texas, to determine if athletic trainers teach breast and testicular self-examination to athletes. Although 28% of the trainers reported having trained an athlete diagnosed with cancer, 85% did not educate either male or female athletes about cancer. Less than 5% of those surveyed taught athletes how to perform breast self-examination. Less than 6% taught male athletes how to perform testicular self-examination. Interestingly, 26.1% of the male trainers and 42% of the female trainers stated that they perform self-examination. It is important to note,

however, that the researcher did not clarify how frequently the self-exams were being performed. The researchers recommended that self-examination techniques be regularly taught by trainers in both team and individual education sessions.

Using the Health Belief Model as a theoretical framework, Wohl and Kane (1997) surveyed 80 high school health educators from Idaho to determine teachers' beliefs about testicular cancer and testicular self-examination. Although 61% of those surveyed reported teaching about testicular cancer, 31% stated that the instruction lasted less than 10 minutes. Male health educators were more likely than their female counterparts to provide teaching about testicular cancer and self-examination. The remaining 39% did not teach about testicular cancer or testicular self-examination. A clear barrier to teaching was that 85% of the teachers were not educated themselves about testicular cancer and testicular self-examination.

In summary, the literature review suggests that men have not been adequately educated about testicular cancer and the recommended monthly self-screening method to enhance the early detection of testicular cancer. However, the typical male patient would practice testicular self-examination if shown how to perform the procedure (Conklin et al., 1978; Neef et al., 1991). Primary care physicians are not teaching self-exam or examining males' testies for lumps (Sladden & Dickinson, 1995; Vaz et al., 1988). Teachers are not consistently educating students about testicular cancer, and few teach about testicular self-examination (Wohl & Kane, 1997). Athletic trainers are not teaching athletes about testicular cancer and self-examination (Dewald & Zientek, 1996). The only study of nurses, conducted in England, revealed that although nurses felt teaching testicular self-examination to male patients was a part of their role, nurses were not teaching the procedure to male patients under their care. Nurses identified embarrassment as a barrier to teaching (Stanford, 1987). Further information is needed on the current screening and teaching practices of primary care providers to identify barriers to teaching at risk male patients, particularly those with a history of cryptorchidism, about testicular cancer. Once identified, the

information can be used to develop interventions to improve the education and screening practices among primary care providers. Subsequent to the evolutionary changes in the health care environment, such as managed care, nurse practitioners are becoming more established in the primary care setting. These changes have also placed an emphasis on preventive care and shifted the responsibility for health back onto the consumer. Historically, nurses, especially nurse practitioners, have placed great emphasis on patient education. Patient education is not only integrated in the nursing process, but is mandated by the California Nursing Practice Act (1997). To date, no studies have examined the nurse practitioner's screening and teaching practices regarding testicular cancer and testicular self-examination.

#### Purpose of the Study

The specific aim of this study was to identify and describe the extent to which nurse practitioners screen for testicular cancer and the frequency of teaching the testicular self-examination procedure to patients age 15 to 35. This information will provide baseline data of the nurse practitioners' current screening practices for early detection of testicular cancer. Barriers to screening and teaching were also identified.

#### Theoretical Framework

This study was guided by the Health Belief Model. The Health Belief Model has been widely used to study self-care behaviors such as testicular and breast self-examination. The model consists of four basic constructs: perceived seriousness, perceived susceptibility, perceived benefits of action, and perceived barriers to action (Rosenstock, 1974). When applied to this study in screening for testicular cancer and teaching male patients testicular self-examination, the nurse practitioner must perceive that: (a) testicular cancer is a serious disease, (b) male clients are at risk for developing testicular cancer, (c) screening and teaching male patients about testicular cancer is beneficial, and (d) the barriers to screening and teaching male patients about testicular cancer are not prohibitive or can be overcome.

Utilizing the Health Belief Model, Blesch (1986) developed a health belief survey specifically designed for testicular cancer and testicular self-examination. The vast majority of studies about knowledge and health beliefs pertaining to testicular cancer and self-examination conducted since that time have utilized this instrument and/or slightly adapted it to fit a particular population. The problem with these surveys is that they attempt to measure all of the constructs in the Health Belief Model and tend to be very lengthy.

#### Research Questions

This study posed the following four research questions: (a) What proportion of the nurse practitioners surveyed know that testicular self-examination is a screening method for the early detection of testicular cancer? (b) Do nurse practitioners think testicular self-examination is an effective screening method for early detection of testicular cancer? (c) How frequently do nurse practitioners teach testicular self-examination to patients? (d) How frequently do nurse practitioners screen for testicular cancer by examining their male patients' testicles for lumps?

#### Method

A non-experimental, descriptive design was utilized for this study, with information obtained through a cross-sectional survey. Before any data collection occurred, the study was approved by the Human Subjects Review Board at San Jose State University.

A list of the names and addresses of 900 family and adult nurse practitioners was obtained through the California Coalition of Nurse Practitioners. This convenience sample of Nurse Practitioners was considered a diverse population with regard to age, sex, race, culture, marital status, educational background, and years in practice. All participants were assumed to read, write, and understand the English language. A self-administered questionnaire was mailed to all 900 practitioners to provide adequate sampling and to compensate for the historically low return rate of mailed questionnaires. A cover letter introducing the researcher and stating the purpose of the study accompanied the questionnaire along with a self-addressed, stamped, return envelope.

Participants were guaranteed anonymity. In addition, participants were informed that participation was strictly voluntary with no perceived personal benefits or consequences resulting from participation. The nurse practitioners implied consent for participation in the study by returning the questionnaire. To guarantee anonymity, the questionnaires had no identifying factors.

Data collection took place from January 31 through February 28, 1998. Questionnaires were mailed on January 31, 1998. As questionnaires were returned to the researcher, they were separated from their envelopes and set aside for weekly data entry. Data analysis began on March 1, 1998, using the Statistical Program for Social Sciences (SPSS) software. Responses received on and after March 1, 1998, were not included in the study. Criteria for inclusion in the research were that the participant is a licensed nurse practitioner, currently practicing in the state of California, and with a patient population that includes males age 15-35.

#### Sample

Forty of the 900 surveys were returned to the researcher stamped as undeliverable. Of the remaining 860 nurse practitioners surveyed, 568 (66%) returned the questionnaire. One hundred forty three of the returned questionnaires were excluded to maintain the homogeneity of the sample. The excluded subjects were 19 nurse practitioner students, 2 subjects awaiting licensure, 22 retired or nonpracticing subjects, 46 subjects that do not see male patients, 18 out-of-state practitioners, 20 incomplete questionnaires, and 16 questionnaires received after February 28, 1998. In the end, 425 questionnaires were coded and processed.

Demographically, the sample was composed of 28 males, 393 females, and 4 participants who did not reveal their gender. Participants ranged in age from 25 to 74 years old. The participants reported practicing as nurse practitioners for 1 month to 28 years. The participants had practiced as nurses for 0 to 40 years prior to practice as nurse practitioners. The educational preparation of the nurse practitioners varied, although the vast majority (82.1%) were at least master's prepared. Educational preparation was as follows: diploma graduates 1.2%, associate

degree 4.5%, baccalaureate degree 11.8%, master's degree 80.2%, and doctorate degree 1.9%. The practitioners reported working an average of 4 to 72 hours a week, with 48.2% of the practitioners working 31 hours or more per week.

#### Instrument

The instrument was investigator designed, loosely based on the testicular portion of a questionnaire created by Sladden and Dickinson (1995). The original questionnaire, "A Survey of General Practitioners' Knowledge and Perceptions in Relation to Screening for Testicular and Prostate Cancer," was a 5-page questionnaire designed for and sent to 101 General Practitioners in Tasmania. To meet the purpose of the current study, and to increase the response rate from participants, the original 5-page questionnaire was condensed to 2 pages, with the content of the used questions virtually unchanged. The first six questions were open-ended or multiple choice, addressing demographic factors. The next 12 questions measured nurse practitioners' current screening and teaching practices with regard to testicular cancer and testicular self-examination. Three of these questions required participants to select answers from a Likert scale. The remaining questions were yes-no questions. The instrument concluded with two additional questions added by the researcher. A yes-no question was added to determine the self-examination practices of male nurse practitioners. An open-ended question was added to identify perceived barriers to testicular examination and the teaching of self-examination.

Content validity of the original tool was established by Sladden and Dickinson (1995) who conducted a small pilot study prior to the administration of the original questionnaire. Although no pilot study was conducted prior to the administration of the current tool, the instrument was submitted to six Adult and Family Nurse Practitioners for evaluation of content validity, and all recommended changes were made.

## Results

Survey results revealed that 422 (93.3%) of the nurse practitioners were aware that testicular self-examination is a self-screening method to detect testicular cancer. Similarly, 397 (93.4%) were aware of the American Cancer Society's recommendation that men learn and perform testicular self-examination. Most practitioners (85.6%) stated that this information was interjected into their training as nurse practitioner students. Moreover, 414 (97.4%) believed that testicular self-examination is an effective screening method for the early detection of testicular cancer. For this reason, 419 (98.6%) indicated believing that men should be asked if they are screening themselves for testicular cancer by performing testicular self-examination. However, only 98 (23.1%) of the practitioners consistently pose this question to all male patients, age 15-35, while 215 (50.6%) stated that the question is posed to at least 70% of their 15-35 year old, male patients. Additionally, only 88 (20.7%) reported consistently teaching testicular self-examination procedure to all male patients, age 15-35, while 205 (48.2%) stated the procedure is taught to at least 70% of the presenting 15-35 year old males. The testicular self-examination procedure is reportedly taught by the practitioner utilizing hands on demonstration, 302 (71%); brochures, 159 (37.4%); hands on demonstration with return demonstration, 66 (15.5%); verbal presentation, 17 (4%); demonstration using an anatomical model, 12 (2.8%); and video presentation, 3 (.7%). Twenty-six (6.1%) reported not teaching testicular self-examination to male patients. Interestingly, only four male nurse practitioners identified themselves as being under the age of 40. Of these, 3 (75%) reported monthly self-screening for testicular cancer with testicular self-examination, while 1 (25%) stated he did not perform monthly examinations.

In contrast, 400 (94.1%) of the practitioners believed that examination of the testes by a nurse practitioner was an effective method to detect testicular cancer. Similarly, 408 (96.2%) believed practitioners should examine the testes of male patients, age 15-35, to screen for testicular cancer. However, only 84 (19.8%) indicated consistently performing a manual exam for

testicular cancer. Furthermore, only 197 (46.4%) reported performing manual exams for at least 70% of their 15-35 year old male patients.

Participants were asked to identify barriers that prevent nurse practitioners from screening for testicular cancer or teaching testicular self-examination to male patients. The barriers identified by participants were: time, 128 (30%); episodic care of males at risk, 124 (29%); embarrassment, 120 (28%); gender issues, 61 (14%); male patients' lack of knowledge, 53 (12%); male patients' resistance or refusal of the exam, 52 (12%); nurse practitioners' lack of knowledge and experience with the exam technique, 32 (8%); discomfort with the subject-sexuality issues, 20 (5%); cultural barriers, 20 (5%); liability issues-lack of personnel available to attend the exam, 16 (4%); lack of teaching supplies and educational material, 15 (4%); lack of support from colleagues, 9 (2%); forgetting to do it, 9 (2%); lack of publicity educating the public, 8 (2%); males' denial and perception of risk, 8 (2%); low incidence of testicular cancer, 8 (2%); practitioner unaware of importance, value, benefit risk ratio, 7 (2%); higher priorities, other health care prevention teaching, 7 (2%); language barrier, 7 (2%); lack of universal standard of practice, 5 (1%); no barriers, should be done on all males if being thorough, 5 (1%); examiners' reluctance, poor approach to the patient, 4 (1%); practitioner fear of arousing the patient, 3 (1%); age of patients at risk, 3 (1%); and little or conflicting information in the literature, 3 (1%).

#### Practice Implications

The survey results support the findings of Sladden and Dickinson (1995). Nurse Practitioners do think that testicular self-examination is an effective screening method to detect testicular cancer. However, while practitioners believe they should teach the procedure to male patients, teaching inconsistently materializes in actual clinical practice. Similarly, nurse practitioners believe that their examination of the testes is an effective screening method to detect testicular cancer. While practitioners acknowledged that they should screen male patients for testicular cancer, screening inconsistently occurs in clinical practice. It should be noted that a large

portion of the nurse practitioners commented that testicular examination is a routine part of the health maintenance physical exam for men, and most stated they did discuss testicular self-examination during this examination. Practitioners stated that the vast majority of males at risk seldom seek medical care, and when they do, they present for episodic, acute care visits. Preventative medical issues are not addressed at this time due to time constraints. One practitioner stated that she recommends that male patients make appointments for a health care maintenance exam, but finds that the patients do not follow through with this recommendation most of the time.

Another practitioner reported teaching female clients about testicular self-examination so they would pass the information along to their spouses or sons; one practitioner reported "asking fathers and patients who have brothers to inform other family members and share the brochures." Yet another practitioner gives the brochure to female clients with partners after teaching breast self-examination and encourages the couples to perform monthly exams on each other. Due to the infrequent and limited interaction with the males at risk, it appears that nurse practitioners must continue to develop unique ways to relay important preventative health information to the male population. Further studies should examine if practitioners inquire about a history of cryptorchidism and other factors that would place the male patient at increased risk of developing testicular cancer. Although it may be viewed as impossible and unrealistic to screen for testicular cancer and teach the testicular self-examination procedure to all males, screening and teaching must take place with those known to have risk factors in their history.

Interestingly, embarrassment and gender issues were identified as substantial barriers. Practitioners stated that "many men are reluctant to have a male exam done by a woman," while another reported "most male patients prefer a male provider." The barrier of embarrassment can be further broken down as: embarrassment of the patient, 46 (11%); embarrassment of the nurse practitioner, 22 (5%); embarrassment of both the patient and nurse practitioner, 22 (5%); and unspecified embarrassment, 30 (7%). These two barriers seemed to closely tie into many of the

other barriers identified and further research should examine this phenomenon. As professionals, nurse practitioners should not let unsubstantiated concerns rule clinical practice. It must be questioned if the same practitioners forgo prostate exams or hernia exams in their male population to shield the patients or themselves from embarrassment.

This study highlights shortcomings of California nurse practitioners' current screening efforts to detect testicular cancer and teach testicular self-examination. Practitioners clearly believed that they should screen for testicular cancer and should teach the testicular self-examination procedure to male patients. However, in actual practice, there is a lapse in both screening and teaching. Many barriers were identified that hinder screening for testicular cancer and teaching testicular self-examination, the foremost stemming from the infrequent, episodic care sought by the population at risk. Testicular cancer is a rare cancer only affecting approximately 1% of males. However, those patients with known risk factors are clearly at an increased risk for developing testicular cancer, and early detection is essential to decrease mortality and morbidity. The research findings emphasize the need for nurse practitioners to be aware of the risk factors for testicular cancer so that when contact is made with a male at risk, appropriate preventative health teaching can be incorporated and reinforced even at episodic care visits.

An anticipated limitation to the external validity of this study is that it is not generalizable. The sample included only nurse practitioners who are members of the California Coalition of Nurse Practitioners and practice in the State of California. In addition, only adult and family nurse practitioners were surveyed. Pediatric nurse practitioners and other nurse practitioners who may treat men ages 15-35 were excluded. The study should, therefore, be repeated by other researchers and include nurse practitioners from other groups to validate the findings. In addition, since this is the first study examining nurse practitioners' screening and teaching practices, it will produce only a superficial, initial exploration of the phenomena. The content validity of the original tool was established by Sladden and Dickinson (1995) who conducted a small pilot study prior to the

administration of the original questionnaire. In this study, six adult and family nurse practitioners determined that the tool had content validity. This is their professional opinion, and no other formal validity measures were done. Lastly, this is essentially a new instrument; therefore, no reliability is established.

The findings of the study support the research of Sladden and Dickinson (1995). However, the current study went a step further to identify the barriers responsible for the lack of consistent teaching and screening. Further research is necessary to validate the current study's findings and further explore the barriers identified. Once obtained, this information can be used to implement strategies to better reach males at risk. Testicular self-examination technique clearly has a place in the early diagnosis of testicular cancer in males, especially those with one or more risk factors, such as cryptorchidism.

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