Early Localized Prostate Cancer

A review of diagnostic tests and treatment options.

OVERVIEW: As many as 233,000 men in the United States are diagnosed with prostate cancer each year. Most diagnoses are of low-grade, localized disease, which tends to be slow growing and is rarely lethal, even in the absence of intervention. The amount and complexity of the information men receive at diagnosis may be overwhelming and difficult to process, particularly given the weight of a new cancer diagnosis and the potential for long-term, life-altering adverse effects from treatment. This review examines the multiple options available for men with newly diagnosed, low-risk, localized prostate cancer and explains how nurses can help these men and their partners make treatment decisions that are appropriate for their particular circumstances.

Keywords: adverse effects, decision making, prostate cancer, treatment

Prostate cancer is the solid tumor most frequently diagnosed in American men.[1] While most diagnoses are based on an abnormal prostate-specific antigen (PSA) test result and follow-up biopsy, there is significant controversy about using the PSA test as a population-based screening tool for this cancer.

In 2011, it was estimated that almost 2.8 million men living in the United States had at some point been diagnosed with prostate cancer.[2] According to the American Cancer Society, as many as 233,000 men in the United States are diagnosed with prostate cancer each year, 60% of whom are ages 65 or older.[1] Most diagnoses are low grade (Gleason score 6—see scoring details below) and localized (contained within the prostate). Since low-grade, localized prostate cancer is slow growing and rarely lethal, even in the absence of intervention,[3] it can be difficult for men to make treatment decisions after diagnosis—particularly if they do not understand the nuanced pathology results they receive and the potential for treatment to result in long-term adverse effects that can profoundly affect quality of life. This review will discuss the multiple intervention options available for men with newly diagnosed, low-risk, localized prostate cancer; the potential adverse effects associated with each option; and the nurse's role in helping men and their partners navigate the challenges of making treatment decisions that are appropriate in their particular circumstances.

PSA SCREENING: CONFLICTING RECOMMENDATIONS

Prostate cancer is diagnosed on the basis of a 12-core biopsy of the prostate, usually prompted by abnormal screening PSA results, a digital rectal examination (DRE), or both, performed in the absence of symptoms. Recommendations regarding the practice of screening asymptomatic men vary widely among professional and specialty health care organizations.

The U.S. Preventive Services Task Force advises against routine PSA screening of asymptomatic men, assigning it a "grade D recommendation," indicating "moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits" (see *Pros and Cons of PSA Screening*).[3] The American Cancer Society suggests that men have a detailed discussion with their health care provider about the risks and benefits of screening before consenting to the blood test.[4] The American Urological Association

(AUA) Guideline on the Early Detection of Prostate Cancer recommends against PSA screening in men who[5]

- are under the age of 40.
- are over the age of 70.
- have less than a 10-to-15-year life expectancy.
- are between the ages of 40 and 54 and are not at elevated risk.

The AUA recommends that men with such risk factors as a family history of prostate cancer or black race should be offered PSA screening, and that men between the ages of 55 and 69 who are of average risk with a life expectancy of more than 10 years should be counseled on the risks and benefits of PSA screening and given the opportunity to have the test if they so choose. Guidelines from the National Comprehensive Cancer Network (NCCN) suggest that health care providers discuss the pros and cons of PSA screening and DRE, which should be performed in those with an elevated serum PSA level.[6] Based on Category 2B (lower-level) evidence, the NCCN recommends that further screening be guided by PSA test results and the patient's age.

RISKS ASSOCIATED WITH BIOPSY

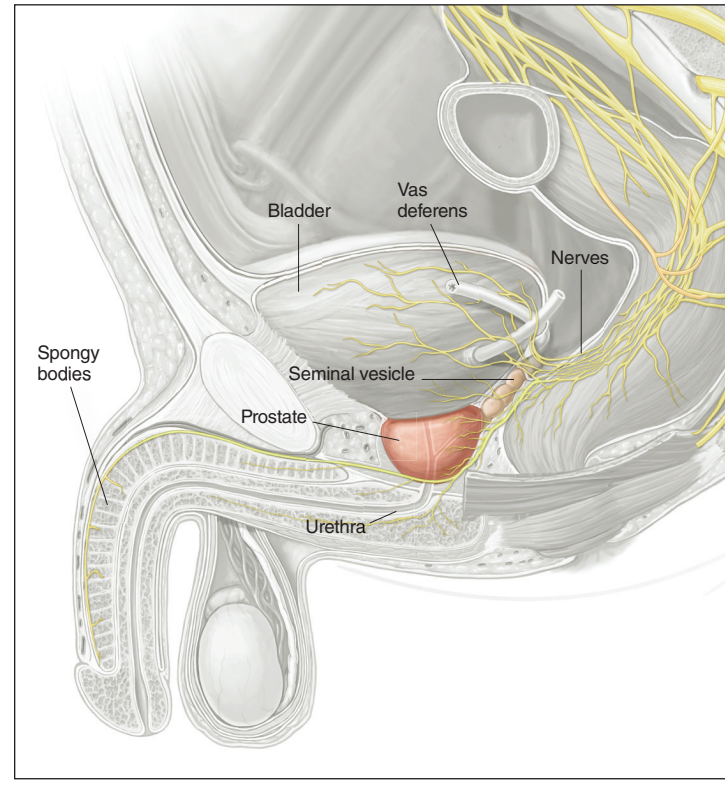
Biopsy of the prostate is not without risk. The rate of infection after prostate biopsy is estimated to be as high as 7%,[7] and in a study of 17,472 male Medicare participants who underwent prostate biopsy, 6.9% required hospitalization within 30 days of biopsy, usually for infection.[8] Men who develop such biopsy-related problems as pain, fever, hematuria, and hemoejaculate may experience heightened anxiety.[9] The prostate cancer gene 3 assay (PCA3), a urine test performed after prostate massage, has a high negative predictive value and can be used in men with a previous negative biopsy to predict the likelihood that they truly do not have the disease, thus allowing them to avoid unnecessary subsequent biopsies.[10, 11] The test, however, is expensive and not widely used in practice.

The Gleason grading system. Prostate cancer found on biopsy is reported using the Gleason grading system. The pathologist assigns a score of 1 to 5 to both the most dominant and the second most dominant pattern of abnormal cells in each "core," or tissue sample. For each sample found to have cancer, the sum of these two scores is the Gleason score, which can range from 2 to 10 in each case. Clinically, the Gleason score is interpreted as describing risk that is very low, low, intermediate, or high (see Table 1).[12] Since modification of the system in 2005, Gleason scores of 2 (1 + 1) to 5 (2 + 3 or 3 + 2) are reported as Gleason 6 disease.[13]

Management options are based on the PSA result, Gleason score, and volume of cancer (the number of samples that contain malignant cells and the percentage of each sample that is malignant). Some researchers suggest that low-volume prostate tumors with low Gleason scores should not be regarded as cancer at all, but rather as indolent lesions of epithelial origin that require no treatment.[14]

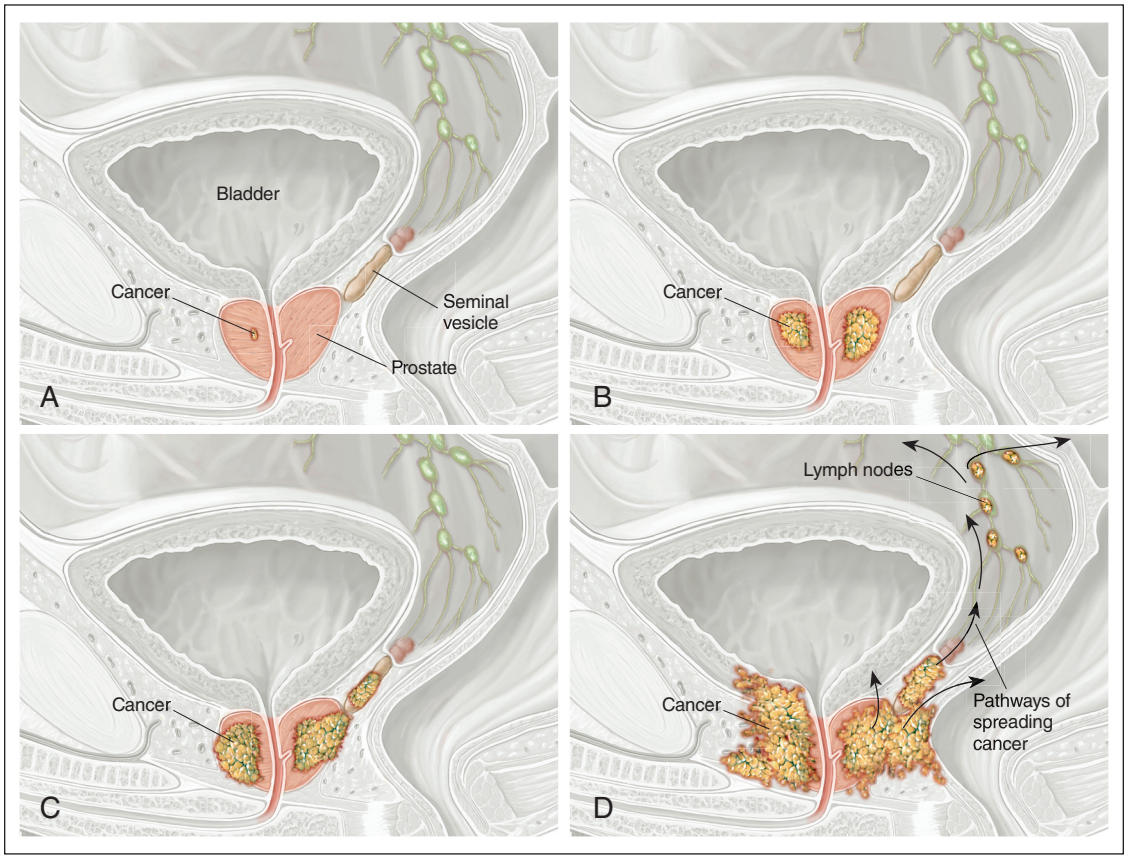
When considering intervention or observation, life expectancy is another factor to be taken into account, as intervention may diminish quality of life, and many low-risk, asymptomatic prostate cancers either do not progress or progress so slowly that they pose no risk to health or longevity.[3, 12] The amount and complexity of the information men receive at diagnosis may be overwhelming and difficult to process, particularly in light of the fact that they have recently been diagnosed with a cancer. By explaining the various options, nurses can help them arrive at a decision best suited to their circumstances (see *Key Patient Teaching Points*[3, 15-18]). For men with localized prostate cancer, the type most commonly diagnosed in the era of PSA screening, a number of intervention options are available, including active surveillance, prostatectomy, radiation therapy, and cryotherapy.

Figure 1. Male Reproductive Anatomy



Illustrations courtesy of the Anatomical Chart Company.

Figure 2. The Four Stages of Prostate Cancer



Stage I cancer (A) is located only in the prostate. It is found when a biopsy is performed (following test results indicating an increased prostate-specific antigen level) or during surgery for another reason, not during a digital rectal examination. Stage II cancer (B) hasn't spread outside the prostate, and can be felt during a digital rectal examination. Stage III cancer (C) has spread outside the prostate, perhaps to the seminal vesicles, but not to the lymph nodes. Stage IV cancer (D) may have spread to nearby muscles, organs, lymph nodes, or other parts of the body.

ACTIVE SURVEILLANCE

A modern approach to the management of low-risk, low-volume disease is active surveillance, a method of deferring or delaying invasive treatment or, for some men, avoiding treatment altogether.[19] Active surveillance differs from the more passive "watchful waiting" of previous decades, in which no intervention was provided until symptoms of locally advanced or metastatic disease developed.[20] While protocols for active surveillance differ among institutions and care providers, most take into account patient age, comorbid conditions, and pathological features. All involve regular PSA testing (at least every six months) and repeat biopsies at varying intervals.[21]

Active surveillance has been practiced for more than 15 years.[20] Of the men starting active surveillance, about 25% will go on to have treatment within two to three years of diagnosis, and that figure may rise to 50% at five years.[22] The reasons are many and may include patient preference, progression of disease on subsequent biopsy, and physician attitude.

In 2011, the National Institutes of Health convened a "state of the science" conference on the role of active surveillance in the management of localized prostate cancer.[22] They concluded that physician attitude and presentation may cast this option in a negative light; by characterizing active surveillance as "doing nothing," physicians may foster in patients the misconception that this approach is ineffective—a possibility suggested by the fact that only 10% of eligible candidates opt for this strategy.[22]

NCCN guidelines suggest that active surveillance should be more rigorous in younger men than in older men (though no age ranges are specified) and should include the following measures[12]:

- PSA testing no more than once every six months, unless clinically indicated
- DRE no more than once every 12 months, unless clinically indicated
- a repeat biopsy as often as every year, or with the discovery of an abnormality not previously noted on DRE or an increase in PSA level

The guidelines acknowledge, however, that neither increases in PSA level nor changes in DRE are reliable indicators of disease progression.

Adverse effects of active surveillance include anxiety and uncertainty.[23] There is, however, a paucity of research in this area owing in part to active surveillance being a relatively new management choice. Some men report that one significant challenge they faced in choosing this approach was justifying the decision to others, such as children or a spouse.[24] Some data indicate that the men themselves do not dread the repeated PSA testing necessary with this approach, though it tends to make their spouses or partners anxious.[25] Educating the man and his spouse or partner about the rationale for and effectiveness of active surveillance is vitally important, not only at the time of initial diagnosis but as often as is needed throughout the course of care.

Pros and Cons of PSA Screening

Prostate-specific antigen (PSA) levels can be determined with a simple blood test, but the decision to undergo PSA screening in the absence of symptoms is not always simple. Here are some of screening's potential pros and cons.

Potential Pros	Potential Cons
• Early detection of prostate cancer, with such subsequent benefits as o early treatment or surveillance o better outcome	• Unnecessary anxiety • Unnecessary biopsy, with such subsequent risks as o pain o infection o urinary difficulties o bleeding • Unnecessary treatment, with such subsequent risks as o erectile dysfunction o urinary incontinence o bowel dysfunction o premature death (rare) • Unnecessary costs

RADICAL PROSTATECTOMY

Surgery to remove the prostate gland and seminal vesicles remains the mainstay of active prostate cancer management for low-, intermediate-, and high-risk cases. There are three primary surgical procedures that can be used to remove the prostate: the open retropubic, laparoscopic, or robotic-assisted laparoscopic. The ultimate aim of all approaches, described as the "trifecta" outcome, is to achieve[26]

- an undetectable postoperative PSA level (suggesting cancer control)
- urinary continence
- preserved erectile functioning, with or without pharmacologic agents

Radical prostatectomy is associated with excellent cancer control: fewer than 10% of men die of the disease within 15 years of surgery.[27]

The decision to use a particular surgical method is usually made by the physician, unless the patient desires a specific procedure, such as robotic-assisted laparoscopic prostatectomy, and purposefully seeks out a urologist who is skilled in that technique. Data on short- and long-term outcomes of robotic-assisted surgery are limited by the relative novelty of this procedure. Initial studies suggest that it may be associated with less blood loss and shorter hospital stays than the other methods, but a number of commentators have expressed skepticism about its cost relative to its potential benefits. Studies have shown cancer control to be similar for the open and laparoscopic surgeries[28] and robotic-assisted laparoscopic prostatectomy to be associated with shorter hospital stays.[29] There is conflicting evidence regarding urinary and sexual outcomes associated with the various surgeries.

The popularity of robotic-assisted laparoscopic surgery is attributed in part to patients' desire for minimally invasive surgery using the latest technology and to aggressive marketing by both hospitals and the manufacturer of the robotic system.[30] Radical prostatectomy has become the most commonly performed robotic procedure and is regarded as a standard treatment option for localized prostate cancer.[31] Given the challenging learning curve surgeons face in mastering the use of the robot, the surgeon's experience in using this technique is an important consideration. In a series of 700 consecutive robotic-assisted radical prostatectomies performed at a single institution, perioperative outcomes, particularly those related to urinary continence, continued to improve throughout the series as the surgeons gained experience.[32]

Adverse effects of radical prostatectomy. Regardless of the surgical approach used, adverse effects of radical prostatectomy include urinary incontinence, difficulty achieving and maintaining an erection, altered sensation of orgasm, penile shrinkage, and loss of the ability to ejaculate. After radical prostatectomy, 5% to 48% of men develop stress urinary incontinence as a result of damage to the internal urinary sphincter during prostate excision.[33] Incontinence often develops into a social problem; the man may restrict social activities out of fear of embarrassment from leakage or the need to wear protective underwear

or pads. Incontinence management strategies include early pelvic floor physiotherapy and behavior modification. No pharmacologic treatment for urinary incontinence has been approved by the U.S. Food and Drug Administration (FDA), although duloxetine (Cymbalta), a serotonin–norepinephrine reuptake inhibitor, is sometimes used off label for this purpose. In men who have bothersome leakage after 12 months, surgical strategies, such as the implantation of an artificial urinary sphincter to close off the bladder neck or a surgical sling that supports the urethra and bladder neck, may be considered.[33]

As with prostatectomy, after radiation therapy men experience reduced or absent ejaculate.

Published studies of men undergoing prostatectomy seldom measure or report on baseline erectile function, making it difficult to establish the incidence of postsurgical erectile dysfunction, though it is well known to be a common adverse effect of surgery. Even men who report being able to achieve and sustain an erection after surgery may feel that their presurgical sexual functioning was superior to their postsurgical functioning. In a retrospective review of 568 men undergoing laparoscopic radical prostatectomy, 75% of all patients and 85% of those with satisfactory preoperative erectile functioning reported being able to achieve and sustain an erection two years after surgery, though only 27% said they had returned to their baseline erectile functioning.[34] Many men—and their health care providers—are under the misconception that "nerve sparing" (that is, not severing the erectile nerves during surgery) ensures the patient's ability to achieve and maintain erections after surgery. They fail to consider the effects of intraoperative trauma on the nerves,[35] in addition to venous leakage and arterial insufficiency, which are common after radical prostatectomy and leave many men with erections insufficient for penetrative intercourse.[36] Sexual changes after radical prostatectomy extend beyond erectile dysfunction, and include urinary incontinence related to arousal and orgasm; altered sensation of orgasm, including painful orgasms; penile shortening; and penile deformity.[37]

After radical prostatectomy, men also lose the ability to ejaculate, owing to removal of the seminal vesicles. Since past experience leads men to correlate ejaculation with orgasm, some may falsely equate the two. For this reason, it's important to let patients know, preoperatively, that orgasms are possible without ejaculation, and even without erections. Without this information, some patients may not attempt any kind of sexual activity, with or without a partner, as they believe there is no potential for them to experience sexual pleasure.

Loss of penile length, an adverse effect of prostatectomy that has significant consequences for a man's self-esteem and social comfort, is often omitted from presurgical discussions. The causes may include cavernous nerve injury, resulting in sympathetic overdrive and smooth muscle contraction; cavernosal tissue fibrosis; and penile tissue atrophy.[38] Loss of penile length may be mitigated by the use of oral phosphodiesterase type 5 (PDE-5) inhibitors.[39]

There is scant research comparing adverse sexual effects associated with the various surgical approaches. Men who decide to have robotic-assisted laparoscopic prostatectomy may experience greater postsurgical distress, as they may have had higher expectations of surgical outcomes and may experience more disappointment if their expectations are not met.[40] The ability to have penetrative intercourse tends to be regarded as central to male identity in many cultures; loss of erections can be devastating to the man and can cause relationship distress. Many partners report that treatment for prostate cancer has a negative impact on the sexual relationship that can grow worse with time.[41] Prostate cancer is thus often described as a couple's disease.[42]

Treating adverse sexual effects. Although there is no consensus on timing, dose, or duration of PDE-5–inhibitor therapy, it remains the first-line treatment for postprostatectomy erectile dysfunction. Success rates vary, but a systematic review of PDE-5–inhibitor use in men with postprostatectomy erectile dysfunction found that about one-third were able to achieve erections sufficient for penetration with sildenafil.[43] Second-line therapies include intracorporal injections, vacuum devices, and intraurethral suppositories. Although these are much more invasive than oral medications, they may be more effective in some men, and they cost less. Implantation of a penile prosthesis may be considered for men who do not respond to first- or second-line therapy.

Sex therapy or sexuality counseling is an important component of postsurgical sexual rehabilitation. In a review of randomized controlled trials that studied interventions used to enhance intimacy for men with prostate cancer and their partners, the authors concluded that partners may benefit from couples counseling and that individual counseling for the man may increase his use of erectile aids.[44] Another review found evidence that individual counseling can improve a man's sexual functioning, but evidence was inconclusive that psychosocial interventions (such as cognitive behavioral therapy, individual or couples counseling, or peer support) improved relationship functioning for the men or their partners.[45]

The partners of men treated for prostate cancer play an important, if complicated, role in the patient's recovery of sexual function and intimacy. While the partner's desire for sex is critical to patient recovery, some patients acknowledge feeling pressure to perform when their partner initiates sex.[46] Nurses can help couples work through this difficulty by encouraging them to communicate their feelings openly and honestly. Nurses who are uncomfortable speaking with patients about sex should refer affected couples for appropriate counseling, as sexuality and intimacy are important aspects of life that should not be neglected after prostate cancer intervention.

The role of grief and mourning. Wittmann and colleagues suggest that men who experience a loss of the ability to have a spontaneous erection during sexual activity after prostate surgery are likely to experience feelings of grief.[42] They suggest, however, that if men allow themselves to mourn their losses (of spontaneity, self-efficacy, and emotional control), they may be able to move through the grief process with each sexual encounter, ultimately experiencing pleasure and greater intimacy, gaining confidence, and exploring a different kind of eroticism. This approach, which suggests that acceptance allows for relationship growth and a different conceptualization of the sexual relationship, may strike some men as in stark contrast to the dominant biomedical approach of "fixing" the problem.

Penile rehabilitation. Over the past decade, much attention has been paid to the concept of penile rehabilitation as a means of mitigating or preventing the inevitable adverse sexual effects of surgery. Although the term has been used to describe a wide range of treatments, including oral medications, injections, suppositories, and surgical reconstruction, one form of "penile rehabilitation" in wide use consists of nightly administration of a low-dose PDE-5 inhibitor, beginning shortly after surgery and continuing for 24 months. The rationale for this approach is based largely on animal studies and in vitro data showing that low-dose PDE-5 inhibitors support cavernosal oxygenation and prevent hypoxia, which is associated with fibrosis and collagenization of penile tissues.[47] Low-dose PDE-5–inhibitor use, however, was widely adopted despite results of only two randomized controlled trials, one that reported a benefit of nightly sildenafil over placebo[48] and another that supported the use of on-demand vardenafil versus placebo.[49] A more recent trial showed no significant differences between nightly and on-demand low-dose sildenafil.[50]

RADIATION THERAPY

Radiation therapy for prostate cancer can be delivered by external beam, using three-dimensional conformal or intensity-modulated techniques. The former allows for higher doses of radiation to be given to the prostate but protects adjacent tissues, and the latter directs beams of radiation with different intensities to different parts of the tumor, thus reducing damage to adjacent tissues. Radiation therapy can also be delivered using the CyberKnife, which is a robotic system that usually requires general anesthesia and hospitalization. Brachytherapy is a minimally invasive method of providing local radiation treatment with radioactive seeds placed directly into the prostate gland.

External beam radiation therapy is often the preferred treatment for older men (over age 70) as it does not confer the same risks as surgery, which requires general anesthesia. Although there are no side-by-side comparative data on long-term survival for men undergoing radiation therapy versus radical prostatectomy for prostate cancer, five-year quality-of-life comparisons favor radiation therapy, because of the higher incidence of urinary incontinence associated with radical prostatectomy.[51]

Adverse effects of radiation therapy, which include sexual dysfunction, cystitis, proctitis, rectal pain and bleeding, and fatigue, tend to occur at the beginning of radiation therapy and are progressive in nature. About 30% to 40% of men treated with external beam radiation therapy, and 5% to 51% of those treated with brachytherapy, experience erectile dysfunction, with a higher prevalence among those who receive both brachytherapy and external beam radiation therapy.[52] As with prostatectomy, after radiation therapy men experience reduced or absent ejaculate.

Table 1. The National Comprehensive Cancer Network Definitions of Risk[12]

Very Low Risk
• Clinical stage T1c
• Gleason score ≤ 6
• PSA < 10 ng/mL
• Fewer than three positive prostate biopsy cores with ≤ 50% cancer in any core
• PSA density < 0.15 ng/mL/g
Low Risk
• Clinical stage T1–T2a
• Gleason score ≤ 6
• PSA < 10 ng/mL
Intermediate Risk
• Clinical stage T2b–T2c, or
• Gleason score 7, or
• PSA 10–20 ng/mL
High Risk
• Clinical stage T3a, or
• Gleason score 8–10, or
• PSA > 20 ng/mL

T1 = tumor cannot be felt or imaged; T1c = cancer detected on biopsy but with no abnormality felt; T2a = nodule felt on digital rectal examination is not larger than one-quarter of the prostate; T2b = tumor felt on one side of the prostate; T2c = tumor felt on both sides of the prostate; T3a = tumor extends to seminal vesicles.

Key Patient Teaching Points

- A large proportion of low-risk, asymptomatic prostate cancers either do not progress or progress so slowly that they pose no risk to health or longevity.[3]
- Adverse effects of prostatectomy may include urinary incontinence, difficulty achieving and maintaining an erection, altered sensation of orgasm, penile shrinkage, and loss of the ability to ejaculate.
- Adverse effects of radiation therapy include sexual dysfunction, cystitis, proctitis, rectal pain and bleeding, and fatigue.
- Adverse effects of cryotherapy may include rectourethral fistula (0% to 3%), profound erectile dysfunction, urinary retention and incontinence, urethral sloughing (minimized with newer techniques), and pelvic or rectal pain.[15, 16]
- Phosphodiesterase type 5–inhibitor therapy is the first-line treatment for erectile dysfunction and the least invasive, but intracorporal injections, vacuum devices, and intraurethral suppositories may be more effective for some men, and they cost less.[17]
- Rectal and urinary adverse effects are treated symptomatically, with improvement usually seen over time.[18]
- Orgasm is still possible without ejaculation—and even without erection.

A prospective quality-of-life and satisfaction survey of 1,201 prostate cancer survivors and 625 of their spouses or partners found that adverse bowel effects, such as rectal pain, frequency, urgency, and fecal incontinence, affected 9% of men who received radiotherapy or brachytherapy, producing distress in 4% to 5% of spouses or partners.[53] Urinary symptoms causing distress after radiation therapy are usually irritative or obstructive in nature but tend to be rare and improve over time.[18] A recent report suggests that men who experience urinary and bowel adverse effects causing odor have diminished quality of life and feelings of depression.[54] Toxicity is related to the radiation dose, and newer methods of providing radiation, including intensity-modulated methods, produce lower toxicity rates.[55]

Erectile dysfunction secondary to radiation therapy can be treated with oral PDE-5 inhibitors. Rectal and urinary effects are treated symptomatically, with improvement usually seen over time.[18]

Nurses should teach the patient and his partner about the potential for these adverse effects and provide anticipatory guidance. Encourage the patient to report any symptoms as soon as they occur so they can be addressed as soon as possible.

CRYOTHERAPY AND EXPERIMENTAL TREATMENTS

Cryotherapy has been used to treat low-risk, localized prostate cancer since 1996. It is a minimally invasive treatment that involves freezing the prostate, using an argon-based freezing system that produces an ice ball at the end of a needle inserted into the prostate. Five-year survival rates are cited as 77%.[15] Complications and adverse effects of treatment include rectourethral fistula (complication rates for which have been reported to be 0% to 3% for the third-generation systems), profound erectile dysfunction owing to the freezing of erectile nerves, urinary retention issues and incontinence, urethral sloughing (also minimized with newer techniques), and pelvic or rectal pain.[15, 16] Cryotherapy is not available in all health care facilities.

Experimental treatments. Two treatments regarded as experimental in the United States have been used for years in Europe: high-intensity focused ultrasound and proton beam therapy.

High-intensity focused ultrasound destroys prostate tissue with intense heat. At this time, the FDA has not approved the devices developed to perform this treatment. There is a paucity of literature on this method, with case studies reported for a mean follow-up of only 6.4 years.[56] The procedure requires general or spinal anesthesia; at the end of treatment, a suprapubic catheter is inserted and the patient is monitored for 24 to 48 hours before discharge.[57] Adverse effects include difficulty voiding, urinary retention, and erectile dysfunction.[58] In July 2014, the FDA voted to not approve high-intensity focused ultrasound for the treatment of localized prostate cancer.[59]

Proton beam therapy is a form of radiation therapy with the advantage of minimizing radiation scatter and subsequent damage to adjacent tissues. An ongoing phase 3 trial sponsored by the National Cancer Institute comparing proton beam therapy with intensity-modulated radiation therapy (NCT01617161) may provide evidence for efficacy and outcomes. Some researchers have expressed concerns about rectal toxicity (pain and bleeding), the risk of secondary malignancies associated with treatment,[60] and the high cost of equipment installation, which is in the range of $100 million to $200 million for each center.[61]

MAKING TREATMENT DECISIONS

When a man is diagnosed with prostate cancer—especially if it's a low-risk, localized prostate cancer—he often has to choose a treatment based on limited evidence concerning the superiority of one treatment over another. For some men, it's the treatment-related adverse effects and their impact on quality of life that influences that decision; for others, it's the faith they have in their health care team.

The patient's communication with the health care team, typically dominated by the physician, tends to include diagnosis, risk classification, treatment options, the need to make a decision, and next steps. Shock over the diagnosis may cloud some patients'

ability to understand what they're being told. In one study, 37.8% of men with prostate cancer reported being less than satisfied with their ability to communicate with their physician.[62] Satisfaction with communication is improved if the health care provider has contextual knowledge of the patient—that is, if she or he has knowledge of and shows interest in the patient's personal life, family, and living situation.[63]

Because the two major treatment options, radical prostatectomy and radiation therapy, are delivered by physicians practicing in different specialty areas (urology and radiation oncology, respectively), there is the risk that a patient's choice of management will be influenced by the perspective of the physician he first consults,[64] as patients are not routinely referred to another physician for consideration of a different treatment modality.

The patient's role. A recent study that included 150 men receiving treatment for newly diagnosed prostate cancer at two western Canadian outpatient urology clinics suggests that some men have a definite idea about the role they want to play in treatment decision making: 38% preferred to play an active role, making the final decision after considering their physician's opinion; 52.7% chose to play a collaborative role, sharing the decision making with the physician; and 9.3% wanted to play a passive role, letting the physician decide the best course of treatment.[65] Because patients are not often asked what role they want to play in treatment decision making, their information needs and those of their partner are frequently unmet.[66, 67] Many men and their partners don't know much about prostate cancer and the available treatments. This lack of knowledge may affect how they respond to the diagnosis, make treatment decisions, and ultimately cope with unanticipated adverse effects of treatment.

The partner's role. Studies suggest that the role of the man's partner in the decision-making process may vary considerably.[68, 69] The partner often becomes the primary information seeker, especially if the patient is overwhelmed by the diagnosis or confused about treatment choices.[70] A recent study on the topic reported that 80% of partners were encouraged by the provider to be involved in the treatment decision process, and 69% said that they played a role in helping the patient make his treatment decision.[71]

A literature review by Zeliadt and colleagues suggests that anxiety at the time of diagnosis, the complexity of the issues, and the lack of strong evidence for one treatment over another all affect how patients respond to the decision-making process; patients also vary in how they interpret information about treatment efficacy.[72]

A recent review suggests that men try to balance the potential benefits of treatment with the potential harms, but in complex ways and with wide variation among patients; in a protracted process, men consider such information as perceived expertise of the physician and other professionals (including nurses), the state of the equipment involved, and others' opinions.[73]

PSYCHOSOCIAL CARE

A key role of nurses in caring for patients with prostate cancer is in identifying the learning needs of the newly diagnosed man and his partner, and in providing targeted information that is appropriate to their level of education, the gaps in their knowledge, and their health literacy. It is also vital for nurses to identify those who are experiencing distress, particularly shortly after diagnosis, and help them address their psychosocial needs.[74]

Nurses should also assess relationship distress, as patients may be reluctant to broach the subject. The Distress Thermometer (available at www.nccn.org/patients/resources/life_with_cancer/pdf/nccn_distress_thermometer.pdf) has been shown to be valid for assessing distress in men with prostate cancer, especially soon after diagnosis.[75] Nurses can familiarize themselves with online and face-to-face support groups so they can refer men who would find participation helpful. While psychosocial interventions for men with prostate cancer are often beneficial in the short term, bear in mind that benefits may be small, unsustainable, or not clinically meaningful.[76, 77]

Nurses play an important role in educating patients and their partners.

SPECIAL CONSIDERATIONS FOR GAY AND SINGLE MEN

Most of the research on psychosocial aspects of prostate cancer care and treatment focus on heterosexual partnered men. The experiences of single men and gay men have received very little attention in the professional literature. A study by Kazer and colleagues suggests that single men rely heavily on their health care team in making treatment decisions, and the confidence they have in their team largely affects their ability to cope with diagnosis and treatment.[78] Single men within the prostate cancer population may need special attention, as their sources of social and emotional support may be limited.

A seminal 2005 article by Blank highlighted the paucity of research on gay men with prostate cancer.[79] Blank discusses the challenges that gay men face in the predominately heterosexual health care system and addresses such issues as erectile functioning being commonly defined as "the ability to

have and maintain an erection sufficient for vaginal intercourse," which clearly fails to address the gay man's experience of sexuality. He describes how sexual relationships and social support differ within gay and heterosexual populations and calls for health care providers to be sensitive to the diversity that exists among men.

Thomas and colleagues conducted an online focus group with self-identified gay and bisexual men with prostate cancer.[80] Much like heterosexual men, gay and bisexual men experienced distress related to adverse treatment effects, such as sexual dysfunction and incontinence, and the adverse effects were associated with a stigma that affected their view of themselves as sexually desirable and their confidence in their ability to have future relationships. A multinational online survey had similar results, with one important additional finding differentiating gay and straight men: gay men were significantly more distressed by the loss of ejaculation than their heterosexual counterparts.[81] This is regarded as a cultural issue among gay men, for whom ejaculation tends to be highly valued as a sign of sexual satisfaction.[81]

THE NURSE'S EVOLVING ROLE IN PROSTATE CANCER CARE

Nurses play an important role in supporting the man and his partner at the time of diagnosis, before and during treatment, and in the years of survivorship. Nurses are vital in educating patients in surgical and radiation care, both before and after intervention, though such care is beyond the scope of this article.

Most studies of the nurse's role in caring for men with prostate cancer come from outside the United States; but in these studies, nurses provide a wide range of services along the disease trajectory—providing information and emotional support as well as leading clinics for men experiencing treatment-related sexual dysfunction.[82]

A British study in this patient population found that greater contact with a nurse significantly reduced the number and range of unmet patient needs.[83] A literature review of nursing interventions used to support men receiving radiation therapy for prostate cancer found that nurses were effective in providing patients with information about managing adverse effects.[84] An Australian study found that men treated with radiation therapy found nurse-led telephone support, follow-up, and consultation to be effective and satisfactory.[85]

Turner and Aslet report on a program in the United Kingdom in which NPs perform prostate biopsies to speed up the diagnostic pathway for men suspected of having prostate cancer.[86] Specialist nurses in the UK's health care system (the equivalent of clinical nurse specialists or NPs in the United States) have been shown to improve knowledge in men with prostate cancer and to help them make independent treatment decisions. There, the specialist nurse acts as a liaison between the patient and the medical team.[87] In another British initiative, nurses contacted men who had been treated for prostate cancer two to three years previously and were following an observation protocol to provide them with their PSA test results. Over a four-year period, 67 men were enrolled, and of the 46 who continued receiving calls, 90% expressed satisfaction with the service.[88]

The Prostate Cancer Foundation of Australia has employed 13 prostate cancer specialist nurses to work with medical teams across the country.[89] The specialist nurse helps the patient and family navigate the continuum of care, providing reliable information, psychological support, and clinical care.[90] In Spain, nurses participating in a clinic for men with erectile dysfunction after radical prostatectomy provide patients with treatment-related information, education, and support; and, in conjunction with the health care team, help patients select the treatment best suited to their needs.[91]

Canadian researchers Bryant-Lukosius and colleagues suggest that advanced practice nurses have the potential to provide episodic care for men with localized prostate cancer.[92] They consider both clinical nurse specialists and NPs as an important part of follow-up care for men with urinary, bowel, and sexual functioning problems.

Colella and Gejerman describe an evidence-based initiative established in Michigan, in which 20 men with localized prostate cancer who had been treated with external beam radiation therapy received survivorship health counseling in individual 45-minute sessions conducted by an advanced practice nurse, as well as a written survivorship care plan (SCP).[93] The counseling sessions and SCP packet addressed adverse effects of treatment, physical symptom management, and psychosocial support. The SCP packet also included community resources for future reference. Patient satisfaction surveys indicated that patients found the intervention effective and supportive, suggesting that advanced practice oncology nurses have an opportunity to take the lead in establishing and managing survivorship models.[93] (An example of a SCP specific to prostate cancer can be found at www.journeyforward.org/sites/journeyforward/files/sample-care-plan_prostate_1.pdf.)

Elsewhere in the United States, nurses have been involved in supportive care for decision making, education, support, and treatment for postoperative erectile dysfunction.[94] However, a detailed search of nursing literature did not find information about U.S. nurses taking on diagnostic and treatment roles similar to those taken on in other countries. ▼

For 12 additional continuing nursing education activities on cancer-related topics, go to www.nursingcenter.com/ce.

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REFERENCES

1. American Cancer Society. *What are the key statistics about prostate cancer?* 2014. http://www.cancer.org/cancer/prostatecancer/detailedguide/prostate-cancer-key-statistics.
2. Siegel R, et al. Cancer treatment and survivorship statistics, 2012. *CA Cancer J Clin* 2012;62(4):220-41.
3. Moyer VA, U. S. Preventive Services Task Force. Screening for prostate cancer: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med* 2012;157(2):120-34.
4. American Cancer Society. *Can prostate cancer be found early?* 2014. http://www.cancer.org/cancer/prostatecancer/detailedguide/prostate-cancer-detection.
5. Carter HB, et al. Early detection of prostate cancer: AUA guideline. *J Urol* 2013;190(2):419-26.
6. National Comprehensive Cancer Network. *NCCN clinical practice guidelines in oncology: prostate cancer early detection version 1.2014*. Fort Washington, PA; 2014 Mar 10. http://www.tri-kobe.org/nccn/guideline/urological/english/prostate_detection.pdf.
7. Liss MA, et al. Prevalence and significance of fluoroquinolone resistant Escherichia coli in patients undergoing transrectal ultrasound guided prostate needle biopsy. *J Urol* 2011;185(4):1283-8.
8. Loeb S, et al. Complications after prostate biopsy: data from SEER-Medicare. *J Urol* 2011;186(5):1830-4.
9. Wade J, et al. Psychological impact of prostate biopsy: physical symptoms, anxiety, and depression. *J Clin Oncol* 2013;31(33):4235-41.
10. Kirby R, Fitzpatrick JM. Optimising repeat prostate biopsy decisions and procedures. *BJU Int* 2012;109(12):1750-4.
11. Luo Y, et al. Prostate cancer antigen 3 test for prostate biopsy decision: a systematic review and meta analysis. *Chin Med J (Engl)* 2014;127(9):1768-74.
12. National Comprehensive Cancer Network. *NCCN clinical practice guidelines in oncology: prostate cancer version 1.2014*. Fort Washington, PA; 2013 Nov 27. http://www.cus.cz/wp-content/uploads/2012/10/NCCN-C61-2014.pdf.
13. Brimo F, et al. Contemporary grading for prostate cancer: implications for patient care. *Eur Urol* 2013;63(5):892-901.
14. Esserman L, et al. Rethinking screening for breast cancer and prostate cancer. *JAMA* 2009;302(15):1685-92.
15. Ritch CR, Katz AE. Prostate cryotherapy: current status. *Curr Opin Urol* 2009;19(2):177-81.
16. Finley DS, et al. Primary and salvage cryotherapy for prostate cancer. *Urol Clin North Am* 2010;37(1):67-82.
17. Mirza M, et al. Erectile dysfunction and urinary incontinence after prostate cancer treatment. *Semin Oncol Nurs* 2011;27(4):278-89.
18. Budaus L, et al. Functional outcomes and complications following radiation therapy for prostate cancer: a critical analysis of the literature. *Eur Urol* 2012;61(1):112-27.
19. Klotz L. Prostate cancer overdiagnosis and overtreatment. *Curr Opin Endocrinol Diabetes Obes* 2013;20(3):204-9.
20. Klotz L. Active surveillance: patient selection. *Curr Opin Urol* 2013;23(3):239-44.
21. Pan DL, et al. The current status of active surveillance for prostate cancer. *Postgrad Med* 2012;124(3):50-8.
22. Ganz PA, et al. National Institutes of Health state-of-the-science conference: role of active surveillance in the management of men with localized prostate cancer. *Ann Intern Med* 2012;156(8):591-5.
23. Kazer MW, et al. Psychosocial aspects of active surveillance. *Curr Opin Urol* 2013;23(3):273-7.
24. Volk RJ, et al. 'It's not like you just had a heart attack': decision-making about active surveillance by men with localized prostate cancer. *Psychooncology* 2014;23(4):467-72.
25. Seiler D, et al. Protocol-based active surveillance for low-risk prostate cancer: anxiety levels in both men and their partners. *Urology* 2012;80(3):564-9.
26. Borregales LD, et al. 'Trifecta' after radical prostatectomy: is there a standard definition? *BJU Int* 2013;112(1):60-7.
27. Han M, et al. Long-term biochemical disease-free and cancer-specific survival following anatomic radical retropubic prostatectomy: the 15-year Johns Hopkins experience. *Urol Clin North Am* 2001;28(3):555-65.
28. Healy KA, Gomella LG. Retropubic, laparoscopic, or robotic radical prostatectomy: is there any real difference? *Semin Oncol* 2013;40(3):286-96.
29. Moran PS, et al. Robot-assisted radical prostatectomy compared with open and laparoscopic approaches: a systematic review and meta-analysis. *Int J Urol* 2013;20(3):312-21.
30. Wilson T, Torrey R. Open versus robotic-assisted radical prostatectomy: which is better? *Curr Opin Urol* 2011;21(3):200-5.
31. Goldstraw MA, et al. Overcoming the challenges of robot-assisted radical prostatectomy. Prostate *Cancer Prostatic Dis* 2012;15(1):1-7.
32. Zorn KC, et al. Continued improvement of perioperative, pathological and continence outcomes during 700 robot-assisted radical prostatectomies. *Can J Urol* 2009;16(4):4742-9.
33. Adamakis I, et al. The treatment of iatrogenic male incontinence: latest results and future perspectives. *Rev Recent Clin Trials* 2013;8(1):36-41.
34. Levinson AW, et al. Is a return to baseline sexual function possible? An analysis of sexual function outcomes following laparoscopic radical prostatectomy. *World J Urol* 2011;29(1):29-34.
35. Salonia A, et al. Prevention and management of postprostatectomy sexual dysfunctions. Part 1: choosing the right patient at the right time for the right surgery. *Eur Urol* 2012;62(2):261-72.
36. Tal R, et al. Persistent erectile dysfunction following radical prostatectomy: the association between nerve-sparing status and the prevalence and chronology of venous leak. *J Sex Med* 2009;6(10):2813-9.
37. Frey AU, et al. Neglected side effects after radical prostatectomy: a systematic review. *J Sex Med* 2014;11(2):374-85.
38. Benson JS, et al. Penile shortening after radical prostatectomy and Peyronie's surgery. *Curr Urol Rep* 2009;10(6):468-74.
39. Berookhim BM, et al. Prospective analysis of penile length changes after radical prostatectomy. *BJU Int* 2014;113(5b):E131-E136.
40. O'Shaughnessy PK, et al. Differences in self-reported outcomes of open prostatectomy patients and robotic prostatectomy patients in an international web-based survey. *Eur J Oncol Nurs* 2013;17(6):775-80.
41. Ramsey SD, et al. Impact of prostate cancer on sexual relationships: a longitudinal perspective on intimate partners' experiences. *J Sex Med* 2013;10(12):3135-43.
42. Wittmann D, et al. A biopsychosocial approach to sexual recovery after prostate cancer surgery: the role of grief and mourning. *J Sex Marital Ther* 2011;37(2):130-44.
43. Montorsi F, McCullough A. Efficacy of sildenafil citrate in men with erectile dysfunction following radical prostatectomy: a systematic review of clinical data. *J Sex Med* 2005;2(5):658-67.
44. Nelson CJ, Kenowitz J. Communication and intimacy-enhancing interventions for men diagnosed with prostate cancer and their partners. *J Sex Med* 2013;10 Suppl 1:127-32.
45. Chisholm KE, et al. Review: psychosocial interventions addressing sexual or relationship functioning in men with prostate cancer. *J Sex Med* 2012;9(5):1246-60.
46. Wittmann D, et al. Exploring the role of the partner in couples' sexual recovery after surgery for prostate cancer. *Support Care Cancer* 2014;22(9):2509-15.

47. Garcia FJ, Brock G. Current state of penile rehabilitation after radical prostatectomy. *Curr Opin Urol* 2010;20(3):234-40.
48. Padma-Nathan H, et al. Randomized, double-blind, placebo-controlled study of postoperative nightly sildenafil citrate for the prevention of erectile dysfunction after bilateral nerve-sparing radical prostatectomy. *Int J Impot Res* 2008;20(5): 479-86.
49. Montorsi F, et al. Effect of nightly versus on-demand vardenafil on recovery of erectile function in men following bilateral nerve-sparing radical prostatectomy. *Eur Urol* 2008; 54(4):924-31.
50. Pavlovich CP, et al. Nightly vs on-demand sildenafil for penile rehabilitation after minimally invasive nerve-sparing radical prostatectomy: results of a randomized double-blind trial with placebo. *BJU Int* 2013;112(6):844-51.
51. Potosky AL, et al. Five-year outcomes after prostatectomy or radiotherapy for prostate cancer: the Prostate Cancer Outcomes Study. *J Natl Cancer Inst* 2004;96(18):1358-67.
52. Incrocci L, Jensen PT. Pelvic radiotherapy and sexual function in men and women. *J Sex Med* 2013;10 Suppl 1:53-64.
53. Sanda MG, et al. Quality of life and satisfaction with outcome among prostate-cancer survivors. *N Engl J Med* 2008; 358(12):1250-61.
54. Alsadius D, et al. Perception of body odor—an overlooked consequence of long-term gastrointestinal and urinary symptoms after radiation therapy for prostate cancer. *J Cancer Surviv* 2013;7(4):652-8.
55. Ohri N, et al. Late toxicity rates following definitive radiotherapy for prostate cancer. *Can J Urol 2012*;19(4):6373-80.
56. Lukka H, et al. High-intensity focused ultrasound for prostate cancer: a systematic review. *Clin Oncol (R Coll Radiol)* 2011;23(2):117-27.
57. Sountoulides P, et al. The current role of high-intensity focused ultrasound for the management of radiation-recurrent prostate cancer. *Expert Rev Med Devices* 2012;9(4):401-8.
58. Chaussy CG, Thuroff SF. Robotic high-intensity focused ultrasound for prostate cancer: what have we learned in 15 years of clinical use? *Curr Urol Rep* 2011;12(3):180-7.
59. Hand L. FDA panel pans HIFU for prostate cancer. *Medscape.com* 2014 Jul 31. http://www.medscape.com/viewarticle/829179.
60. Mouw KW, et al. Clinical controversies: proton therapy for prostate cancer. *Semin Radiat Oncol* 2013;23(2):109-14.
61. Kagan AR, Schulz RJ. Proton-beam therapy for prostate cancer. *Cancer J* 2010;16(5):405-9.
62. Cegala DJ, et al. Information seeking and satisfaction with physician-patient communication among prostate cancer survivors. *Health Commun* 2008;23(1):62-9.
63. Song L, et al. Patient-health care provider communication among patients with newly diagnosed prostate cancer: findings from a population-based survey. *Patient Educ Couns* 2013;91(1):79-84.
64. Fowler FJ, Jr., et al. Comparison of recommendations by urologists and radiation oncologists for treatment of clinically localized prostate cancer. *JAMA* 2000;283(24):3217-22.
65. Davison BJ, Breckon EN. Impact of health information-seeking behavior and personal factors on preferred role in treatment decision making in men with newly diagnosed prostate cancer. *Cancer Nurs* 2012;35(6):411-8.
66. Feltwell AK, Rees CE. The information-seeking behaviours of partners of men with prostate cancer: a qualitative pilot study. *Patient Educ Couns* 2004;54(2):179-85.
67. Sinfield P, et al. Patient-centred care: What are the experiences of prostate cancer patients and their partners? *Patient Educ Couns* 2008;73(1):91-6.
68. Davison BJ, et al. Provision of individualized information to men and their partners to facilitate treatment decision making in prostate cancer. *Oncol Nurs Forum* 2003;30(1):107-14.
69. Schumm K, et al. 'They're doing surgery on two people': a meta-ethnography of the influences on couples' treatment decision making for prostate cancer. *Health Expect* 2010; 13(4):335-49.
70. Echlin KN, Rees CE. Information needs and information-seeking behaviors of men with prostate cancer and their partners: a review of the literature. *Cancer Nurs* 2002;25(1): 35-41.
71. Zeliadt SB, et al. Provider and partner interactions in the treatment decision-making process for newly diagnosed localized prostate cancer. *BJU Int* 2011;108(6):851-6; discussion 6-7.
72. Zeliadt SB, et al. Why do men choose one treatment over another? A review of patient decision making for localized prostate cancer. *Cancer* 2006;106(9):1865-74.
73. Feldman-Stewart D, et al. Information that affects patients' treatment choices for early stage prostate cancer: a review. *Can J Urol* 2011;18(6):5998-6006.
74. Paterson C, et al. Exploring the relationship between coping, social support and health-related quality of life for prostate cancer survivors: a review of the literature. *Eur J Oncol Nurs* 2013;17(6):750-9.
75. Chambers SK, et al. The validity of the distress thermometer in prostate cancer populations. *Psychooncology* 2014; 23(2):195-203.
76. Chien CH, et al. The effects of psychosocial strategies on anxiety and depression of patients diagnosed with prostate cancer: a systematic review. *Int J Nurs Stud* 2014;51(1):28-38.
77. Parahoo K, et al. Psychosocial interventions for men with prostate cancer. *Cochrane Database Syst Rev* 2013;12: CD008529.
78. Kazer MW, et al. The experiences of unpartnered men with prostate cancer: a qualitative analysis. *J Cancer Surviv* 2011; 5(2):132-41.
79. Blank TO. Gay men and prostate cancer: invisible diversity. *J Clin Oncol* 2005;23(12):2593-6.
80. Thomas C, et al. The experiences of gay and bisexual men diagnosed with prostate cancer: results from an online focus group. *Eur J Cancer Care (Engl)* 2013;22(4):522-9.
81. Wassersug RJ, et al. Diagnostic and outcome differences between heterosexual and nonheterosexual men treated for prostate cancer. *Urology* 2013;82(3):565-71.
82. Ream E, et al. Working patterns and perceived contribution of prostate cancer clinical nurse specialists: a mixed method investigation. *Int J Nurs Stud* 2009;46(10):1345-54.
83. Cockle-Hearne J, et al. The impact of supportive nursing care on the needs of men with prostate cancer: a study across seven European countries. *Br J Cancer* 2013; 109(8):2121-30.
84. Tärnhuvud M, et al. Nursing interventions to improve the health of men with prostate cancer undergoing radiotherapy: a review. *Eur J Oncol Nurs* 2007;11(4):328-39.
85. Leahy M, et al. Satisfaction with nurse-led telephone follow up for low to intermediate risk prostate cancer patients treated with radical radiotherapy: a comparative study. *Eur J Oncol Nurs* 2013;17(2):162-9.
86. Turner B, Aslet P. Nurse practitioner-led prostate biopsy in the United Kingdom. *Urol Nurs* 2011;31(6):351-3.
87. Tarrant C, et al. Is seeing a specialist nurse associated with positive experiences of care? The role and value of specialist nurses in prostate cancer care. *BMC Health Serv Res* 2008; 8:65.
88. Anderson B. The benefits to nurse-led telephone follow-up for prostate cancer. *Br J Nurs* 2010;19(17):1085-90.
89. Pascoe W. Nurses play direct role in the care of prostate cancer patients. *Aust Nurs J* 2012;19(11):47.
90. Kiernan D. Prostate cancer specialist nurse. *Aust Nurs* J 2012; 20(5):44-5.
91. Lombrana M, et al. Nursing care program for erectile dysfunction after radical prostatectomy. *Clin J Oncol Nurs* 2012;16(5):E178-E182.
92. Bryant-Lukosius D, et al. Evaluating health-related quality of life and priority health problems in patients with prostate cancer: a strategy for defining the role of the advanced practice nurse. *Can Oncol Nurs J* 2010;20(1):5-14.
93. Colella J, Gejerman G. Survivorship health information counseling for patients with prostate cancer. *Urol Nurs* 2013;33(6):273-80, 311.
94. Madsen LT, et al. A multidisciplinary prostate cancer clinic for newly diagnosed patients: developing the role of the advanced practice nurse. *Clin J Oncol Nurs* 2009;13(3):305-9.