

<b>Title</b>	Prostate Cancer: An Epidemic in Waiting
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<b>Course No</b>	PC052206
<b>Contact Hours</b>	2

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## Purpose

The purpose of this module is to provide the reader with current accurate information on the management of prostate cancer. This information is intended to develop and update the reader's knowledge of prostate cancer to better help them provide optimal care to this client group.

## Objectives

1. Discuss the epidemiology and etiology of prostate cancer
  2. Understand the anatomy and physiology of the prostate gland
  3. Explain how prostate cancer is diagnosed
  4. Discuss current issues regarding screening of prostate cancer
  5. Compare and contrast current treatment options for this disease
  6. Describe the nurses role in caring for patients with prostate cancer
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## Introduction

Prostate Cancer is an important health problem with considerable social and economic consequences. Although it previously had relatively low profile in the public health arena, it has received increased media attention in recent years, paralleling the publicity that breast cancer had previously been given. This has been hastened by the fact that many celebrities and eminent personalities have been diagnosed with and died from prostate cancer. Telly Savalas, John Kerry, Colin Powell, and Nelson Mandela are examples of those who have been affected by this disease. It is characteristically a disease of older men and represents a growing health problem for society. Prostate cancer and its treatments not only challenge the stereotypical image of men and male sense of identity, but can also diminish self-esteem. (1,5)

## Epidemiology

Cancer of the prostate gland is the most common form of cancer (excluding skin cancers) in American men. The American Cancer Society (ACS) estimates that during the year 2005 about 232,090 new cases of prostate cancer were diagnosed in the United States. About 1 in 6 American men will be diagnosed with prostate cancer in his lifetime, but only 1 man in 34 will die of the disease, A little over 1.8 million men in the United States are survivors of prostate cancer. (5,9)

Prostate cancer is now the second leading cause of cancer death in American men; it is exceeded only by lung cancer. In the year 2005 the ACS estimated that prostate cancer claimed the lives of 30,350 men. Unlike the incidence of lung cancer, which is decreasing in the male population, prostate cancer is demonstrating an upward trend. The most significant increase has been in those aged 55 to 74. The disease has been described as, "an epidemic in

waiting" (5,9)

It is estimated that in the United States about 30 percent of all men will develop microscopic prostate cancer during their lifetime. However, as most prostate cancers tend to grow slowly, the risk of actually dying from prostate cancer is only 3 percent. Autopsy based data shows that at 80 years of age there is a prostate cancer prevalence of 80 percent. Therefore, most men die with prostate cancer rather than from it. (1,5)

Based on recent United States data for a 50 year-old man with a life expectancy of 25 more years, there is a 42 percent lifetime risk of having microscopic cancer, a 9.5 percent risk of having clinically evident cancer and as stated earlier a 3 percent chance of dying from prostate cancer. Prostate cancer accounts for about 10 percent of cancer related deaths in men in the United States. (5,9)

Prostate Cancer is primarily a disease of men over the age of 50 years, and the trend towards an aging population is likely to lead to an increased incidence of cases of prostate cancer. It is estimated that the incidence of prostate cancer is increasing at an average rate of 3 percent a year. (1,5)

## **Etiology**

The exact etiology of prostate cancer is unknown. The tumors typically arise in areas of the gland that are atrophic rather than hyperplastic, but the process is not fully understood. Factors that may affect the development of prostate cancer include hormonal changes and viral infections. Hormonal changes have been proven clinically to be a cancer risk factor, since men castrated before puberty do not develop prostate cancer. Hormonal changes during aging are the reason that prostate cancer is seen almost exclusively in men over 40. A direct viral etiology has not been proven, but a strain of cytomegalovirus isolated from the prostate gland can produce malignant transformation in prostate tissue in the laboratory setting. (8,9)

Even though the exact etiology of prostate cancer remains unknown, there are a number of risk factors that may predispose an individual to the development of this form of cancer. The following table illustrates these risk factors. (1,8)

## **Risk Factors for Prostate Cancer**

### **Definitive Risk Factors**

- **Age**
  - Age is the strongest risk factor for prostate cancer; the chances of having prostate cancer increases rapidly after age 50. About two thirds of all prostate cancers are diagnosed in men over the age of 65. While it is rare for men under 50 to get prostate cancer, those cases tend to be more aggressive. (1,8)
- **Race and Nationality**
  - African American men experience a prostate cancer occurrence rate of 65 percent higher than white men with a mortality rate 2.5 times higher. Studies are being done on potential differences in physiology, diet, and access to health care.
  - Prostate cancer rates for Asian men in the United States are lower than average, which may be a result of traditional diets including high vegetable and soy consumption. (1,8)
  - Although Hispanic men have a risk of getting prostate cancer similar to the general population, rates of death due to the disease have not declined over recent years as they have for Caucasian and African American men, predominantly due to cultural

barriers to health care access. (1,8)

- **Genetics/Family History**

- Prostate cancer seems to run in some families, suggesting an inherited or genetic factor. Scientists have identified several inherited genes that seem to increase the prostate cancer risk. The first of these genes has been identified as (Hereditary Prostate Cancer Gene 1) or HPC1.
- Compared with men who have no family history of the disease.
  - Men with a father or brother diagnosed with prostate cancer have more than twice the risk of being diagnosed themselves.
  - Men with two or more relatives diagnosed with prostate cancer have about five times the risk.
  - Men with three or more relatives with the disease are almost guaranteed to get prostate cancer.
- The risk is generally higher for men with affected brothers than for those with affected fathers, and for those with relatives diagnosed at younger ages.
- Family history of breast or ovarian cancer can also be an indicator, as the diseases apparently share a common genetic mutation.
- Over all, only about five to ten percent of all prostate cancers are believed to be hereditary. (1,8)

### **Probable Risk Factors**

- **Diet**

- The "Western diet," high in fat, meat, and sugar, and low in fruits, vegetables, and fiber may be one of the greatest factors contributing to prostate cancer. Studies suggest a strong relationship between consumption of saturated fat and prostate cancer, while polyunsaturated fats such as Omega-3 fatty acids may help prevent the disease.
- Researchers have found a number of food nutrients that appear to reduce the likelihood of getting cancer, including vitamin E, selenium, soy (isoflavones), green tea, and tomatoes (lycopene). Large studies are currently underway to confirm these findings. (1,8)

- **Obesity**

- Obese men, those with a body mass index of over 32.5 are 33 percent more likely to die from prostate cancer if diagnosed. Some studies have suggested a relationship between obesity and higher risk, but it has been difficult to demonstrate a direct link. Consumption of saturated fat and meat may be the determining factor, but the effect of obesity on hormone function may also play a significant role. Further studies are still needed. (1,8)

### **Potential Risk Factors**

- **Chemical exposure**

- Men exposed to certain chemicals such as pesticides and herbicides may have higher than average rates of prostate cancer.
- Veterans exposed to herbicides such as Agent Orange may be at higher risk of prostate cancer. One study suggested that they may be twice as likely to develop prostate cancer.
- There also appears to be a relationship between men working with cadmium occupations such as welding and electroplating, and the development of prostate cancer. (1,5,8)

- **Vasectomy**

- Some earlier studies suggested that men who have had a vasectomy may have a slightly increased risk for prostate cancer, but the link has not been consistently found. Most recent studies have not found any increased risk among men who have

had a vasectomy, and fear of increased risk of developing prostate cancer should not be a reason to avoid this operation. (1,5)

## About the Prostate gland

The prostate gland is part of the male genital system. It is located inferior to the bladder and anterior to the rectum. It is situated posterior to the symphysis pubis, to which it is attached by connective tissue. In an adult male, it weighs about 20 grams, measures approximately three centimeters in diameter and resembles a walnut both in size and shape. (3,8)

Throughout a mans life the size of the prostate gland shows considerable variability. It increases in size around the age of puberty and then usually remains constant until the age of 45 to 50 years, at which time the prostate may begin to undergo varying degrees of enlargement stimulated by rising levels of the male hormone testosterone. The prostate is composed of three distinct zones: the peripheral, central, and transitional zones. It is comprised of fibrous and adenomatous tissue. The glandular ducts run radially out to the prostatic urethra into which they empty. The prostate is surrounded by a fibromuscular capsule that is considered to be the anatomical boundary for the purpose of staging prostate cancer. (1,3,8)

The physiological activity of the prostate is dependent on testosterone; the primary function is its action as a sentinel against ascending bacterial invasion of the bladder. The prostate is also responsible for the secretion of a slightly acidic fluid, which is rich in enzymes, such as acid phosphatase. No definitive function has been proven for this prostatic secretion, although it constitutes 13 to 33 percent of the volume of semen, and contributes to sperm motility and viability. Semen enters the prostatic urethra through the ejaculatory ducts when the smooth muscle in the prostate contracts during ejaculation. The nerves responsible for penile erection are located posteriorly on each side of the prostate gland; therefore, the prostate is also considered to be a sex accessory organ. (1,3,8)

## Clinical Manifestations

The typical progression of prostate cancer is insidious. In the early stages, it may be asymptomatic. As the cancer progresses, the signs and symptoms men often present are similar to that of urinary obstruction. The most prevalent signs and symptoms are frequency, urgency, dysuria, nocturia, and a feeling of incomplete emptying of the bladder. As many as 40 percent of men present no symptoms until the cancer has metastasized; presenting symptoms of these men are usually bone pain or parasthesia due to the presence of bony metastasis. In such cases, the prostate cancer has often remained asymptomatic until the tumor has metastasized. (1,7)

## Diagnosis

The optimal approach to the detection of and diagnosis of prostate cancer remains highly controversial. When it is suspected that a man has prostate cancer, investigative tests must be carried out. This initially involves a full history, followed by a clinical examination including a digital rectal examination (DRE). A DRE involves a clinician inserting a gloved finger into the rectum to feel the prostate gland for the presence of any abnormalities. In the presence of prostate cancer, either a hard nodule replaces the normally smooth surface of the prostate gland or the prostate gland itself may be enlarged and feel hard and craggy to the touch. A lack of mobility is often observed due to gland adhesion to the surrounding tissue. The DRE is subject to inter-examiner variability, which can result in false positive diagnosis for prostate cancer. False positive diagnosis for prostate cancer based on DRE might be made in the

presence of conditions such as benign prostatic hypertrophy (BPH), prostatitis, or ejaculatory duct abnormalities. (1,3,5,8)

To help confirm a suspected diagnosis of prostate cancer a blood sample is taken to determine the level of prostatic specific antigen (PSA). This is glycoprotein produced by the epithelial cells of the prostate with the function of liquefying ejaculate. The recommended range for PSA in healthy individuals is 0 to 4.0ng/ml. Although a raised PSA can be indicative of prostate cancer, PSA may also be raised by many benign prostatic conditions. Both PSA and DRE lack specificity and sensitivity; however, the predictive value of PSA is increased when combined with DRE. (1,5)

<b>Factors That Affect PSA Levels</b>	
<b>Race</b>	African American men have higher PSA levels.
<b>Age</b>	Older men have higher PSA levels.
<b>BPH</b>	Prostatic hypertrophy increases the gland volume and the PSA level.
<b>Manipulation of the prostate</b>	Instrumentation elevates PSA level.
<b>Sexual orgasm</b>	With the last 24 hours will elevate PSA level.

There is a general consensus that if any abnormalities are established through DRE and the PSA is raised, the patient may be considered for a transrectal biopsy of the prostate with ultrasound guidance (TRUS). This is not a first time diagnostic tool, but is a useful procedure to help direct the physician in the biopsy of palpable tumors so that these tumors may be graded and staged. TRUS not only allows visualization of the internal anatomy of the prostate, seminal vesicles, and prostatic urethra, but also can determine the exact size of the tumor. Non-palpable malignancies of the prostate may also be detected by TRUS. The TRUS procedure has also been the subject of much debate and controversy concerning its cost-effectiveness and predictability. The TRUS procedure is not without risk of complications, as patients are susceptible to possible infection and hemorrhage. Therefore the referral must be considered in the context of an individual patient. At the present time TRUS is the "gold standard" imaging technique for staging prostate cancer. (1,5,8)

## Staging Prostate Cancer

When prostate cancer has been diagnosed, assessment of the extent or staging of the tumor is the best predictor of prognosis. The tumor is staged based on its size, the character of its cells, and the extent of metastasis. Two systems commonly used for staging prostate cancer are: the Jewett-Whitmore system and the TNM (tumor, node, metastases) system. (3,6)

### Jewett-/Whitmore system

In the Jewett-Whitmore system, prostate cancer is classified first as stage A,B,C, or D. Stages A and B cancers are considered curable. Stages C and D are treatable, but their prognoses are discouraging. A number is then assigned to describe specific conditions within each stage. For example a tumor classified as stage B1 is a single malignant nodule confined to one lobe of the prostate. (3,6)

<b>Jewett-Whitmore System</b>	
<b>A</b>	Very early and without symptoms; cancer cells confined to the prostate.

<b>Stage A</b>	<b>A1</b>	Well-differentiated and slightly abnormal cancer cells.
	<b>A2</b>	Moderately or poorly differentiated and abnormal cancer cells in several locations within the prostate.
<b>Stage B</b>	<b>B</b>	Confined to the prostate, but palpable by DRE and detectable by elevated PSA.
	<b>B0</b>	Confined to the prostate, nonpalpable, with elevated PSA.
	<b>B1</b>	Single malignant nodule in one lobe of the prostate.
	<b>B2</b>	Extensive, involvement in one or both prostate lobes.
<b>Stage C</b>	<b>C</b>	Cancer cells found outside the prostate capsule, metastasis is confined to surrounding tissues and or seminal vesicles.
	<b>C1</b>	Extends outside the prostate capsule.
	<b>C2</b>	Bladder or urethral obstruction.
<b>Stage D</b>	<b>D</b>	Metastases has reached regional lymph nodes or to distant bones, organs (e.g., liver, lungs, and/or other tissues).
	<b>D0</b>	Metastatic but clinically localized showing elevated prostatic acid phosphatase (PAP) levels. * See note
	<b>D1</b>	Regional lymph node involvement.
	<b>D2</b>	Distant lymph node, bones or organs involved.
	<b>D3</b>	Metastatic disease after treatment.

\* Prostatic acid phosphatase (PAP) is an isoenzyme primarily used to diagnose and stage prostatic carcinoma and monitor efficacy of treatment. Elevated levels are usually seen in patients with prostatic cancer that has metastasized beyond the capsule to other parts of the body particularly the bone. PAP is not elevated in the early stages of the disease.

**The TNM (tumor, node, metastases) system** stages are similar to those of the Jewett-Whitmore system, but with more specific alphanumeric subcategories.

<b>TNM System</b>					
<b>Primary Tumor (T)</b>		<b>Regional Lymph Nodes (N)</b>		<b>Distant Metastases (M)</b>	
<b>TX</b>	Tumor cannot be assessed.	<b>NX</b>	Nodes cannot be assessed.	<b>MX</b>	Metastases cannot be assessed.
<b>T0</b>	No evidence of primary tumor.	<b>N0</b>	No regional node metastasis.	<b>M0</b>	No distant metastases.
<b>T1</b>	Clinically not palpable or visible by imaging.	<b>N1</b>	Single node metastasis 2 cm. or less at largest point.	<b>M1</b>	Distant metastases
<b>T1a</b>	Found incidental to other surgery; present in 5% or less of tissue.	<b>N2</b>	Single node metastasis, 2 cm. to 5 cm. at largest point. Or multiple nodes, no larger than 5 cm at largest point.	<b>M1a</b>	Distant lymph node(s) involved.
<b>T1b</b>	Found incidental to other surgery; present in 5% or more of tissue.	<b>N3</b>	Metastasis larger than 5 cm any node.	<b>M1b</b>	Bone(s) involved.
<b>T2</b>	Tumor confined within prostate.			<b>M1c</b>	Other sites involved

<b>T2a</b>	Involving half a lobe or less of prostate.
<b>T2b</b>	Involving half lobe.
<b>T2c</b>	Involving both lobes.
<b>T3</b>	Tumor extends through prostate capsule.
<b>T3a</b>	Extends through one lobe
<b>T3b</b>	Extends through both lobes
<b>T3c</b>	Extends through seminal vesicles
<b>T4</b>	Involves structures other than seminal vesicles.
<b>T4a</b>	Invades bladder neck, external sphincter or rectum.
<b>T4b</b>	Invades muscles and/or pelvic wall.

## Grading Prostate Cancer

Grading of the tumor is also essential, as the treatment is often based on this information. The most widely accepted method is the Gleason system. This system is based on the extent to which tumor cells are arranged into recognizable glandular structures. As cancer grows the cells change from normal well-differentiated tissues to more disorganized poorly differentiated tissue. Tumors are given a Gleason score of between two and ten. A Gleason score of less than four describes a well-differentiated tumor, with a Gleason score of ten describing a tumor that is totally undifferentiated. Prognosis worsens with progressive loss of glandular differentiation. (3,7)

## To Screen or not to Screen

There is considerable dispute in the urological literature regarding the benefit of routinely screening for prostate cancer. Some suggest that all men should be screened annually with DRE and PSA starting at age 50, while others do not advocate this practice. Routine screening for any disease is performed with the hope that early detection will result in earlier treatment and the possible cure of disease. At this time there is no conclusive evidence that routine screening would detect early disease, or that early disease detection would improve patient outcomes. As the natural progression of prostate cancer is unpredictable, it is difficult to ascertain whether a tumor once identified, would necessarily progress to clinical disease. Currently it is not possible to distinguish between tumors that will remain latent throughout the patient's life and those that will progress to clinical disease. (1,5,8)

In June of 1997 after a careful review of the scientific evidence and issues surrounding prostate cancer screening the American Cancer Society updated its prostate cancer screening guidelines. The new guidelines state, "both PSA and DRE should be offered annually beginning at age 50 years, to men who have at least a ten-year life expectancy, and to younger men who are at high risk. Information should be provided to patients regarding potential risks and benefits of

intervention." The Society's previous guidelines recommended that all men 50 and over receive annual DRE and PSA. (1,5,8)

## Treatment and Management

Once a diagnosis of prostate cancer is confirmed, additional clinical evaluation is necessary to determine treatment options. The patients' age, current state of general health, grading and staging of the tumor are important determinants in the choice of treatment. The most common methods of treatment advocated for the varying stages of disease are described next. (1,8)

**Watchful waiting:** In the patient who is older than 70 years of age with a low-grade lesion watchful waiting is usually employed, especially if other illness is present. This idea is based in the premise that many of these men will die of causes other than their prostate cancer. In the watchful waiting approach, PSA levels are checked at regular intervals to observe the behavior of the tumor. Treatment is commenced in the presence of symptoms or when PSA levels indicate that there may be an advancement of the disease. At this time there is no compelling evidence to suggest that watchful waiting with deferred treatment until there is clinical progression of the disease, produces inferior patient outcomes than active intervention.

Often the side effects of treatment are worse than the potential effects of the disease itself. Watchful waiting is considered a reasonable choice of treatment for all men with a well to moderately differentiated cancer and a life expectancy of less than ten years. Many men are reluctant to accept this conservative management approach. They might find it repugnant to think that they are walking around with cancer, while others find the prospect of incontinence or impotence, associated with other methods of treatment, less desirable than untreated cancer. (1,3,5,8)

**Surgical Intervention:** When it is believed that the tumor is clinically localized, the individual has a life expectancy of greater than ten years, and no other significant co-morbidities exist a radical prostatectomy is considered. This is the surgical removal of the prostate, seminal vesicles and adjacent tissue. This procedure may be performed via retropubic, perineal, suprapubic approach. The long term results following radical prostatectomy are good, 85 percent of patients remain tumor free at ten years. However, this procedure does have a risk of urinary incontinence, erectile dysfunction and impotence. A transurethral resection of the prostate may sometimes be carried out for symptom control if patients are having difficulty passing urine. (3,8,10)

Comparison of Types of Prostate Surgery					
Type of Surgery	Reason for surgery	Location of incision	Drainage tubes	Dressing	Complications
<b>Transurethral Resection</b>	Enlargement of medial lobe surrounding urethra impeding urine output	No incision; removal by way of urethra	Three-way Foley catheter with 30 ml. balloon in urethra; constant irrigation 1-24 hours	None	Hemorrhage; water intoxication; incontinence; obstruction, and bladder spasms
<b>Suprapubic Resection</b>	Extremely large mass of obstructing	Low midline ABD incision through bladder to	Cystotomy tube or drain through incision; Foley	ABD dressing easily soaked with	Hemorrhage; obstruction; wound infection; impotence

	tissue-prostate cancer	prostate gland	catheter with 30 ml. balloon in urethra	urinary drainage	sterility; bladder spasms
<b>Retropubic Resection</b>	Large mass located high in pelvic area-prostate cancer	Low midline ABD incision into prostate gland bladder not incised	Foley catheter with 30 ml. balloon in urethra, constant irrigation for 24 hours	ABD dressing; no urinary drainage	Hemorrhage; obstruction; wound infection; impotence; sterility
<b>Perineal Resection</b>	Large mass located low in pelvic area-prostate cancer	Incision between scrotum and rectum	Foley catheter with 30 ml. balloon in urethra; also with perineal incision drain	Perineal dressing; no urinary drainage	Hemorrhage; obstruction; wound infection; impotence; sterility; incontinence

\* Surgeons are continually refining surgical techniques involved in prostate surgery to reduce the risk of complications. In nerve-sparing prostatectomy, the surgeon cuts to the very edges of the prostate taking care to spare the erectile nerves that run alongside the prostate gland. In cases when the nerves cannot be spared because of the extension of metastasis, surgically attaching or grafting nerves from other parts of the body to the ends of the cut erectile nerves may be possible.

Surgeons have recently begun to perform prostatectomy by means of laparoscopic surgery. With a robotic interface, the surgeon maneuvers the robot's arms, which in turn control the cameras and surgical instruments, this allows for greater surgical precision and faster recovery.

**Radiotherapy for localized Prostate Cancer:** Men with prostate cancer can be offered radiotherapy for curative or palliative purposes. External beam radiotherapy appears to be as effective as surgery in curing prostate cancer, at least for the first ten years after treatment. Radiotherapy is well tolerated, and is associated with no hemorrhagic or anesthetic risks. Furthermore, this treatment option does not require hospitalization or a significant recovery period. Normal activity can usually be maintained during radiotherapy. However treatment is administered daily for four to six weeks, and many patients report feeling fatigued at the end of this period. (1,3,8)

Compared with surgery, radiotherapy has several potential disadvantages. Radical prostatectomy provides more definitive information about long-term prognosis, because the size of the tumor, presence of cancer spread and the presence of cancer in the lymph nodes can be determined from the surgical specimen. With radiotherapy, the post-treatment status of the tumor is unknown; serial PSA levels serve as surrogate markers to determine whether treatment was curative. (1,3,8)

Radiotherapy may also produce significant side effects. It has been associated with severe bladder irritation in as many as five percent of patients. Rectal irritations occur in three to ten percent of patients, and impotence is a problem in 40 to 50 percent of patients receiving this treatment. (1,3,8)

The two types of radiotherapy are external-beam radiation and implantation of radioactive pellets (seeds), called brachytherapy. Although neither approach has been shown to be superior in terms of long-term outcome, seed implant therapy has been gaining in popularity since its introduction a few years ago. Theoretically seed implants can deliver a higher dose of radiation

to the prostate with fewer side effects. However, seed implant radiotherapy is not yet widely available, and it may be associated with a higher incidence of rectal pain. (1,3,8)

Over a period of more than ten years, the chance of cure may not be as great with radiotherapy as with surgery. In patients treated with radical prostatectomy, most cancer recurrences occur within the first four years after surgery. With radiotherapy however, cancers can recur over a much longer period of time, because the prostate cancer may not be completely destroyed by external-beam or seed implant-treatment. (1,3,8)

<b>Complications of External-Beam Radiotherapy</b>		
<b>Complication</b>	<b>Short Term Complications %</b>	<b>Long Term Complications %</b>
<b>Rectal Bleeding</b>	3.8 – 14.9	0 – 2.7
<b>Diarrhea</b>	10 – 12	0.4 – 2.0
<b>Urinary incontinence</b>	0 – 1.4	0 – 1.5
<b>Hematuria</b>	5.8 – 10.8	1 – 2.5
<b>Erectile dysfunction</b>		55 – 66
<b>Urethral stricture/Bladder neck contracture</b>	1.5 – 8.3	0.8 – 1.5

**Hormone Therapy (HT):** More than half of men with prostate cancer have locally advanced or metastatic disease at diagnosis and cannot be cured by either radiotherapy or surgery. Treatment modalities at this stage must be considered palliative. The mainstay of treatment for these men is often hormone therapy (HT). The aim of HT is to inhibit the production of testosterone as this hormone aids the growth of prostate cancer. This can be achieved via surgical or medical methods. Surgical methods involve a bilateral subcapsular orchiectomy (castration), which decreases the testosterone level by 90-95 percent and is immediately effective. However, it is an irreversible process and can negatively affect the male self-esteem and cause a major blow to sexual confidence. (1,3,5,8)

In recent years, the development of medical methods of castration have become a more acceptable treatment option for patients with locally advanced prostate cancer. Such methods offer comparable efficacy as surgical castration to patients. This treatment is also known as cytoreduction. This neoadjuvant hormone therapy downstages the tumor by reducing the amount of testosterone in the body making it possible to slow down the growth, or even shrink the tumor volume. Research indicates that HT reduces tumor size and slows the cancer progression in approximately 80 percent of men with locally advanced disease. (1,3,5,8)

The two components to HT are luteinising hormone-releasing hormone (LHRH) agonists and anti-androgens. LHRH agonists stimulate the pituitary gland and inhibit the secretion of luteinising hormone (LH), which sends signals to the Leydig cells in the testes to produce testosterone. LHRH agonists are administered via a single quarterly injection; side effects include impotence, hot flashes, decreased libido, diarrhea, nausea and vomiting. The second component of HT is the use of anti-androgens. These drugs block the effects of testosterone on the body. Possible side effects of these anti-androgens include breast tenderness and swelling, stomach upset and diarrhea, but libido may be maintained. (1,3,5,8)

The development of HT has provided an alternative treatment option for patients with prostate cancer. There is considerable debate and controversy regarding how HT should be given. Some recommend monotherapy using either LHRH agonist or anti-androgen. A newer approach is intermittent HT, where a LHRH agonist is given for about 36 weeks and then discontinued if

PSA is at a normal level at this stage. When PSA returns to a predetermined level, treatment is recommenced. Some urologists believe that this method might make cancer cells susceptible to the drug for a longer period of time. (1,3,5,8)

Treatment with maximal androgen blockade (MAB) where the patient is given a combination of LHRH agonist and anti-androgen has become increasingly popular. It has been documented that this treatment may offer advantages over monotherapy. (1,3,5,8)

If prostate cancer does not respond to anti-androgens or LHRH agonists, the use of estrogens may be employed. Estrogen is a female hormone, which works by blocking the secretion of LHRH. Because appreciable cardiovascular mortality may be caused by such therapy, it is often used only as a last resort.(1,3,5,8)

**The Role of the Nurse:** When diagnosed with prostate cancer, individuals face numerous threatening events in the course of their illness that can provoke emotional responses, ranging from loneliness and grief to loss of control and despair. This can create an array of needs that are often difficult to cope with and resolve. Research has revealed that individuals undergoing all types of treatment associated with prostate cancer can experience problems that have a significant influence on their quality of life. These men may experience urinary and bowel problems, and all treatments involve the risk of erectile dysfunction. It is also reported that a diagnosis of prostate cancer and its subsequent treatment can have a significant effect on the psychological well being of the individual. (3,8)

The Nurse plays a critical role in attending to the physical and psychological well being of the individual. Initially the nurse should ensure that a thorough assessment of patient's needs is carried out. This assessment includes assessment of their information needs. It is evident that any cancer diagnosis and treatment produces intense demands for information and assurance. Such information must be accurate, relevant to the situation and perceived as important to the individual. As prostate cancer affects mostly older men and men do not always find it easy to process and share their feelings and needs, their need for information may often go unrecognized. The nurse should therefore, actively identify the information needs of this client group to ensure that they do not get overlooked. (3,8)

Nurses must use the information from assessment when they are attending to the individual physical and psychological needs of these men. However, it is acknowledged that the nurse alone cannot address all these needs. It is, therefore an essential component of the nurse's role to ensure that care is coordinated between various members of the multidisciplinary team involved in the care of these men in the primary and secondary-care settings. Regardless of whether the individual is undergoing palliative treatment for prostate cancer such as hormone therapy (HT) or curative treatment such as a radical prostatectomy, key components of the nurse role are:

- Assessment of physical, psychological, and informational needs.
- Collating the information from needs assessment and subsequently providing care that is individualized and evidence-based to this client group.
- Coordinating care and communication between various members of the multidisciplinary team and various healthcare settings.
- Referring these men to relevant support services according to their needs, such as urology specialist nurse, palliative care team, social services and so on.
- Involving these individuals and their caregivers in all aspects of their care if they so desire.
- Ongoing assessment of the physical, psychological, and informational needs of these men.

## Conclusion

Prostate cancer is the most common male cancer in many westernized countries and the second most common cancer from which men die. An alarming fact about the disease is that the incidence is on the increase. The exact etiology is unknown but factors such as age, hormones, diet, and environment have been postulated in its development. Diagnosis is confirmed by using a combination of DRE, PSA, and a TRUS biopsy. However, many men have prostate cancer that has metastasized at the time of diagnosis. The disease is graded and staged using the Gleason system and TNM system respectively. Treatment options are dependent on the grading and staging of the tumor, patient's age, and current state of general health. Treatments include surgical intervention, radiotherapy, and hormone therapy (HT); all of which are associated with various side effects. The nurse and other healthcare professionals have a significant role to play in assisting individuals cope with their disease and treatment. They must ensure that the physical, psychological, and information needs of these men are thoroughly assessed and that the subsequent care is individualized and evidence based. Care should be coordinated and clear communication networks should exist between members of the multidisciplinary team and various healthcare settings to ensure that these individuals are assisted through the trajectory of their disease and treatment. (1,3,5,8)

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## References

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## Course Exam

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1. Prostate cancer is now the leading cause of cancer death in American men.  
 True    False
2. It is estimated that 30 percent of all men will develop microscopic prostate cancer during their lifetime. However, the risk of dying of prostate cancer is only 3 percent.

- True    False
3. The exact etiology of prostate cancer remains unknown; researchers have still been unable to determine any risk factors that may predispose an individual to the development of this form of cancer.
- True    False
4. African American men experience a prostate cancer occurrence rate of 65 percent higher than white men, with a mortality rate 2.5 times higher.
- True    False
5. The 'Western diet,' high in fat, meat, and sugar, and low in fruits, vegetables, and fiber may be one of the greatest factors contributing to prostate cancer.
- True    False
6. Most recent studies suggest that men who have undergone a vasectomy have a substantially increased risk of developing prostate cancer later in life.
- True    False
7. The typical progression of prostate cancer is insidious. In its early stages it may be asymptomatic. As many as 40 percent of men present no symptoms until the cancer has metastasized.
- True    False
8. The recommended range for prostate specific antigen (PSA) in healthy individuals is 0 to 4.0 ng/ml; therefore, an individual with a PSA lab value of 6.7ng/ml must have prostate cancer.
- True    False
9. When prostate cancer has been diagnosed staging of the tumor is the best predictor of prognosis.
- True    False
10. The two systems most commonly used for staging prostate cancer are the Jewett-Whitmore system and the tumor, node, metastasis (TNM) system.
- True    False
11. The Gleason system is the most widely accepted method for grading prostate cancer tumors. A Gleason score of 2 describes a tumor that is totally undifferentiated. The prognosis worsens with progressive loss of glandular differentiation.
- True    False
12. In June of 1997 the American Cancer Society updated its prostate cancer screening guidelines. The new guidelines state, 'both PSA and digital rectal exam (DRE) should be offered annually beginning at age 50 years, to men who have at least a ten-year life expectancy, and to younger men who are at high risk. Information should be provided to patients regarding potential risks and benefits of intervention.'
- True    False
13. The long term results following radical prostatectomy are good, 85 percent of patients

remain tumor free after ten years.

True  False

14. The aim of hormone therapy (HT) is to inhibit the production of testosterone, which may slow down tumor growth, or even shrink tumor volume.

True  False

15. A critical nursing role when providing nursing care to patient with prostate cancer is to assess the patient's information needs; then provide him information that is accurate, relevant to the situation, and perceived as important to the patient.

True  False

16. Age is the strongest risk factor for prostate cancer; the chances of having prostate cancer increases rapidly after age 30.

True  False

17. Compared with surgery, radiotherapy has several disadvantages. Radical prostatectomy provides more definitive information about the long-term prognosis, and radiotherapy may also produce significant side effects.

True  False

18. The prostate gland is part of the male genital system. It is located inferior to the bladder and anterior to the rectum. In an adult male a normal prostate gland weighs about 80 grams and resembles an apple in both size and shape.

True  False

19. Watchful waiting would be the best treatment option for an 85-year-old patient who has a low-grade lesion, and also has numerous other health problems.

True  False

20. An increased PSA level can be an indication of prostate cancer, but PSA may also be raised by many benign prostatic conditions. Older men generally have lower PSA levels.

True  False