Uganda Cancer Institute

THE REPUBLIC OF UGANDA

PROSTATE CANCER

Information, Education and Communication Booklet for Health Workers

First Edition
November 2017

Comprehensive Community Cancer Programme (CCCP)

Research is our resource

ACKNOWLEDGEMENTS

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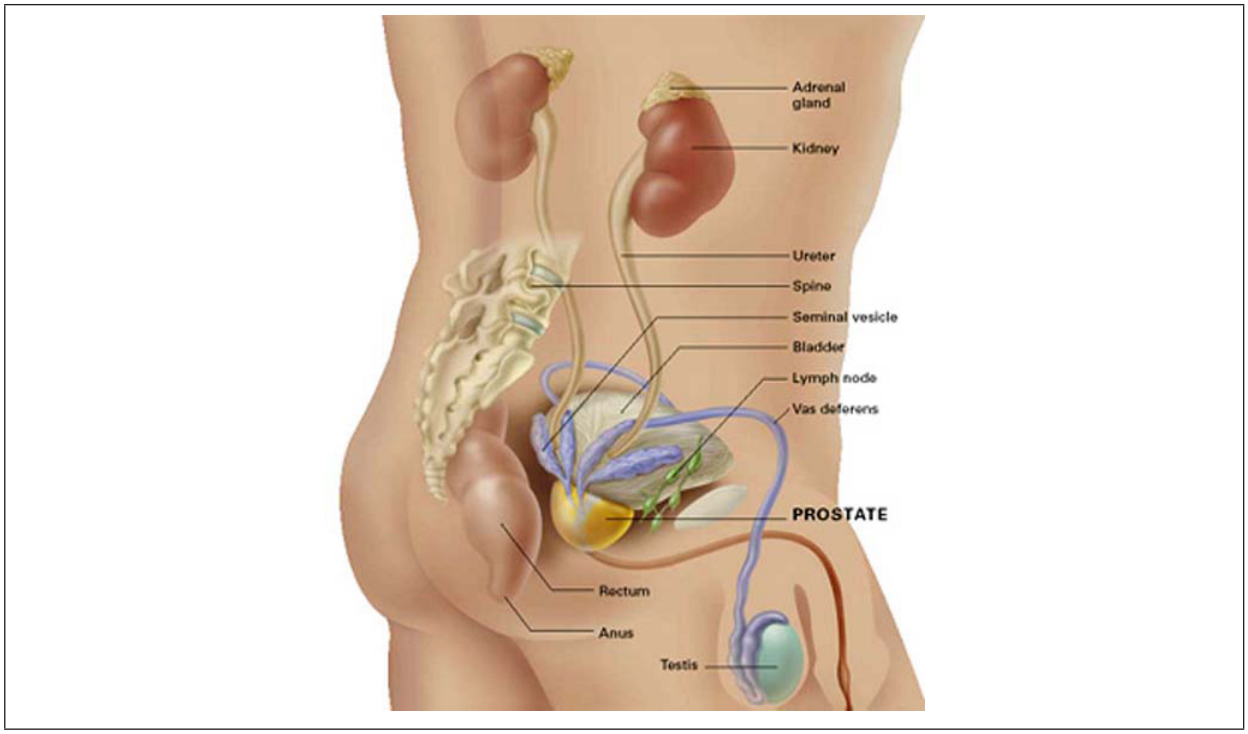
Contents

SECTION ONE: WHAT IS THE PROSTATE GLAND?

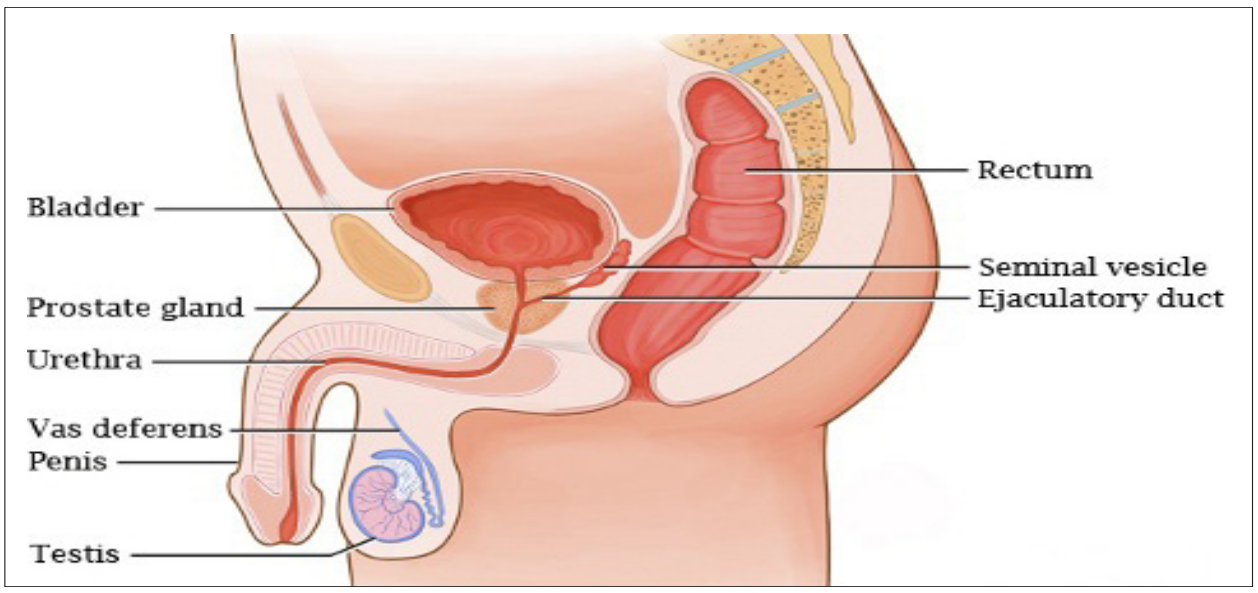
The prostate is a gland found only in men, it sits just below the urinary bladder in front of the rectum. It surrounds the urethra (the tube that carries urine and semen through the penis and out of the body). Cells of the prostate make fluid contained in the seminal fluid which nourishes sperm. The normal size of the Prostate in an adult is same as a walnut. However, at birth, the prostate is about the size of a pea. Prostate experiences two growth spurts at puberty and around the age of 50 years.

The Anatomy of Male Genitourinary System showing the Prostate gland



Source: *http://www.prostatecentre.com/patient-information/prostate*

The cross-section of Male Genitourinary System showing Prostate gland



SECTION TWO: WHAT ARE THE COMMON HEALTH PROBLEMS THAT AFFECT PROSTATE GLAND?

The three most common prostate problems are:

i. Inflammation of the prostate (prostatitis),
ii. Enlarged prostate (benign prostatic hyperplasia or BPH) or benign prostatic enlargement or BPHE
iii. Prostate cancer.

It is important to note that one prostate problem or change does not necessarily lead to another. For example, having prostatitis or an enlarged prostate does not increase your risk of prostate cancer. It is also possible for you to have more than one condition at the same time. Prostatitis and BPH are not cancer.

Prostatitis

Prostatitis is an inflammation of the prostate gland that may result from a bacterial infection. It affects at least half of all men at some time during their lives. Having this condition does not increase your risk of any other prostate disease.

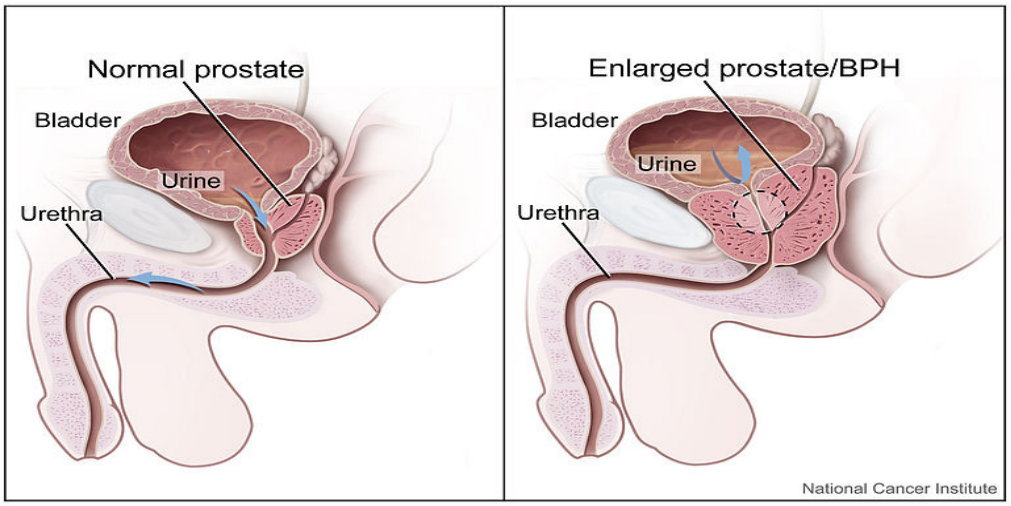
Symptoms of prostatitis include; trouble passing urine, burning or stinging feeling or pain when passing urine, Strong, frequent urge to pass urine, even when there is only a small amount of urine, chills and high fever, low back pain or body aches, pain in the belly, groin, or behind the scrotum, rectal pressure or pain, urethral discharge with bowel movements, genital and rectal throbbing, sexual problems and loss of sex drive and painful ejaculation.

Patients with Acute bacterial prostatitis and Chronic bacterial prostatitis can be treated with antibiotics. While the other chronic prostatitis or chronic pelvic pain syndrome can be treated with anti-inflammatory medications and other pain control treatments.

Enlarged Prostate (BPH)

BPH stands for benign prostatic hyperplasia. Benign means "not cancer," and hyperplasia means abnormal cell growth. BPH is not linked to cancer and does not increase your risk of getting prostate cancer, yet the symptoms for BPH and prostate cancer can be similar.

The diagrams below show urine flow in a normal prostate gland (left) and enlarged prostate gland (right). In diagram on the left, urine flows freely while on the right, urine flow is affected because the enlarged prostate is pressing on the bladder and urethra. This can lead to the following symptoms.



Source: *http://www.prostatecentre.com/patient-information/prostate*

Symptoms of BPH include; trouble starting a urine stream or making more than a dribble, passing urine often, especially at night, feeling that the bladder has not fully emptied, a strong or sudden urge to pass urine, a weak or slow urine stream, stopping and starting again several times while passing urine, pushing or straining to begin passing urine.

At its worst, BPH can lead to: a weak bladder, backflow of urine causing bladder or kidney infections, complete blockage in the flow of urine and kidney failure.

Some men with BPH eventually find their symptoms to be bothersome enough to need treatment. BPH cannot be cured, but medicines or surgery can often relieve its symptoms. Talk with your doctor about the best choice for you. Your symptoms may change over time, so be sure to tell your doctor about any new changes.

What is Prostate Cancer?

Prostate cancer is a type of cancer that starts from the prostate gland as a result of some prostate cells that have become cancer cells. About 85% of Prostate cancer tends to grow or progress slowly compared to most other cancers. Cell changes may begin 10, 20, or even 30 years before the persons develops symptoms of the cancer. By the time a person suffering from prostate cancer develops symptoms, the cancer may already be advanced.

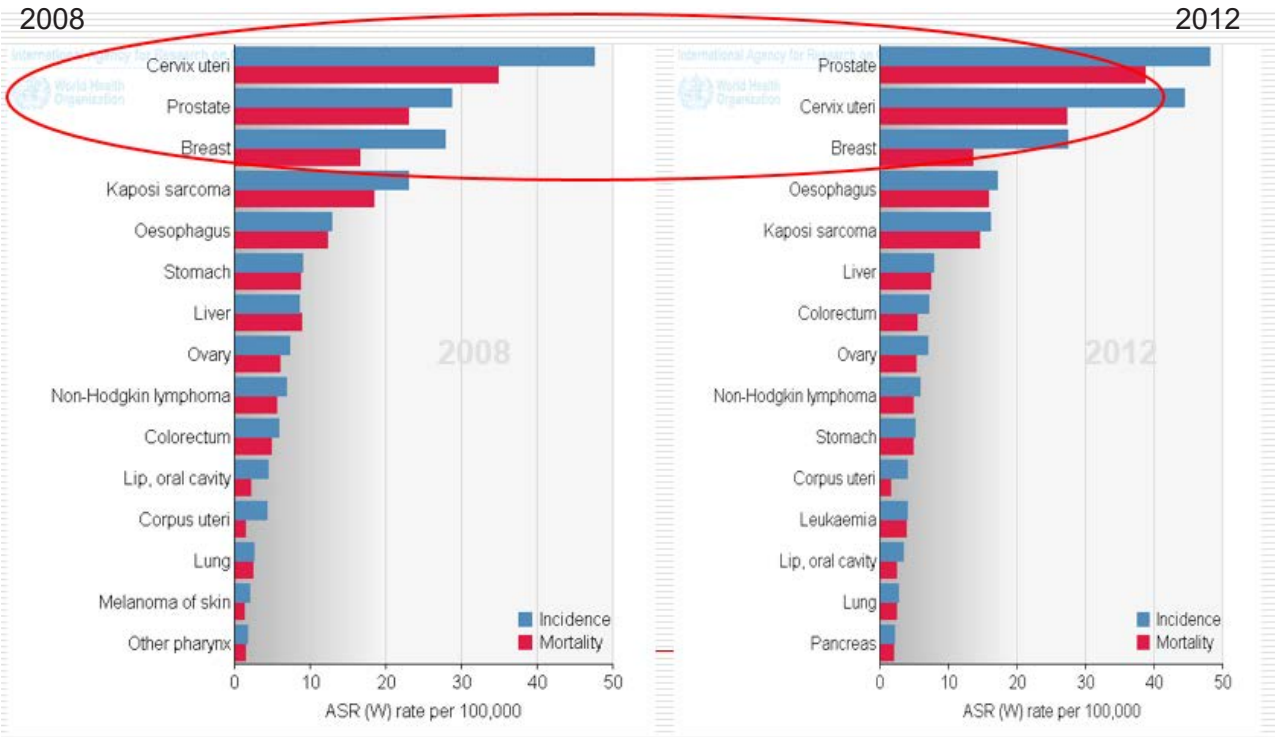
SECTION THREE: HOW COMMON IS PROSTATE CANCER?

It is the second commonest cancer in men in the whole world. The number of men who suffer from prostate cancer is increasing worldwide. (Cuzick et al, 2014, WHO, 2012). In Africa, it is the leading cause of cancer illness and death among men - in 2012, 23 men out of every 100,000 men had Prostate cancer and 17 out of every 100,000 men died of Prostate cancer. In the Sub-Saharan Africa, in the same year 28 men out of every 100,000 men suffered from prostate cancer and 21 men out of every 100,000 men died of prostate cancer.

Prostate cancer is the commonest cancer in men in Uganda. In 2012, 48 men out of every 100,000 men in Uganda suffered from prostate cancer and 39 men out of every 100,000 men who suffered from prostate cancer died of from it according to WHO report (Globocan, 2012), which is one of the highest rates observed in Africa (Wabinga et al, 2013, Parkin et al, 2012).

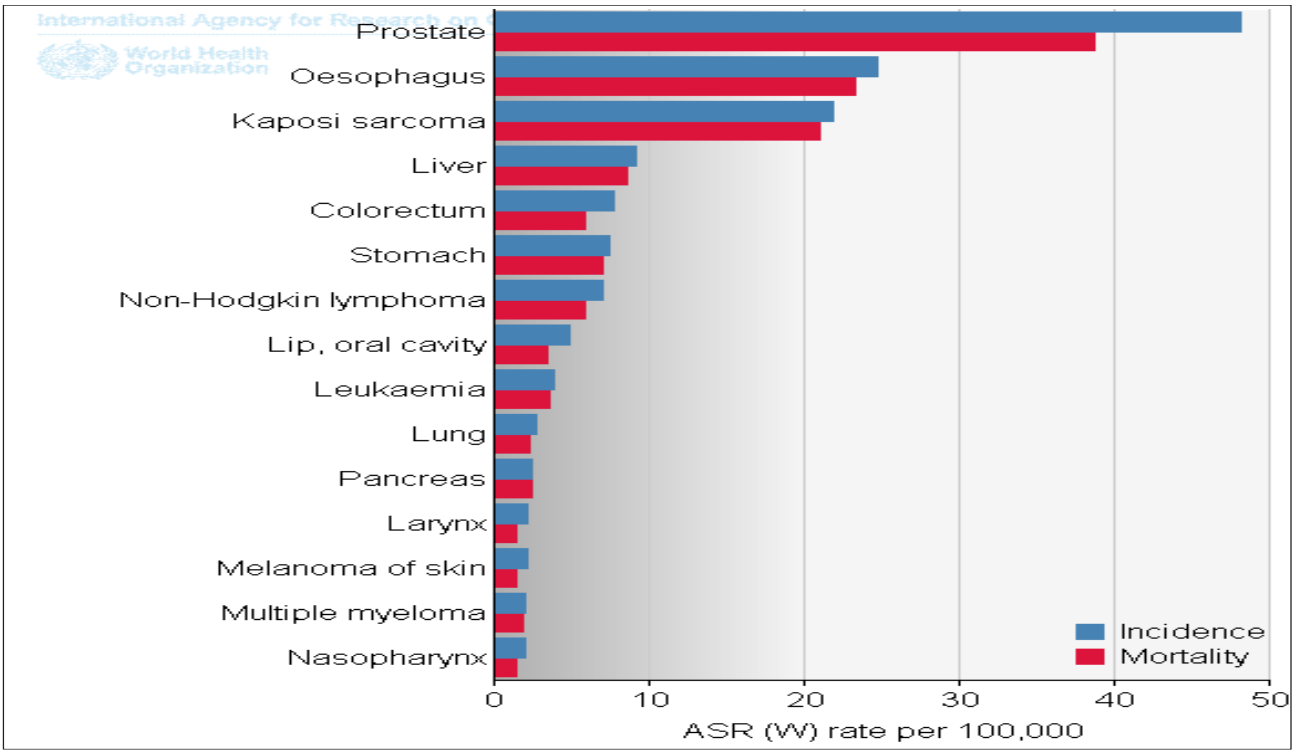
The relative burden of top three types of cancer in Uganda

The top Cancers in Uganda according to WHO Globocan report of 2008 and 2012 respectively(www.globocan.iarc.fr)), the estimated new cases of cancer (incidence) & death (mortality) in both men and women were as indicated in figure below. The top three types of cancer when data for both men and women are compared were Prostate, Cervical and Breast cancer.



Top cancers among men in Uganda

According to WHO report of 2012, Cancer of the Prostate, oesophagus and Kaposi sarcoma are the leading cause of cancer death among men in Uganda (see figure below)



SECTION FOUR: WHAT ARE THE RISK FACTORS FOR PROSTATE CANCER?

The risk factors or conditions that increase the possibility of developing Prostate cancer can be grouped in to either modifiable (can be changed or avoided) or non-modifiable (cannot be changed or practically difficult to change or avoid).

The non-modifiable risk factors of Prostate cancer

1. **AGE-**The risk of prostate cancer increases with age, especially after age of 50. More than 80% of prostate cancers are diagnosed in men who are 65 years or older.
2. **GENETIC CHANGES-** Several inherited gene changes can raise prostate cancer risk, for example; inherited mutations of the Breast cancer genes 1 and 2 (*BRCA1* or *BRCA2* genes) raise the risk of breast and ovarian cancers in some families. Mutations in these genes (especially in *BRCA2*) may also increase prostate cancer risk in some men. Men with Lynch syndrome (also known as *hereditary non-polyposis colorectal cancer*, or HNPCC), a condition caused by inherited gene changes, have an increased risk for a number of cancers, including prostate cancer. Other inherited gene changes can also raise a man's risk of prostate cancer.
3. **FAMILY HISTORY-** Some cases of Prostate cancer seems to run in some families, which suggests that in some cases there may be an inherited or genetic factor or sharing a particular risk factor. Having a father or brother with prostate cancer more than doubles a man's risk of developing prostate cancer. The risk is higher for men who have a brother with the disease than for those who have a father with it while the risk is much higher for men with several affected relatives, particularly if their relatives were young when the cancer was detected.
4. **TESTOSTERONE AND OTHER SEX HORMONES**-Sex hormones, including testosterone, clearly contribute to the growth and progression of prostate cancer, although there is still debate around the importance of circulating levels of specific hormones or genetic markers in these pathways in prostate cancer.
5. **INSULIN & INSULIN-LIKE GROWTH FACTOR**1 (IGF-1) - High levels of circulating insulin in the blood can occur as a result of obesity as well as uncontrolled diabetes. The consequences of hyperinsulinemia include raised triglyceride levels and hypertension. Hyperinsulinemia is linked with Prostate cancer risk and progression. High insulin could potentially contribute to the higher risk of prostate cancer incidence and mortality. Controlling insulin levels is achievable through therapeutic or lifestyle interventions.

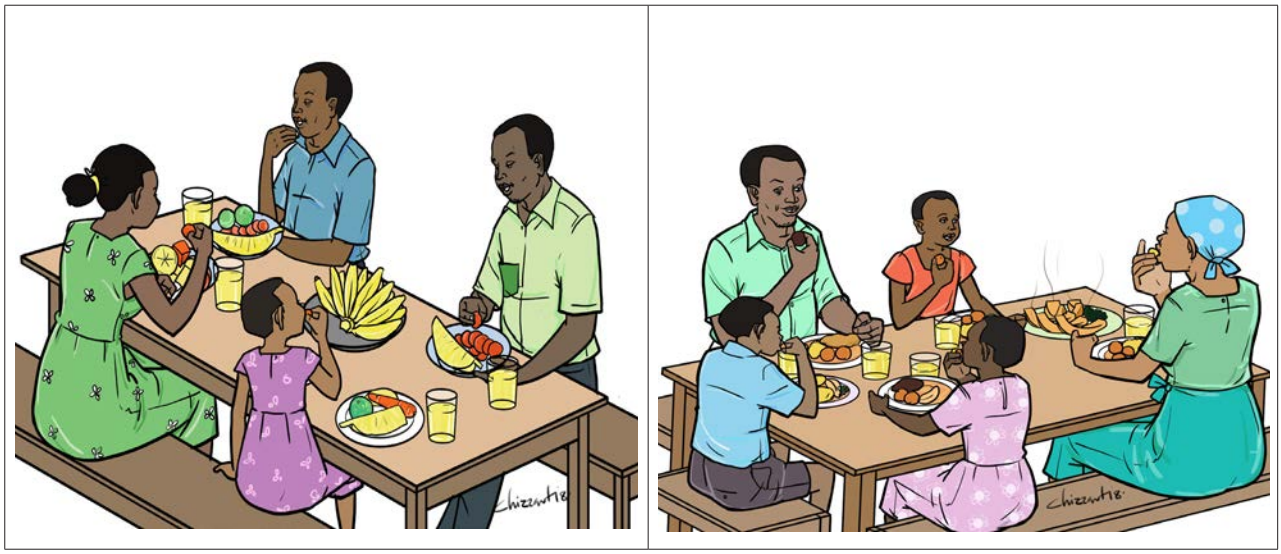
The main modifiable prostate cancer risk factors include:

1. **DIET**

   Men who eat a lot of red meat (beef, goat, pork etc) or high-fat dairy products appear to have a slightly higher chance of getting prostate cancer. This is also true in men who also tend to eat fewer fruits and vegetables. Therefore, it is recommended to eat red meat in moderation and eat more of white meat (fish and poultry) with adequate intake of fruits and vegetables. It also recommended where possible, to avoid high intake of processed, and fried food.

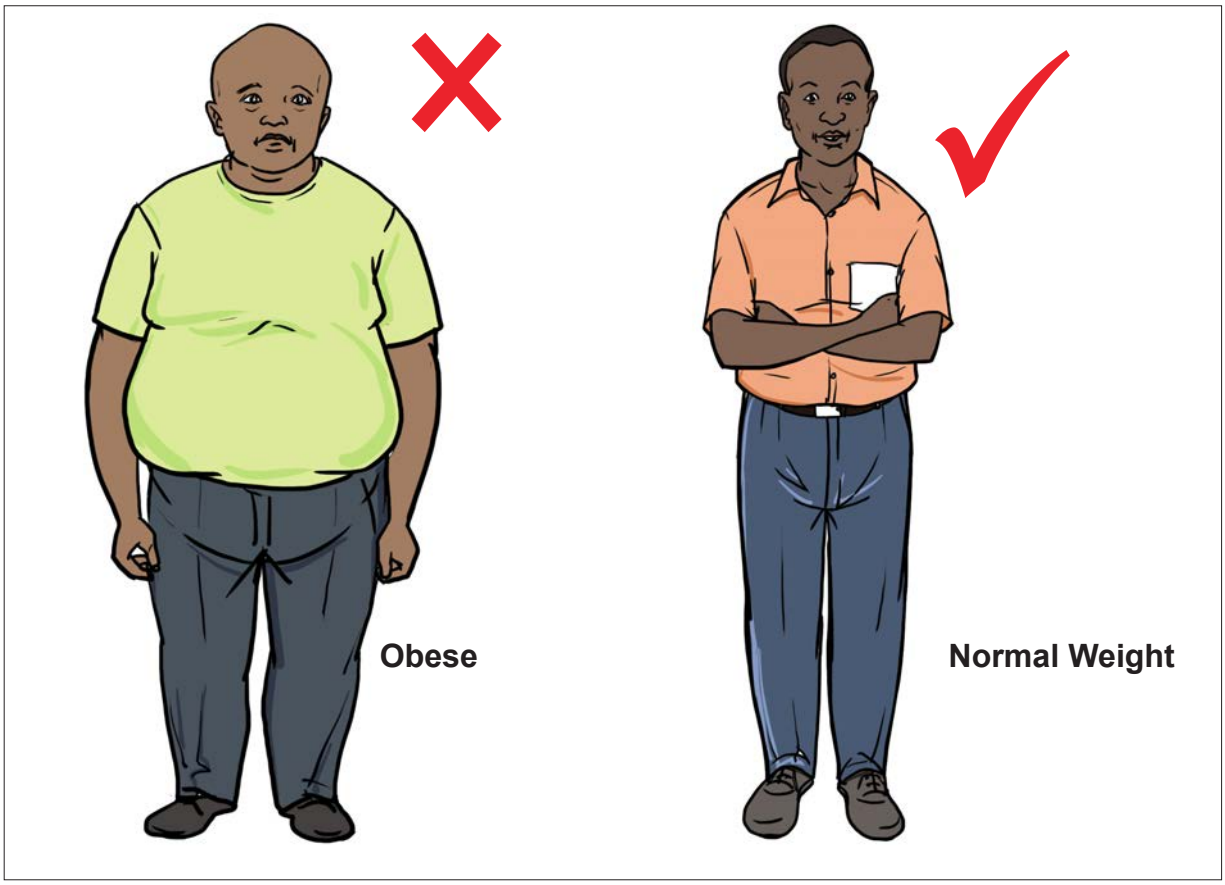
   Research in the past few years has shown that diet modification might decrease the chances

of developing prostate cancer, reduce the likelihood of having a prostate cancer recurrence, or help slow the progression of Prostate cancer. For example, tomatoes are rich in lycopene, a carotenoid, has antioxidant effects, which may lower prostate cancer risk (Giovannucci et al, 2002).



2. OVERWEIGHT & OBESITY

Men who are obese have a higher risk of getting more aggressive Prostate cancer. The obese men may have a relatively lower PSA levels than non-obese men due to dilution of the PSA in a larger blood volume. Men who are obese are also at greater risk for having more advanced prostate cancer and of dying from prostate cancer.



It is therefore, advisable for every person to determine their weight status by use of body mass

index (BMI).

Body Mass Index (BMI) is a simple index of weight-for-height that is commonly used to classify underweight, overweight and obesity in adults. It is defined as the weight in kilograms divided by the square of the height in metres (kg/m^2). For example, an adult who weighs 70kg and whose height is 1.75m will have a BMI of 22.9

That is, BMI = 70 kg /(1.75 m2) = 70 /3.06 = 22.9

BMI	CLASSIFICATION
<16.00	Severe thinness
16.00 - 16.99	Moderate thinness
17.00 - 18.49	Mild thinness
<18.50	Underweight
18.50 - 24.99	Normal
25.00 - 29.99	Over weight
≥30.00	Obese
30.00 - 34.99	Obese class I
35.00 - 39.99	Obese class II
≥40.0	Obese class III

3. PHYSICAL INACTIVITY

Physical activity is any movement that requires more energy than when the body is resting. Physical activity can include working, exercising, performing household chores and leisure-time activities such as walking, tennis, hiking, bicycling, and swimming. Physical activity is essential for people to maintain a balance between the number of calories consumed and the number of calories used. Consistently using fewer calories than are consumed leads to obesity, which is linked to increased risks of cancers.

How might physical activity be linked to reduced risks of cancer?

Exercise has a number of biological effects on the body, including:

Lowering the levels of hormones, such as insulin and estrogen, and of certain growth factors that have been associated with cancer development and progression.

- Helping to prevent obesity and decreasing the harmful effects of obesity, particularly the development of insulin resistance (failure of the body's cells to respond to insulin)
- Reducing inflammation
- Improving immune system function
- Altering the metabolism of bile acids, resulting in decreased exposure of the gastrointestinal tract to these suspected carcinogens
- Reducing the amount of time it takes for food to travel through the digestive system, which decreases gastrointestinal tract exposure to possible carcinogens.

How much physical activity is recommended for general health benefits?

The Uganda physical activity guideline (PAG) is being developed, however, the WHO physical activity guideline recommends for adults aged 18–64, for substantial health benefits, adults need to engage in at least 150 minutes (2 hours and 30 minutes) of moderate-intensity aerobic physical activity, 75 minutes (1 hour and 15 minutes) of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity, every week. Aerobic physical activity should be performed in episodes of at least 10 minutes, preferably spread throughout the week.

For children and adolescents, the guidelines recommend at least 60 minutes (1 hour) of physical activity daily. Most of the 60 or more minutes a day should be either moderate- or vigorous-intensity aerobic physical activity, and should include vigorous-intensity physical activity at least 3 days a week. As part of their 60 or more minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least 3 days of the week and bone-strengthening physical activity on at least 3 days of the week.

Is physical activity beneficial for cancer survivors?

Physical activity has beneficial effects for several aspects of cancer survivorship--specifically, weight gain, quality of life, cancer recurrence or progression, and prognosis (likelihood of survival).

4. TOBACCO USE

Tobacco use is a leading cause of many types of cancer. People who use tobacco products or who are regularly around environmental tobacco smoke (also called second-hand smoke) have an increased risk of cancer because tobacco products and secondhand smoke have many chemicals that damage the DNA.

5. EXCESS ALCOHOL CONSUMPTION

Frequent consumption of alcohol can increase your risk for cancer. The more alcohol you consume, the greater the risk. Therefore, do not drink alcohol or avoid excess amount of alcohol intake.

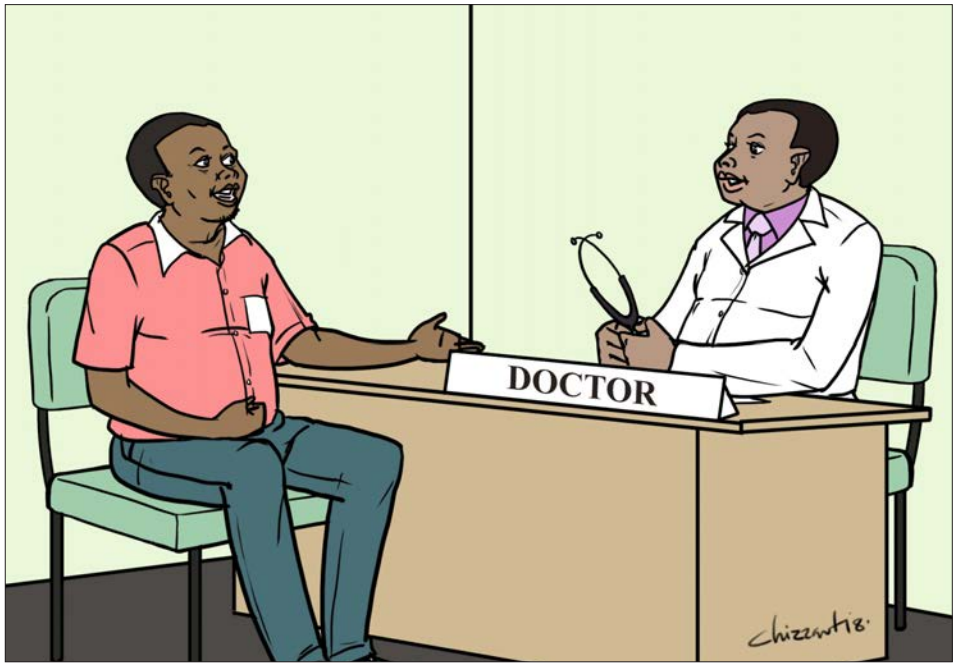
SECTION FIVE: HOW IS PROSTATE CANCER DETECTED EARLY?

The sooner cancer is detected and treated, the better a person's chance for a full recovery. The chances that cancer will be detected early are greatly improved by having regular medical check-ups and being aware of any changes in your body. A doctor can often find early cancer during a physical exam or with routine tests, even if a person has no symptoms.

Checking for cancer in a person who does not have any symptoms of the disease is called *screening.* Some people visit the doctor only when they notice abnormal changes. However, early cancer may not have any symptoms. That is why screening for some cancers can help, particularly as we get older.

Why is it important to screen for prostate cancer?

The purpose of early detection is to discover and stop a cancerous tumor before it grows and spreads (*metastasizes).* For this reason, it is important for individuals to see their doctor on a regular basis for a physical exam. During a routine physical exam, a doctor will look for any unusual changes in the body. In addition, the doctor may recommend a screening test.



Some screening tests are used because they have been shown to be helpful both in finding cancers early and in decreasing the chance of dying from these cancers. The recommendation to have a screening test is based on the individual, the test, and the cancer that the test is intended to detect. For example, the doctor takes into account the person's age, medical history and general health, family history and lifestyle. This information assists the doctor in determining a person's risk for developing cancer.

At what age should a man start screening?

Over time recommendations for routine screening for prostate cancer have varied. Some doctors and cancer organizations have encouraged annual prostate cancer screening for all men over the

age of 40; while others have counseled on an individual basis and encouraged men to make their own informed decisions about screening together with their doctors.

Generally, men aged 40 years and above should talk with their health care provider about their prostate cancer risk and the need for screening tests. Men can ask their provider whether to begin screening for prostate cancer (even though he does not have any symptoms), what tests to have, risks and benefits of each test, and how often to have them. The doctor may suggest either of the tests described below. These tests are used to detect prostate abnormalities, but they cannot show whether abnormalities are cancer or another, less serious condition. The doctor will take the results into account in deciding whether to check the patient further for signs of cancer.

The table below shows the recommended age of starting Prostate cancer check-up & types of tests

Guideline	Age to start Prostate cancer screening	Suggested Screening Tests
AUA 2009	40	PSA and DRE
NCCN 2010	40	PSA and DRE
EAU	45	PSA and DRE
ACS 2010	40-50 (depends on risk)	PSA with or without DRE

Source: *American Urological Association-* ***AUA****, 2009, National Comprehensive Cancer Network-* ***NCCN****, 2010, European Association of Urology-* ***EAU****, 2009, American Cancer Society-* ***ACS****, 2010*

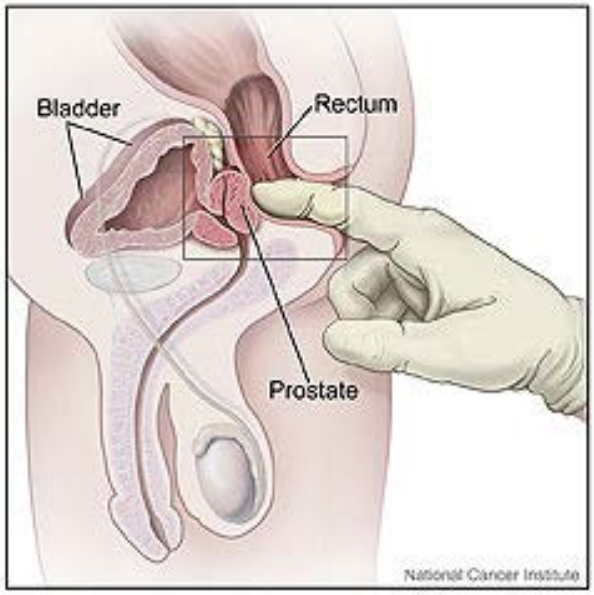
What are the Prostate Cancer Screening tests?

Symptom assessment- This first step is for your doctor to hear and understand the "story" of your prostate concerns. You'll be asked whether you have symptoms, how long you've had them, and how much they affect your lifestyle. Your personal medical history also includes any risk factors, pain, fever, or trouble passing urine. Then a combination of PSA testing and DRE as a way to get more accurate results can be recommended by your doctor.

Prostate Specific Antigen (PSA) Test- PSA is a protein produced by the prostate gland. The PSA test measures the level of PSA in the blood. Both benign (non-cancerous) prostate conditions and prostate cancer can cause PSA levels to rise in the blood. In prostate cancer, more PSA gets into the blood than is normal. However, a high PSA blood level is not proof of cancer, and many other things can cause this. Confirmatory test must be done to prove that it is cancer.

Digital Rectal Exam (DRE)- DRE is a standard way to check the prostate gland. With a gloved and lubricated finger, your doctor feels the prostate from the rectum to check for the size, texture,

firmness, lump and pain caused by touching or pressing the prostate. The test lasts about 10-15 seconds. The DRE allows the doctor to feel only one side of the prostate.



Source: *https://www.forbes.com/sites/stevensalzberg/2013/11/11/great-news-for-guys-no-more-invasive-prostate-exams/#77bee060220c*

What are the symptoms of prostate cancer?

There are many different symptoms known to be associated with certain types of cancers. As cancer grows in the body, it causes changes to take place, producing symptoms. The symptoms produced depend on the size of the cancer, the location, and the surrounding organs or structures. As cancer grows, it produces pressure on nearby organs, blood vessels and nerves.

It is important to understand that a symptom is an indication that something is not right in the body and does NOT always indicate cancer. Certain symptoms may be a sign of infection, benign tumor, or another problem. It is important to see the doctor as soon as possible about any symptom or physical change to determine its cause. One should not wait to feel pain: Early cancer usually does not cause pain.

The commonest symptoms of Prostate cancer include;

- Difficulty in passing urine
- Frequent urge to pass urine especially at night
- Weak or interrupted urine stream
- Pain or burning when passing urine
- Blood in the urine or semen
- Painful ejaculation
- Pain in the back, hips, or pelvis
- Lower back bone pain- Prostate cancer can spread to the lymph nodes of the pelvis or it may spread throughout the body. It tends to spread to the bones, so bone pain, especially in the back, can be a symptom of advanced prostate cancer.

SECTION SIX: HOW IS PROSTATE CANCER CONFIRMED?

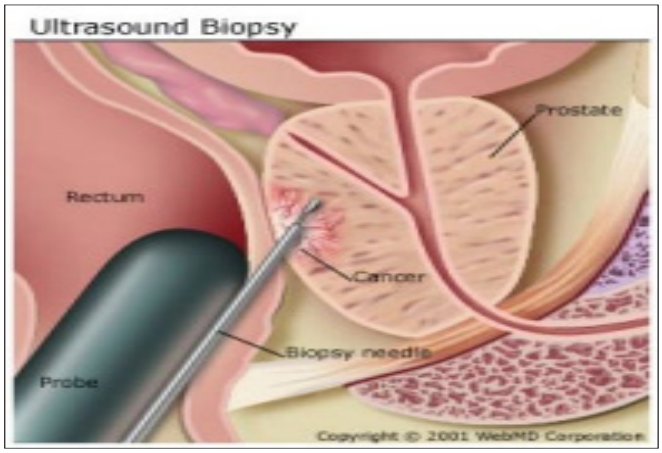
To confirm the presence of cancer, a doctor must look at a sample of the affected tissue under a microscope, commonly known as a ***biopsy*. A biopsy** is the surgical removal of a small piece of tissue for *microscopic examination.* Microscopic examination will tell the doctor whether a tumor is actually present and if so, whether it is malignant (cancerous) or benign (non-cancerous).

Prostate Biopsy

If your symptoms, PSA & DRE test results suggest prostate cancer, your doctor will refer you for a prostate biopsy. This means, small tissue samples are taken directly from the prostate gland. A positive test result after a biopsy means prostate cancer is present. Treatment options depend on the stage (or extent) of the cancer, PSA level, age, type of the prostate cancer (slow growing or aggressive type) and general health of the patient.

The best way of removing prostate tissue is by **transrectal ultrasound** guided (TRUS) **biopsy.** This is where Doctors take samples of tissue from the prostate to diagnose prostate cancer with use of ultrasound to give visibility of the tumour. There are two types of surgical biopsies.

- An **excisional biopsy** is performed when the doctor removes the entire tumor, often with some surrounding normal tissue.
- An **incisional biopsy** is performed when the doctor removes just a portion of the tumor. If cancer is found to be present, the entire tumor may be removed immediately or during another operation.



Source: *http://westcoasturology.com/practice-specialties/prostate-biopsy*

The difference between benign and malignant tumors

Benign tumors are not cancer- They do not spread to other parts of the body and are usually not a threat to life. Benign tumors are often removed because their size may cause a problem to nearby organs or for cosmetic reasons.

Malignant tumors are cancer- The cancerous cells in these tumors are abnormal and divide without control or order due to ***oncogenes***. Oncogenes are normal genes that have been changed, or mutated and therefore have affected a cell's ability to control functions such as cell replication and cell death. When the cell cycle (cell division and cell death) proceeds without control, cells can divide

without order and accumulate genetic defects that can lead to a cancerous tumor.

Cancer cells can invade and damage nearby tissue and organs by breaking away from a malignant tumor and entering the bloodstream or the ***lymphatic system***. This is how cancer spreads from what is called the original or ***primary site*** to form new tumors in other parts of the body. The process by which cancer spreads from its original or primary site to another part of the body is referred to as ***metastasis***.

When cancer spreads or metastasizes, the new tumor has the same kind of abnormal cells as the primary (original) tumor and is referred to by the same name as the primary tumor**.** For example, if prostate cancer metastasizes (spreads) to the bone, the cancer cells in the bone are prostate cancer cells and therefore it is called metastatic prostate cancer (not cancer of the bone).

Once the doctor has removed the tumor and determined the presence of cancer, he will want to determine the "aggressiveness" of the cancer, or how fast the cancer is growing. To do this, the doctor will look at the tumor under the microscope to determine ***tumor grade***, or how alike or different the cancer cells are from one another.

In summary, the biopsy provides the doctor with the following important information:

- Whether or not the tumor is benign (non-cancerous) or malignant (cancer).
- The "type" of the cancer – in this case Prostate cancer
- The "aggressiveness" or behavior of the tumor (e.g., well differentiated versus poorly differentiated).

Cancers that have begun to spread are classified according to the manner and extent of spread: by direct extension, by involvement of the lymph nodes, and by evidence of distant metastasis or spread. Though each type of cancer has its own progression of disease and the medical community has various methods of staging classification, staging can be generally described as follows:

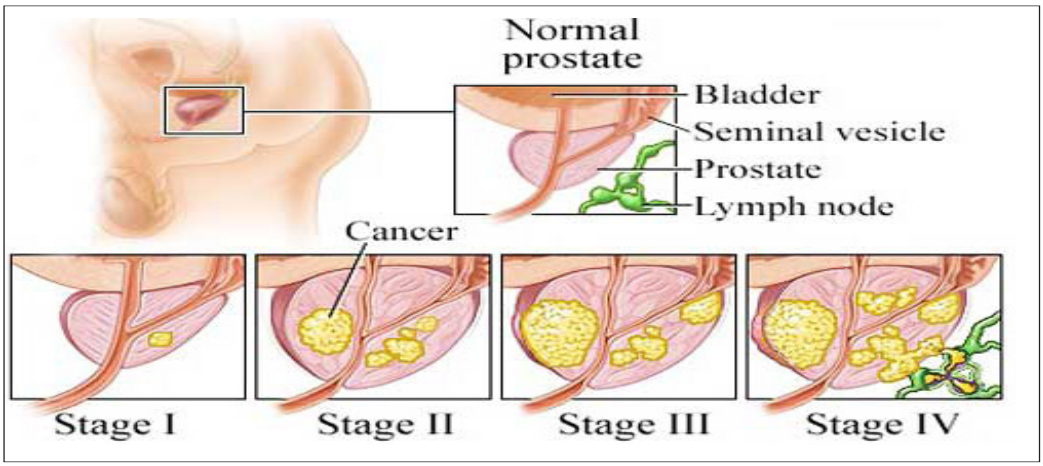
Stage 0 Carcinoma in situ. Early cancer that is present only in the layer of cells in which it began.

Stage 1 A cancerous tumor is found to be limited to the organ of origin.

Stage 2 The cancer has spread to the surrounding tissues and possibly to the local lymph nodes.

Stage 3 There is extensive growth of the primary tumor and possible other organ involvement.

Stage 4 The cancer has spread far into the other organs and systems of the body away from the original tumor site.



Source: *http://westcoasturology.com/practice-specialties/prostate-biopsy*

Note: Each cancer grows differently. The stage of cancer at the time of diagnosis means different things for different cancers. For example, lymph node involvement does not necessarily mean the same thing in every kind of cancer. Thus, the information about the extent of the cancer must be considered in light of the tissue diagnosis obtained from the biopsy.

Staging is performed using a number of methods such as physical exams, imaging procedures such as ultrasound, magnetic resonance imaging (MRI), and computed tomography (CT or CAT scan), x- rays), laboratory tests (eg blood tests and even special surgery.

In summary, the staging of cancer is important for three reasons:

1. To determine the extent of the disease;
2. Treatment is determined by the stage of the specific cancer;
3. Staging helps determine the patient's prognosis.

SECTION SEVEN: HOW IS PROSTATE CANCER TREATED?

Treatment for cancer depends on the type of cancer, the size, location and stage of the disease, the person's general health, and other factors. Treatment for cancer can be either local or systemic.

The purpose of cancer treatment varies according to the situation. A particular treatment might be recommended because it offers the best chance of a cure. When cure is not possible, treatment may improve the quality of life by relieving pain, pressure and other symptoms of cancer.

Prostate cancer treatment- Depending on the situation, the treatment options for men with prostate cancer might include, watchful waiting or active surveillance, surgery, radiation therapy, cryotherapy (cryosurgery), hormone therapy, chemotherapy and Bone-directed treatment.

1. **Active surveillance/ watchful wait** - Most men (85%) present with mild form of prostate cancer and therefore, the doctor may advise watchful waiting or active surveillance while 15% of prostate cancer patients present with aggressive form that requires urgent treatment. During watchful wait patient receives regular follow-up to monitor tumor. More information on this can be accessed at: Ballentine Carter, H. (2012) in study titled differentiation of lethal and non lethal prostate cancer: PSA and PSA isoforms and kinetics. *Asian Journal of Andrology, 14(3), 355–360. http://doi.org/10.1038/aja.2011.141*

Why Wait?

- PSA and DRE can detected prostate cancer at a very early stage & the patient present with mild slow growing form of prostate cancer.
- Average doubling time of the prostate tumor is quite slow (2-4 years).
- Immediate treatment may constitute over-treatment and introduce unnecessary urinary and potency risks.
- May be appropriate if the patient is elderly and/or in poor health, and will live out their life spans without the cancer causing problems.

2. ***Surgery-*** Is the removal of the cancerous tumor and possibly the removal of surrounding tissue and lymph nodes near the tumor. Surgery is most effective when the cancer is still confined to its original site and when the tumor can be completely removed.

3. ***Chemotherapy-*** This is the use of drugs to kill cancer cells. Most patients receive chemotherapy by mouth or through a vein. It is a systemic treatment, meaning that the drugs flow through the bloodstream to nearly every part of the body. Chemotherapy primarily works **by attacking cells that divide and grow rapidly, such as cancer cells.** The doctor may use one drug or a combination of drugs.

   Chemotherapy is used most often when there is a possibility that cancer cells may be located somewhere other than the primary tumor. It may be the only kind of treatment a patient needs, or it may be combined with other forms of treatment. **The side effects of chemotherapy depend mainly on the drugs and the doses the patient receives.** As with other types of treatment, side effects vary from person to person. Generally, anticancer drugs affect cells that divide rapidly. In addition to cancer cells, these include blood cells, which fight infection, help the blood to clot, and carry oxygen to all parts of the body. When blood cells are affected, patients are more likely to get infections, may bruise or bleed easily, and may feel unusually weak and very tired.

   Rapidly dividing cells in hair roots and cells that line the digestive tract may also be affected. As a result, side effects may include loss of hair, poor appetite, nausea and vomiting, diarrhea, or mouth and lip sores.

   Chemotherapy may also affect cells that line the digestive tract, in which case side effects include poor appetite, nausea and vomiting, diarrhea, or mouth and lip sores. Some chemotherapy drugs also affect fertility.

   Although the side effects of chemotherapy can be distressing, most of them are temporary and they can usually be treated or controlled.

4. ***Radiation Therapy (radiotherapy) -*** This is the use of high-energy rays to kill cancer cells or stop them from growing and dividing**.** For some types of cancer and stage of cancer, radiation might be used instead of surgery as the primary treatment. In other cases, radiation might be given after surgery to destroy any cancer cells that remain in the area.

There are two forms of radiation: external and internal. External radiation comes from a machine outside the body. Most people go to a hospital or clinic for treatment 5 days a week for several weeks. With internal radiation, radioactive material is sealed in a container (needles, tubes, seeds, etc.) and placed directly in or near the tumor. **Radiation is a local treatment; it can only affect cancer cells in that area where it is placed or directed.**

The side effects of radiation depend on the amount of radiation given (the dose), the part of the body that is treated, and the individual patient's response**.** For example, radiation to your abdomen can cause nausea, vomiting and diarrhea.A common side effect is extreme tiredness and skin changes in the treated area. Most side effects go away with time.

5. ***Hormone Therapy -*** Hormone therapy is used against certain cancers that depend on *hormones* for their growth. Some types of cancer (such as most prostate and breast cancers) depend upon hormones (natural substances produced in the body) to grow. Prostate cells and prostate cancer cells are dependent upon androgens (male sex hormones) for survival and growth. Removal of

androgens kills a majority of prostate cancer cells.

This treatment may involve using drugs that stop the production of hormones, or that change the way the hormones work in the body. Another type of hormone therapy is to remove organs such as testicles (Orchiectomy) that make the hormones.

Hormone therapy is a systemic treatment; it affects cancer cells throughout the body.

Depending on which hormone is targeted, hormone therapy can cause a variety of side effects. Some of the side effects include weight gain, hot flashes and nausea. Men may experience ***impotence***, loss of sexual desire, and breast growth or tenderness. Patients need to discuss these and other side effects with their doctor.

SECTION EIGHT: WHAT ARE SOME OF THE COMMON MYTHS AND MISCONCEPTIONS ABOUT PROSTATE CANCER?

Common myths and misconceptions about prostate cancer:

"High levels of sexual activity or frequent ejaculation cause prostate cancer"

Answer: This is not true. In fact, some studies show that men who report more frequent ejaculations may have a lower risk of developing prostate cancer

"Prostate enlargement means prostate cancer"

Answer: This is not true. Apart from prostate cancer, there are other conditions that present with symptoms similar to that of prostate cancer.

"A man will develop prostate cancer only if his father had prostate cancer"

Answer: not exactly, but if a man had a father or brother with prostate cancer, his possibility of developing prostate cancer is higher than someone who doesn't have this history.

"Use of cell phones and putting cell phones in the pocket cause Prostate cancer"

Answer: No, according to the current studies conducted so far. Cancer is caused by genetic mutations, and cell phones emit a type of low-frequency energy that does not damage genes.

"Herbal products can cure Prostate cancer"

Answer: No. Although some studies some herbs, may help patients cope with the side effects of cancer treatment, no herbal products have been shown to be effective for treating cancer. In fact, some herbal products may be harmful when taken during cancer treatment.

SECTION NINE: WHAT ARE THE PUBLIC HEALTH MESSAGES FOR PROSTATE CANCER HEALTH COMMUNICATION?

- First take note of these possible barriers when communicating to men about Prostate cancer. These barriers may include:
  - ☐ Fear of dying
  - ☐ Effect on sexual function
  - ☐ Worries about digital rectal examination
  - ☐ Cultural differences
  - ☐ Literacy skills
  - ☐ Language problems
  - ☐ Keeping health matters private
- Encourage men to speak with their doctors to learn more about:
  - ☐ their personal risks for prostate cancer,
  - ☐ options for screening, and
  - ☐ the pros and cons of prostate cancer detection and treatment.
- Educate men about prostate cancer including:
  - ☐ Risk factors for prostate cancer
  - ☐ Symptoms for prostate cancer
  - ☐ Screening tests
  - ☐ Conditions other than prostate cancer that can elevate the PSA
- Provide men accurate information about prostate cancer screening using publications / information from credible sources (e.g., UCI, ACS, NCI)
- Inform men that the decision to get prostate cancer screening is between them and their doctor
- Encourage men to speak with their doctors to make an informed decision, and to get tested if they decide to.
- Inform men that if **prostate cancer is detected, they should obtain** all the information regarding the disease from their health workers especially on:
  - ☐ The decision about the ***type*** of prostate cancer treatment is between the man and his doctor(s)
  - ☐ Surgery, radiation therapy, and “active surveillance” possibilities.
- Inform men that Active surveillance is where the man has further testing over time before deciding whether more invasive treatment is needed.
- Inform men that:
  - ☐ The main Prostate cancer risk factors are age, family history, race, and possibly diet and exercise
  - ☐ Early detection can find localized cancer, but survival benefits still uncertain
  - ☐ Treatment depends on grade, extent and location of disease
  - ☐ Surgery and radiation are equivalent therapeutic tools for localized prostate cancer
  - ☐ Hormonal therapy is effective for metastatic prostate cancer

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