Uganda Cancer Institute

THE REPUBLIC OF UGANDA

GENERAL CANCER

Information, Education and Communication Booklet for Health Workers

First Edition
October 2017

Comprehensive Community Cancer Programme (CCCP)

Research is our resource

ACKNOWLEDGEMENTS

This booklet was prepared by the Comprehensive Community Cancer Programme (CCCP) of Uganda Cancer Institute. Special thanks go to all the CCCP team especially Alfred Jatho, a Health Educator & Community Cancer Outreach Coordinator, Dr. Noleb Mugisha, Head CCCP, Dr. George Holoya, Medical Officer and Public Health Specialist, Dr. James Kafeero, Medical Officer and Public Health Specialist, and Yusuf Siraji, a Health Educator.

We gratefully acknowledge the helpful comments and suggestions of Dr. Fred Okuku, a Medical Oncologist, Dr. Nixon Niyonzima, Head training & Research, Dr. Carol Nakisige, a Gynaecologist and Dr. Henry Dungu, a Consultant Oncologist.

The contents of this booklet were obtained from various sources that are acknowledged in the texts and in the reference of this booklet. Illustrations and Graphic Design were done by Department of Medical Illustration, College of Health Sciences, Makerere University, except where the source is cited.

We are indebted to the Government of Uganda for its financial contribution through African Development Bank (AfDB) loan to Uganda Cancer Institute that enabled mass production of this booklet. We also thank the Uganda Cancer Institute management, especially The Director Dr. Jackson Orem, for prioritizing efforts towards cancer prevention, early detection, access to cancer treatment and capacity building towards national cancer control.

Contents

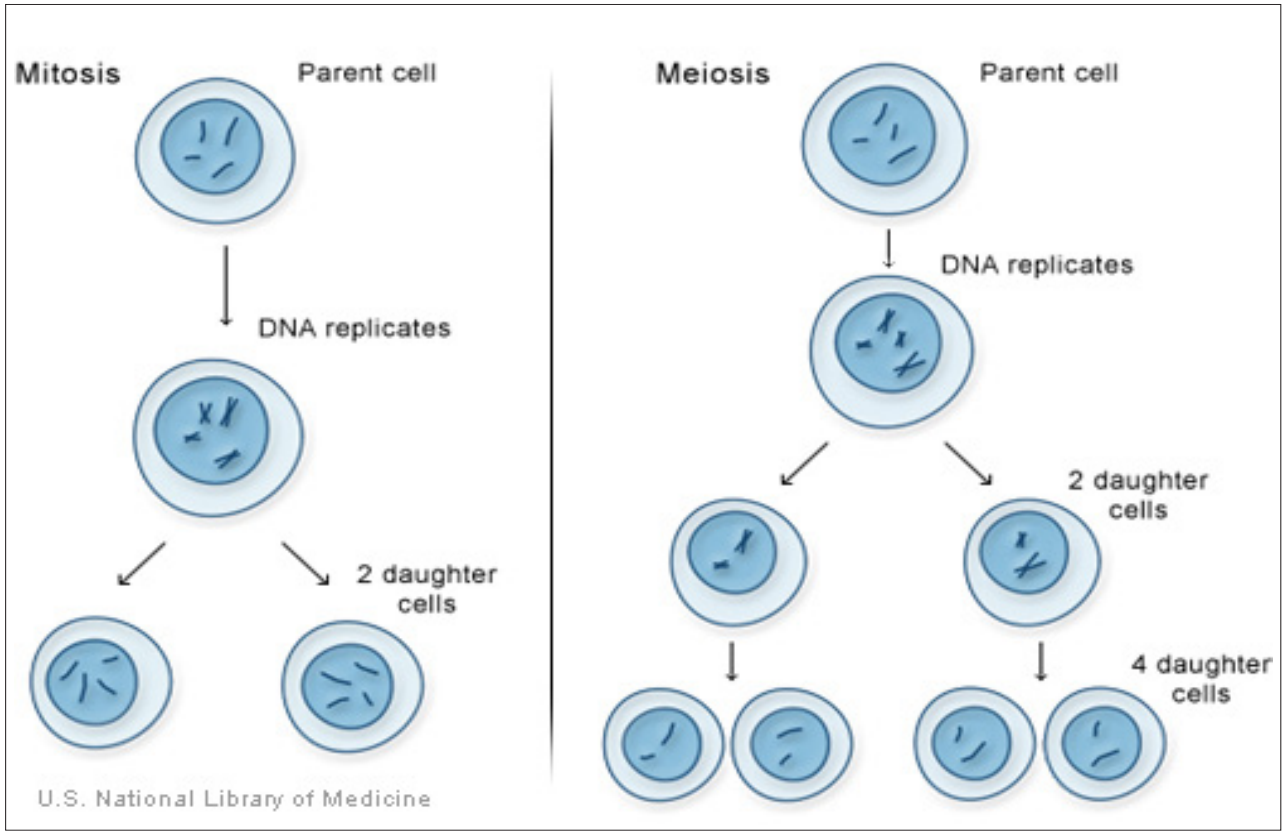
SECTION ONE: WHAT IS CANCER?

- Cancer is the disease caused by uncontrolled growth of certain cells in the body, causing tumours or growths. Not all growths are cancer. When a cancer is allowed to grow and spread it can interfere with the normal functions of the body.
- A tumor is a mass of abnormal tissue. There are two types of tumors: those that are non-cancerous, termed 'benign', and those that are cancerous, which are termed 'malignant'.
- Benign Tumors- When a tumor is diagnosed as benign, doctors will usually leave it alone rather than remove it. Even though these tumors are not generally aggressive toward surrounding tissue, occasionally they may continue to grow, pressing on organs and causing pain or other problems. In these situations, the tumor is removed, allowing pain or complications to subside.
- Malignant tumors- Malignant tumors are cancerous and aggressive because they invade and damage surrounding tissue. When a tumor is suspected to be malignant, the doctor will perform a biopsy to determine the severity or aggressiveness of the tumor.
- Metastatic cancer- Metastatic cancer is when cancer cells of a malignant tumor spread to other parts of the body, usually through the lymph system, blood or enlargement and form a secondary tumor.

How Cancer develops

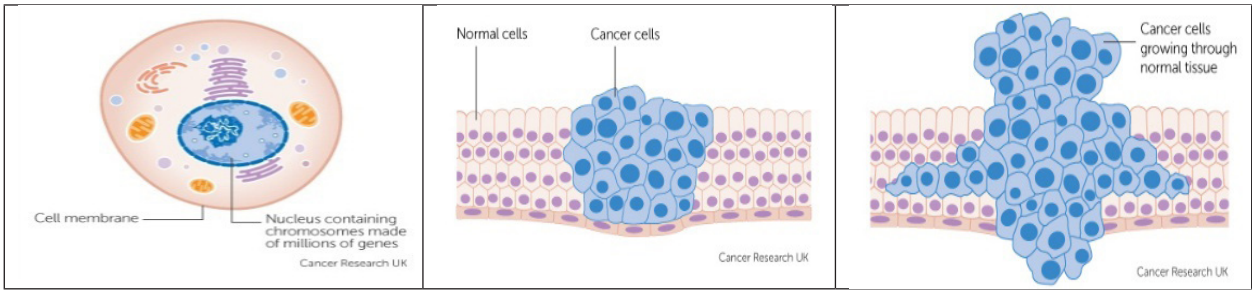
Cancer is a genetic disease—that is, it is caused by changes to genes that control the way our cells function, especially how they grow and divide.

Cell division: Somatic & germ (reproductive) cells respectively



Genetic changes that cause cancer can be inherited from our parents or can also arise during a person's lifetime as a result of errors that occur as cells divide or because of damage to DNA caused by certain environmental exposures. Cancer-causing environmental exposures include substances, such as the chemicals in tobacco smoke, and radiation like exposure to excess ultraviolet rays from the sun (especially among the albinos).

The abnormal and uncontrolled growth of body cells can lead to a lump/ swelling called a **tumour** (for example in breast, prostate, liver, intestine, brain etc.) or an abnormal number of abnormal cells as in **leukaemia** (a type of blood cancer).



What are the different types of Cancer?

There are more than 100 types of cancer. Types of cancer are usually named for the organs or tissues where the cancers form. For example, breast cancer starts in the cells of the breast, lung cancer starts in cells of the lung, and brain cancer starts in cells of the brain.

Cancers also may be described by the type of cells they started from for example:

Carcinoma – cancer that begins in the skin or in tissues that line or cover internal organs. There are a number of subtypes, including adenocarcinoma, basal cell carcinoma, squamous cell carcinoma, and transitional cell carcinoma

Sarcoma – cancer that begins in the connective or supportive tissues such as bone, cartilage, fat, muscle, or blood vessels

Leukaemia – cancer that starts in blood forming tissue such as the bone marrow and causes large numbers of abnormal blood cells to be produced and go into the blood

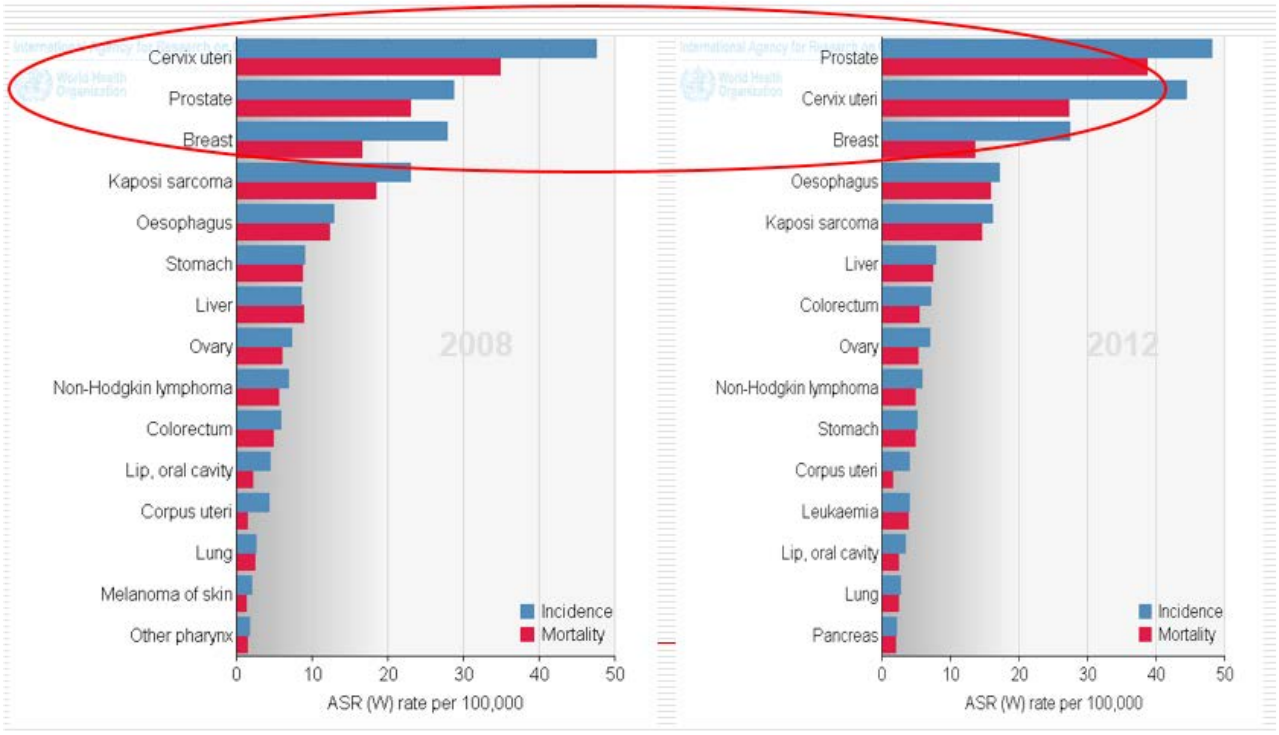
Lymphoma and myeloma – cancers that begin in the cells of the immune system

Brain and spinal cord cancers – these are known as central nervous system cancers

Cancers can be classified as solid e.g., Breast, cervical, prostate, colorectal, liver, e.t.c. The liquid category of cancers may include, Leukeamia, Hogkins lymphomas, Non-Hogkins lymphomas, e.t.c.

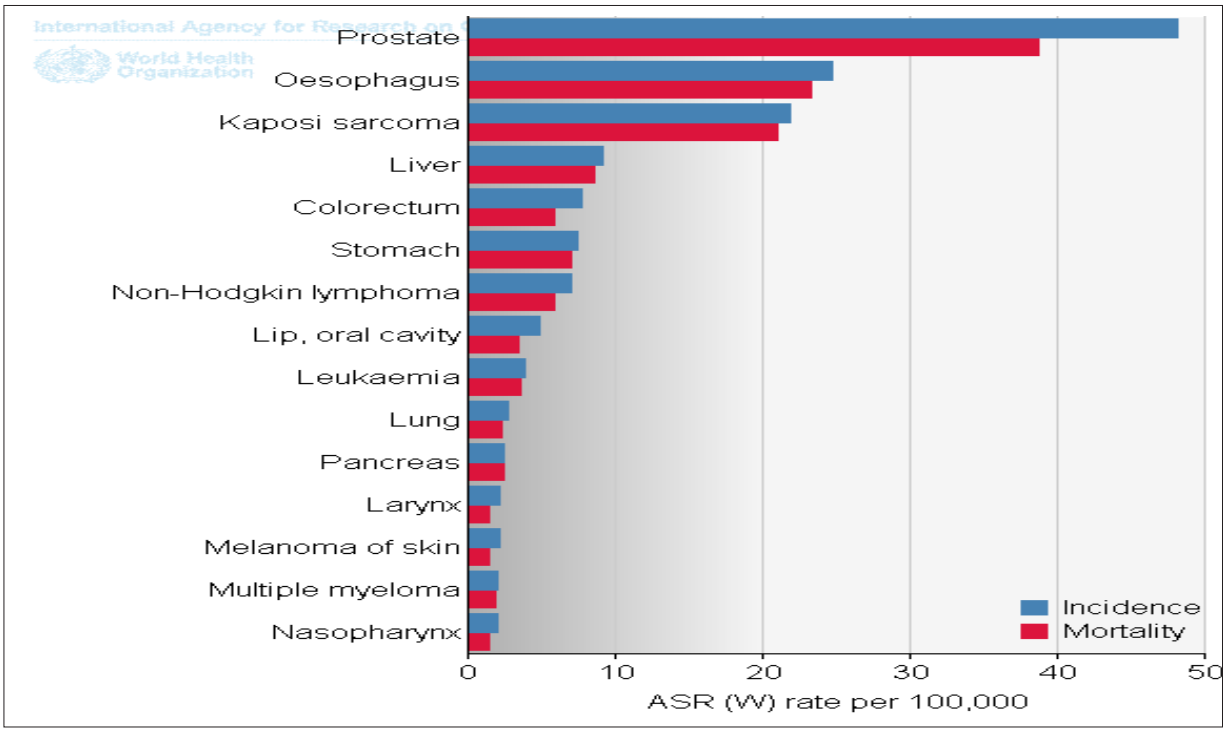
SECTION TWO: HOW COMMON IS CANCER IN UGANDA?

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 were Prostate, Cervical and Breast cancer.



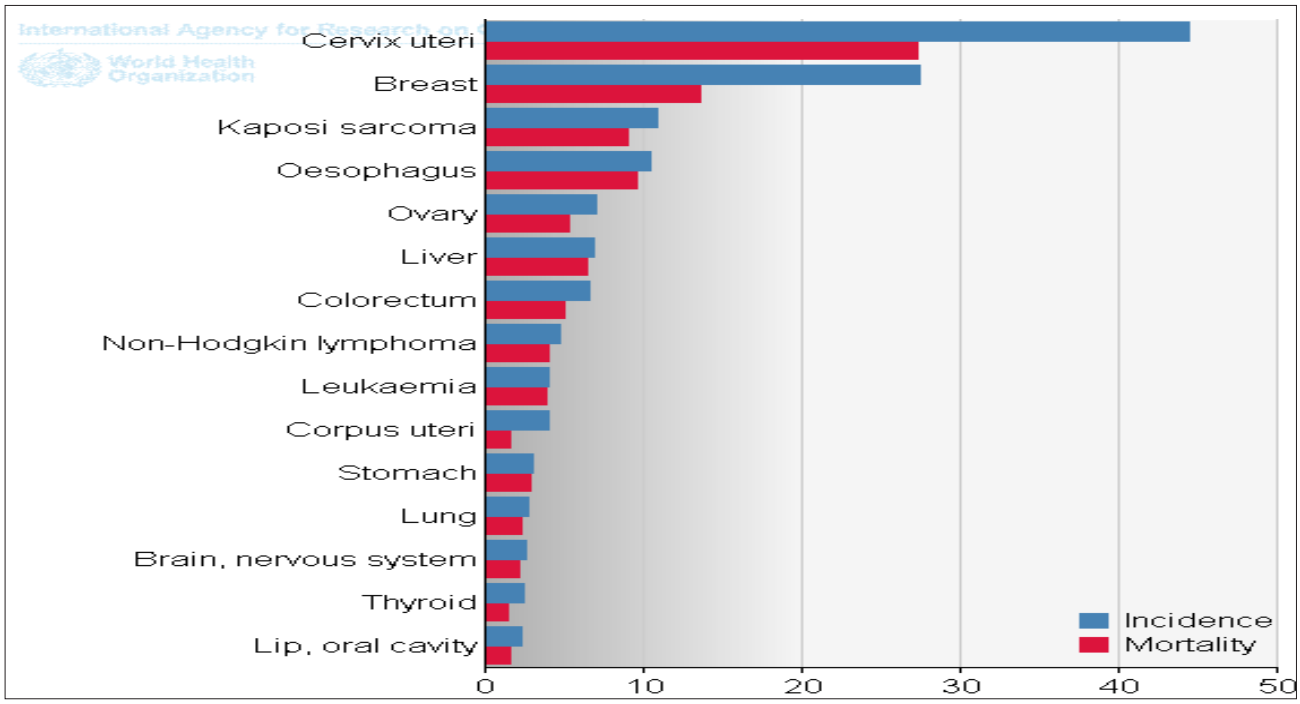
Top cancers among men in Uganda

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)



Top cancers among women in Uganda

According to WHO report of 2012, Cancer of the cervix and breast are the leading cause of cancer death among women in Uganda (see **Figure** below)



SECTION THREE: WHAT ARE THE RISK FACTORS FOR CANCER?

When a person is told that she or he hascancer, it's natural to wonder what may have caused the disease. But no one knows the exact causes of most cancer. Doctors may not know exactly why one person develops breast cancer and another person doesn't, and most people who have cancer will never be able to pinpoint an exact cause. What we do know is that cancer is always caused by damage to a cell's DNA.

People with certain risk factors are more likely than others to develop cancer. A risk factor is something that may increase the possibility of developing a disease. Some risk factors can be avoided, while other risk factors cannot or are difficult to avoid. Having a risk factor does not mean that a person will develop breast cancer. Many people who have risk factors for a particular type of cancer may never develop the cancer.

The causes of cancer could be genetic or environmental and lifestyle factors, or in most cases, a combination of both. But most patients will never know exactly what caused their cancer. However, there are certain established risk factors that are associated with cancer.

Cancer risk factors that cannot be changed or avoided (Genetic Factors) include:

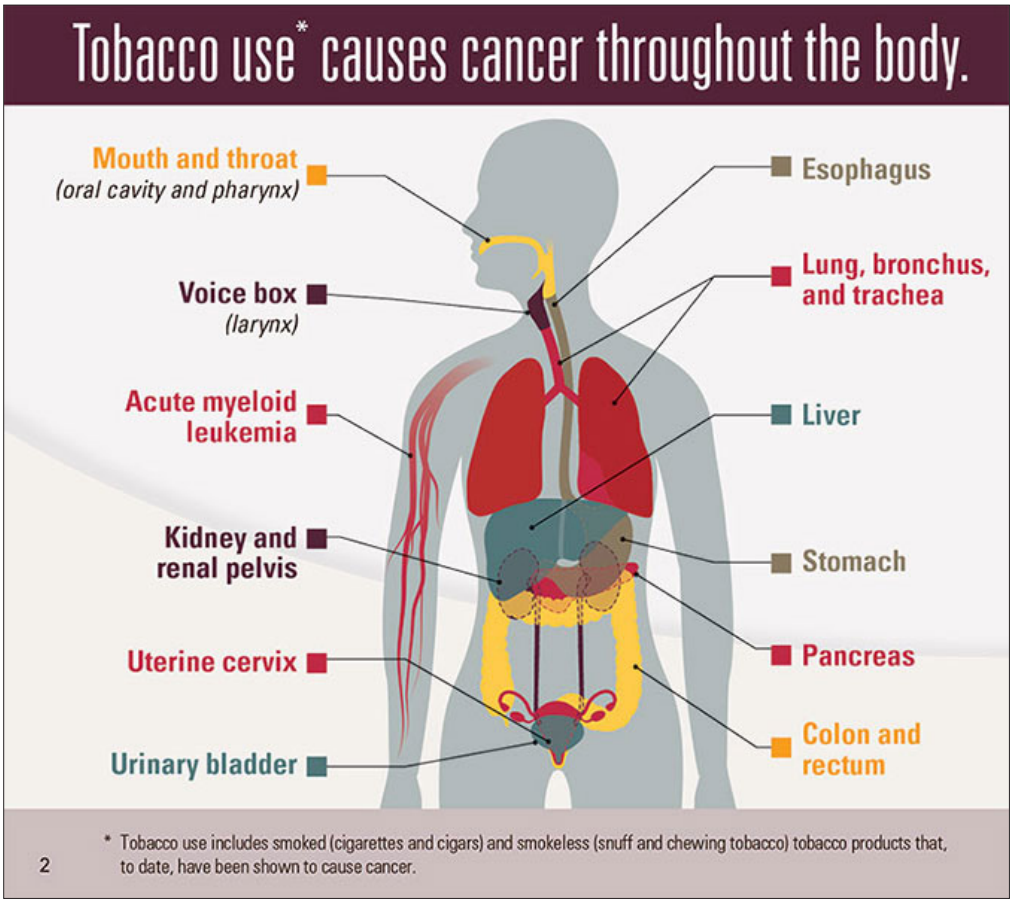
- **Sex & gender:** Some types of cancer are common in a specific sex for, example, Breast cancer occurs nearly 100 times more often in women than in men.
- **Age:** Two out of three women with invasive cancer are diagnosed after age 55, breast cancer is diagnosed more in women aged 40 years and above. Prostate cancer is in most cases diagnosed in men 50 years of age and above.
- **Family History and Genetic Factors:** If your mother, sister, father or child has been diagnosed with breast or ovarian cancer, or prostate cancer, you have a higher risk of being diagnosed with breast cancer in the future. Your risk increases if your relative was diagnosed before the age of 50.
- **Personal Health History:** If you have been diagnosed with cancer like breast cancer for example in one breast, you have an increased risk of being diagnosed with breast cancer in the other breast in the future. Also, your risk increases if abnormal breast cells have been detected before.
- **Menstrual and Reproductive History:** Early menstruation (before age 12), late menopause (after 55), having your first child at an older age, or never having given birth can also increase your risk for breast cancer.
- **Genetic Changes:** Mutations in certain genes, such as BRCA1 and BRCA2, can increase your risk for cancer like breast cancer and prostate cancer. Individuals with these gene mutations can pass the gene mutation onto their children.
- **Dense Breast Tissue:** Having dense breast tissue can increase your risk for breast cancer and make lumps harder to detect.

Cancer risk factors that can be changed or avoided (Environmental and Lifestyle risk factors) include:

1. **Infections:** Certain infectious agents, including viruses, bacteria, and parasites, can cause cancer or increase the risk that cancer will form. Some viruses can disrupt signalling that normally keeps cell growth and multiplication in check. The commonest infections include:
   - Human Papillomaviruses (HPVs)- Infection with high-risk types of HPV cause nearly all cervical cancers. They also cause most anal cancers and many oropharyngeal, vaginal, vulvar, and penile cancers. High-risk HPVs spread easily through direct sexual contact, including vaginal, oral, and anal sex.
   - Hepatitis B Virus and Hepatitis C Virus (HBV and HCV)- Chronic infections with HBV or HCV can cause liver cancer. Both viruses can be transmitted via blood (for example, by sharing needles or through blood transfusions) and from mother to baby at birth. In addition, HBV can be transmitted via sexual contact.
   - Human Immunodeficiency Virus (HIV)- HIV is the virus that causes acquired immunodeficiency syndrome (AIDS). HIV does not cause cancer itself, but infection with HIV weakens the immune system and makes the body less able to fight off other infections that cause cancer. People infected with HIV have increased risks of a number of cancers, especially Kaposi sarcoma, lymphomas (including both non-Hodgkin lymphoma and Hodgkin disease), and cancers of the cervix, anus, lung, liver, and throat.
   - Epstein-Barr Virus (EBV)- EBV, a type of herpes virus, causes mononucleosis as well as certain types of lymphoma and cancers of the nose and throat. EBV is most commonly transmitted by contact with saliva, such as through kissing or by sharing toothbrushes or drinking glasses. It can also be spread by sexual contact, blood transfusions, and organ transplantation
   - *Helicobacter pylori (H. pylori)- H. pylori* is a type of bacterium that can cause noncardia gastric cancer (a type of stomach cancer) and a type of lymphoma in the stomach lining, gastric MALT lymphoma. It can also cause stomach ulcers. The bacterium is thought to spread through consumption of contaminated food or water and direct mouth-to-mouth contact
   - *Schistosoma hematobium-* This parasitic flatworm (fluke), which lives in certain types of freshwater snails found in Africa and the Middle East, can cause bladder cancer. People become infected when infectious free-swimming flatworm larvae burrow into skin that has come into contact with contaminated fresh water. Antiparasitic drugs are used to treat the infection
   - Human T-Cell Leukemia/Lymphoma Virus Type 1 (HTLV-1)- HTLV-1 can cause an aggressive type of non-Hodgkin lymphoma called adult T-cell leukemia/lymphoma (ATLL). This virus spreads via blood (by sharing needles or through transfusions), through sexual contact, and from mother to child in the womb or via breastfeeding.
2. **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.

There is no safe level of tobacco use. People who use any type of tobacco product are strongly urged to quit. People who quit smoking, regardless of their age, have substantial gains in life expectancy compared with those who continue to smoke. Also, quitting smoking at the time of a cancer diagnosis reduces the risk of death. Tobacco smoke contains many chemicals that are harmful to both smokers and nonsmokers. Breathing even a little tobacco smoke can be harmful.

Of the more than 7,000 chemicals in tobacco smoke, at least 250 are known to be harmful, including hydrogen cyanide, carbon monoxide, and ammonia. Among the 250 known harmful chemicals in tobacco smoke, at least 69 can cause cancer.



Source: *CDC*

3. **Lack of adequate physical Activity:** A sedentary lifestyle with little physical activity can increase your risk for cancer, therefore, have regular physical activity like brisk walking, running or gardening for at least 30 minutes per day for at least 5 days a week.

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.

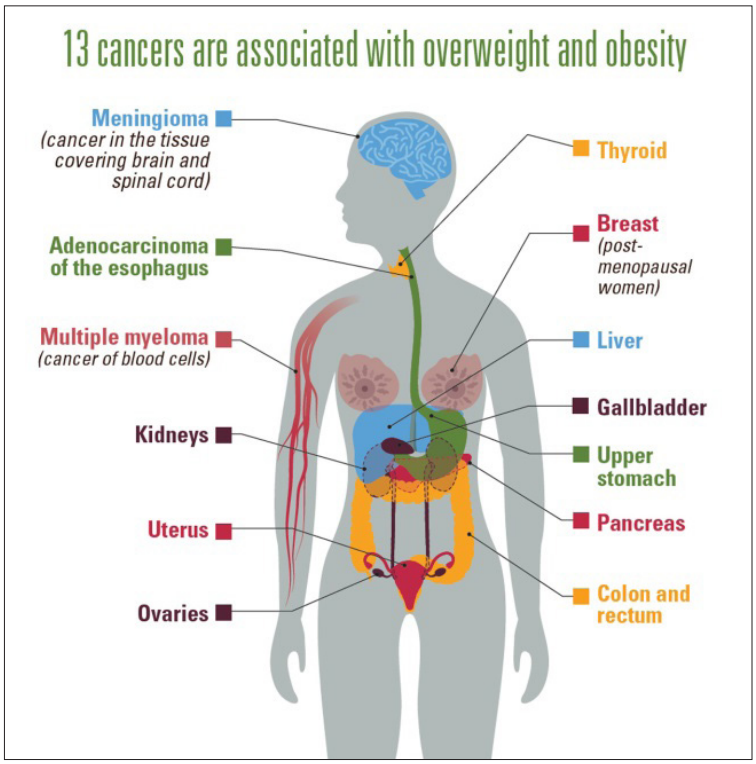
Is physical activity beneficial for cancer survivors?

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. **Poor Diet:** A diet high in saturated fat and lacking fruits and vegetables can increase your risk

for cancer. Therefore, eat a variety and right amount of food.

5. **Being Overweight or Obese:** Being overweight or obese can increase your risk for cancer. Your risk is greater if you have already gone through menopause, therefore, maintain healthy weight.



Source: CDC

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/m2). 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
≥40.00	Obese class III

6. **Drinking Alcohol especially 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. Alcohol is produced by the fermentation of sugar and starch in the presence of yeast. The main types of alcoholic drinks and their alcohol content are as follows:
   - Beers and hard ciders: 3-7 percent alcohol
   - Wines, including sake: 9-15 percent alcohol
   - Wines fortified with liquors, such as port: 16-20 percent alcohol
   - Liquor, or distilled spirits, such as, gin, rum, vodka, and whiskey, which are produced by distilling the alcohol from fermented grains, fruits, or vegetables: usually 35-40 percent alcohol (70-80 proof), but can be higher. Other locally produced alcohol have unknown amount of alcohol concentration.

The more alcohol a person drinks—particularly the more alcohol a person drinks regularly over time—the higher his or her risk of developing an alcohol-associated cancer.

How does alcohol increase the risk of cancer?

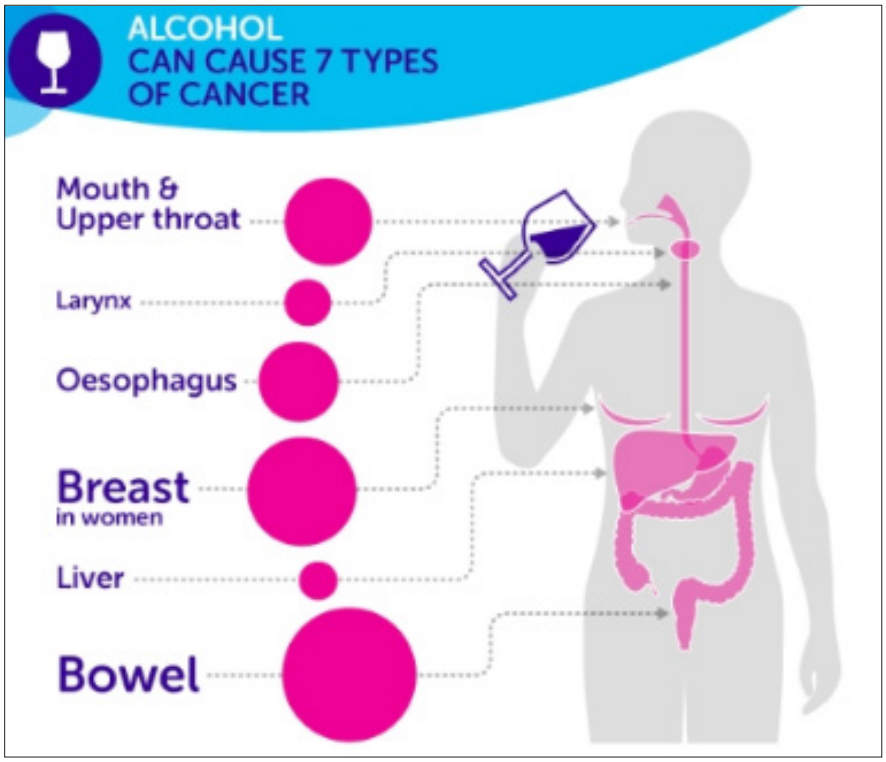
There are many ways that alcohol may increase the risk of developing cancer, these include:

- breaking down ethanol in alcoholic drinks to acetaldehyde, which is a toxic chemical and a probable human carcinogen; acetaldehyde can damage both DNA(the genetic material that makes up genes) and proteins.
- generating chemically reactive molecules that contain oxygen, which can damage DNA, proteins, and lipids (fats) through a process called oxidation
- impairing the body's ability to break down and absorb a variety of nutrients that may be associated with cancer risk, including vitamin A; nutrients in the vitamin B complex, such as folate; vitamin C; vitamin D; vitamin E; and carotenoids
- increasing blood levels of estrogen, a sex hormone linked to the risk of breast cancer

Alcoholic beverages may also contain a variety of carcinogenic contaminants that are introduced during fermentation and production, such as nitrosamines, asbestos fibers, phenols, and hydrocarbons.

So what amount of alcohol a person can drink safely?

The amount of alcohol a person can drink safely depends on the types of alcohol, health status and sex of the person, for example, the American National institute of health (NIH) recommends that a man should not drink more than two drinks (serving size) per day and women not more than one drink per day- this is only if you are not pregnant, lactating, have alcohol dependencies, diseases or are taking medications. One drink contains 14 grams of alcohol, meaning one 12 oz of beer (5% alcohol), one 5 oz of glass of wine (12%), and one 1.5 oz of hard liquor (40%) – each of these is one drink/ one serving.



Source: CDC

7. **Chemicals in our environment–** certain chemicals where we work and live may lead to cancer for example, exposure to *carcinogens* (cancer-causing agents) such as asbestos, uranium, nickel, radon, cadmium, vinyl chloride and benzene in the workplace may increase a person's risk for developing cancer. You can get carcinogens from air, water and soil. For example, pesticides that are known carcinogens have been found in sources of food and drinking water
8. **Radiation:** Having radiation therapy or exposure to radiation in workplaces especially before the age of 30 can increase your risk for cancer.
9. **Combined Hormone Replacement Therapy (HRT):** Taking combined hormone replacement therapy, as prescribed for menopause, can increase your risk for breast cancer and increases the risk that the cancer will be detected at a more advanced stage.

What can a person do to reduce the risk of developing cancer?

By practicing healthy habits and teaching them to your family members, you can help reduce your family's risk for cancer. Start making an effort to reduce your risk now by following these suggestions.

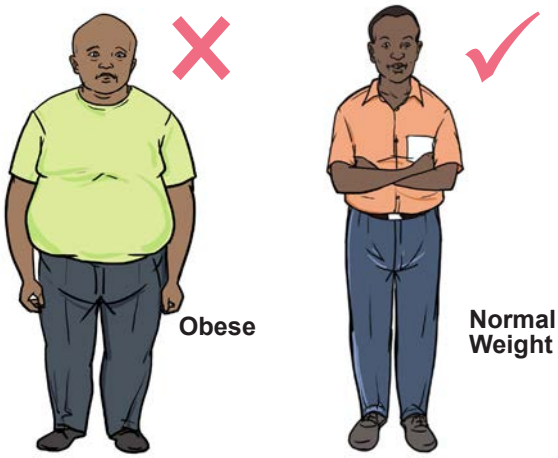
- **Avoid infections** like HIV, HPV, Hepatitis B through safe sex practices like not having more than one sexual partners, use of condoms, etc,

- **Vaccination-** against HPV for girls 9-13 years, Hepatitis vaccination

- **Regular check can prevent some cancers like cervical cancer.** Visit health centres for regularly check-up as advised by your health worker.

- **Don't use tobacco.** Reject tobacco, and if you smoke, consider seeking help to quit.

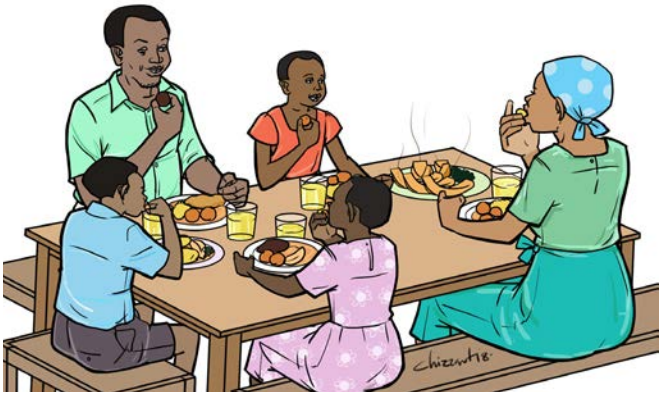
- **Maintain a healthy weight.** Balancing the amount of food you eat with daily exercise will help maintain a healthy weight and reduce the risk of cancer. Maintaining a healthy weight also reduces risk for other chronic diseases such as diabetes and heart disease.



❖ **Be active.** Get at least 30 minutes of physical activity each day. This can be as simple as a brisk walk 15 minutes twice a day. Any amount of physical activity is better than none.

❖ **Limit alcohol consumption.** Choose non-alcoholic beverages like juice, water) and seek professional help to limit alcohol (if needed).

❖ **Eat healthy diet**- eat enough fruits and vegetables, avoid eating too many foods that are high in saturated fats (fried foods, red meat).



SECTION FOUR: EARLY DETECTION OF CANCER

Early detection of cancer greatly increases the chances of cancer survival.

There are two major components of early detection of cancer are health education to promote early detection and screening and recognizing possible warning signs of cancer and taking prompt action leads to early diagnosis (detection).

Increased awareness of possible warning signs of cancer, among physicians, nurses and other health care providers as well as among the general public, can have a great impact on the disease

Early detection of cancer is possible through regular check-up (screening) usually once every year or as advised by your health worker and visiting health facility immediately when you notice any unusual changes in your body.

Cancer screening

- Cancer screening means looking for cancer before a person has any symptoms. There are different kinds of screening tests depending on the type of the cancer. Health worker should advice on what test an individual can take based on many factors such as sex, age, family history of cancer and the need of the individual.
- Screening for involves use of simple tests across a healthy population in order to identify individuals who have disease, but do not yet have symptoms.
- Examples of screening (check-up) tests include breast cancer screening using mammography and cervical cancer screening using Visual methods like visual inspection with acetic acid), cytology screening methods like Pap smears.
- Screening tests can help find cancer at an early stage, before symptoms appear. When abnormal tissue or cancer is found early, it may be easier to treat or cure. By the time symptoms appear, the cancer may have grown and spread. This can make the cancer harder to treat or cure.
- It is important to remember that when your doctor suggests a screening test, it does not always mean he or she thinks you have cancer. Screening tests are done when you have no cancer symptoms.
- Screening is not undertaken to diagnose a disease, but to identify individuals with increased probability of having either the disease itself or a precursor of the disease. Not all diseases are

appropriate for a screening programme.

- The following are the most important criteria to determine whether a disease is appropriate for a screening programme:
  - ✓ The disease must have serious consequences.
  - ✓ The disease must have a detectable preclinical / asymptomatic stage.
  - ✓ Treatment of the preclinical stage must favourably influence the long-term course and prognosis of the disease being screened for.
  - ✓ Treatment must be available and accessible for those who have a positive screening test.

The natural history, screening tests and treatment options for cervical and breast cancer meet these criteria while Prostate cancer meets some of the above criteria, therefore, the commonest types of cancer are Cervical, Breast and Prostate cancer and at times colo-rectal cancer.

- ✓ Screening program is therefore, recommended to be undertaken only when its effectiveness has been demonstrated, when resources (personnel, equipment, etc.) are sufficient to cover nearly all of the target group, when facilities exist for confirming the disease and for treatment and follow-up of those with abnormal results, and when prevalence of the disease is high enough to justify the effort and costs of screening.

Screening tests include the following categories:

- Physical exam and history: An exam of the body to check general signs of health, including checking for signs of disease, such as lumps or anything else that seems unusual, for example clinical breast exam. A history of the patient's health habits and past illnesses and treatments will also be taken.
- Laboratory tests: Medical procedures that test samples of tissue, blood, urine, or other substances in the body, for example PSA test in Prostate cancer screening.
- Imaging procedures: Procedures that make pictures of areas inside the body, for example breast x-ray (mammography).
- Genetic tests: Tests that look for certain gene mutations (changes) that are linked to some types of cancer.

It is important to note that cancer screening programme also needs to assure there is a functioning referral system so that the individuals found with pre-cancer or suspected cancer will receive appropriate referral and management.

Characteristics of a good screening test

A good screening test should be:

- **Accurate:** the result of the test is correct
- **Reproducible:** repeating the same test will give the same result
- **Inexpensive:** affordable to the health system in terms of both financial and human resources, and to all patients and their families in terms of access to necessary services
- **Relatively easy:** uncomplicated to perform and to provide follow-up care for women with abnormal results
- **Acceptable:** well tolerated by both the patient and the provider
- **Safe:** the test procedure and management of screen-positive subjects have no or minimal adverse effects
- **Available:** accessible to the entire target population.

Ethical considerations in cancer screening programmes

Before a screening programme is implemented, the following elements should be considered to ensure an ethical and equitable approach:

- **Pre-cancer screening and treatment**, as well as management of cervical cancer, should be accessible to all women in the target age group, including the poorest, most vulnerable, and hardest to reach.
- Patients and communities should receive **health education** to ensure informed decision-making on screening and treatment.
- **Patient record systems** and patient care should ensure confidentiality.
- **Providers should be adequately trained** and have clear guidelines on management and follow-up of women with positive screening results.
- **A referral system** should be in place for all health problems discovered during the screening process including: – treatment and palliative services for cervical cancer, and – treatment for other reproductive health disorders.
- **Informed choice:** The patient / client should be given enough information so that she/he can make an informed choice about whether to accept or refuse the test or course of action proposed by providers. This information needs to include the meaning and consequences of a positive test, the availability of treatment, as well as the risks the patient may face should he/she refuse screening and related treatment.
- **Informed consent:** This refers to the explicit verbal or written permission given by a patient to receive a procedure or test, once she (or he) has received sufficient information to make an informed choice.
- **Both informed consent and informed choice** are based on the ethical principles of autonomy and respect for the individual. In some cases, the notion of consent may be a collective decision-making process involving others, such as the spouse/ partner, family head.
- **Accurate information** provided through health education and counselling can ensure that women and their extended families understand the facts about cancer, for example cervical cancer, including who is at risk, how screening can reduce this risk, and any potential harm related to screening or treatment.
- After receiving this information, it is the patient who makes the choice with advice and support from others in her close circle. The health-care provider needs to be conscious of the possibility that the patient may be subject to coercion and should make efforts to assure that the patient's decision is not coerced.

Infection prevention during cancer screening

- ❖ In all clinical activities, very careful attention should be given to infection prevention.
- ❖ Providers should use clean gloves on both hands when performing examinations, taking specimens, and performing procedures such as cryotherapy.
- ❖ For invasive procedures providers should use sterile gloves. It is important to use standard infection prevention and control (IPC) precautions with all patients, regardless of whether they appear sick or well, or whether their HIV or other infection status is known or unknown.
- ❖ In this way, providers protect both their patients and themselves from infection. It is worthwhile to make infection prevention efforts visible to the woman being screened (such as washing hands and changing to fresh gloves), to reduce any anxiety she may have about safety and hygiene.

SECTION FIVE: WHAT ARE SOME OF THE GENERAL SIGNS AND SYMPTOMS OF CANCER?

Generally, the symptoms and signs of cancer appear late when the cancer has already advanced (spread). however, having any of those signs may not mean that you have cancer, many other things cause these signs and symptoms, too. If you have any of these symptoms and they last for a long time or get worse, please see a health worker to find out what's going on. These signs and symptoms include;

Swelling- swelling (lump) in the breast eg in breast cancer, on the skin eg in Karposi Sarcoma, in the check eg in Burkit lymphoma.

Unexplained weight loss- Most people with cancer will lose weight at some point. When you lose weight for no known reason, it's called an unexplained weight loss. This happens most often with cancers of the pancreas, stomach, oesophagus (swallowing tube), or lung.

Fever (High body temperature) - Fever is very common with cancer, but it more often happens after cancer has spread from where it started. Almost all people with cancer will have fever at some time, especially if the cancer or its treatment affects the immune system. (This can make it harder for the body to fight infection.) Less often, fever may be an early sign of cancer, such as blood cancers like leukemia or lymphoma.

Fatigue - Fatigue is extreme tiredness that doesn't get better with rest. It may be an important symptom as cancer grows. But it may happen early in some cancers, like leukemia. Some colon or stomach cancers can cause blood loss that's not obvious. This is another way cancer can cause fatigue.

Pain - Pain may be an early symptom with some cancers like bone cancers or testicular cancer. A headache that does not go away or get better with treatment may be a symptom of a brain tumor. Back pain can be a symptom of cancer of the colon, rectum, prostate, cervix, or ovary. Most often, pain due to cancer means it has already spread (metastasized) from where it started.

Skin changes - Along with skin cancers, some other cancers can cause skin changes that can be seen. These signs and symptoms include:

- Darker looking skin (*hyperpigmentation*)
- Yellowish skin and eyes (*jaundice*)
- Reddened skin (*erythema*)
- Itching (pruritis)

Why are some cancers detected late?

Most cancer patients in Uganda are being diagnosed late when the cancer has spread and therefore such patients have lower chances of survival compared to other patients.

The reasons for delays in cancer diagnosis include:

- Low awareness of cancer signs and symptoms can mean that people don't see the GP as soon as they might which could delay a diagnosis.
- Some people might delay because they are worried about what the health worker might find or they don't want to waste the doctor's time.
- There can be delays from the health workers in referring patients on for further tests or treatment.
- Delays can also occur in getting an appointment at the hospital.

But we can all do our bit to help spot cancer early by being aware of any changes in our bodies and reporting them promptly to the health workers.

SECTION SIX: HOW IS 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).

There are two common ways prostate tissue can be removed for biopsy: ***needle*** biopsy, or ***surgical biopsy***. .

- ***Needle Biopsy:*** The doctor takes a small tissue or fluid sample by inserting a needle into the abnormal (suspicious) area.
- ***Surgical Biopsy:*** 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.

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
- The “aggressiveness” or behavior of the tumor

What are the different stages of cancer?

Cancers that have begun to spread are classified according to the manner and extent of spread, usually the following stages are used:

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.

SECTION SEVEN: HOW IS CANCER TREATED?

Cancer can be treated using one or two or all of the following methods based on the type and stage of the cancer:

Surgery- The most common form of cancer treatment is surgery. This involves removing the cancer tumor and nearby margins and reconstruction of the affected area.

Chemotherapy- Chemotherapy is a cancer treatment method that uses a combination of drugs to either destroy cancer cells or slow down the growth of cancer cells.

Radiation Therapy- Radiation therapy (also called radiotherapy) uses high-energy rays to kill cancer cells. It affects the nearby skin or cells only in the part of the body that is treated with the radiation.

Hormone Therapy- If the cancer cells have hormone receptors, you may be prescribed hormone therapy drugs, such as blockers or inhibitors. Both types of drugs help to destroy cancer cells by cutting off their supply of hormones.

Targeted Therapy-Targeted therapy uses drugs that block the growth of cancer cells in specific ways, often reducing side effects.

Nutrition and Physical Activity- It's important for you to take very good care of yourself before, during, and after cancer treatment.

Follow-Up Care-You'll need regular check-ups after cancer treatment. This helps ensure that any changes in your health are noted and treated if needed.

SECTION EIGHT: COMMON CANCER MYTHS AND MISCONCEPTIONS

There are myths and misconceptions that may that may lead to unnecessary cost and may hinder right prevention measures and good treatment outcomes. The common cancer myths and misconceptions are explained below.

Is cancer a death sentence?

NO!- It is important to know that a good number of cancers cases can be treated and cure when detected earlybased on data from large numbers of survivors. However, other factors, including whether the cancer is slow or fast growing, how much the cancer has spread in the body, whether effective treatments are available, the person's overall health, and more.

Will eating sugar make my cancer worse?

No. Although research has shown that cancer cells consume more sugar (glucose) than normal cells, no studies have shown that eating sugar will make your cancer worse or that, if you stop eating sugar, your cancer will shrink or disappear. However, a high-sugar diet may contribute to excess weight gain, and obesity is associated with an increased risk of developing several types of cancer.

Do artificial sweeteners and sweets cause cancer?

No. Researchers have conducted studies on the safety of the artificial sweeteners (sugar substitutes) and found no evidence that they cause cancer in humans.

Is cancer contagious?

NO. Cancer is not a contagious disease that easily spreads from person to person. The only situation in which cancer can spread from one person to another is in the case of organ or tissue transplantation. In some people, cancers may be caused by certain viruses (some types of human papillomavirus, or HPV, for example) and bacteria (such as *Helicobacter pylori*). While a virus or bacterium can spread from person to person, the cancers they sometimes cause cannot spread from person to person

Does my attitude—positive or negative—determine my risk of, or likely recovery from, cancer?

To date, there is no convincing scientific evidence that links a person's "attitude" to his or her risk of developing or dying from cancer. If you have cancer, it's normal to feel sad, angry, or discouraged sometimes and positive or upbeat at other times. People with a positive attitude may be more likely to maintain social connections and stay active, and physical activity and emotional support may help you cope with your cancer.

Can cancer surgery or a tumor biopsy cause cancer to spread in the body?

The chance that surgery will cause cancer to spread to other parts of the body is extremely low. Following standard procedures, surgeons use special methods and take many steps to prevent cancer cells from spreading during biopsies or surgery to remove tumors. For example, if they must remove tissue from more than one area of the body, they use different surgical tools for each area.

Will cancer get worse if exposed to air?

No. Exposure to air will not make tumors grow faster or cause cancer to spread to other parts of the body.

Do cell phones cause cancer?

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

Do electricity power lines and telephone mast cause cancer?

No, not according to the best studies completed so far. Power lines emit both electric and magnetic energy. The electric energy emitted by power lines is easily shielded or weakened by walls and other objects. The magnetic energy emitted by power lines is a low-frequency form of radiation that does not damage genes.

Do alternative or complementary medicines and herbs cure cancer?

No. Although some studies suggest that alternative or complementary therapies, including 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 chemotherapy or radiation therapy because they may interfere with how these treatments work. Cancer patients should talk with their doctor about any complementary and alternative medicine products—including vitamins and herbal supplements—they may be using.

If someone in my family has cancer, am I likely to get cancer, too?

Not necessarily. Cancer is caused by harmful changes (mutations) in genes. Only about 5 to 10 percent of cancers are caused by harmful mutations that are inherited from a person's parents. In families with an inherited cancer-causing mutation, multiple family members will often develop the same type of cancer. These cancers are called "familial" or "hereditary" cancers.

The remaining 90 to 95 percent of cancers are caused by mutations that happen during a person's lifetime as a natural result of aging and exposure to environmental factors, such as tobacco smoke and radiation. These cancers are called "non-hereditary" or "spontaneous" cancers.

If no one in my family has had cancer, does that mean I'm risk-free?

No. Based on the most recent data, about 40 percent of men and women will be diagnosed with cancer at some point during their lives. Most cancers are caused by genetic changes that occur throughout a person's lifetime as a natural result of aging and exposure to environmental factors, such as tobacco smoke and radiation. Other factors, such as what kind of food you eat, how much you eat, and whether you exercise, may also influence your risk of developing cancer.

Do antiperspirants or deodorants cause breast cancer?

No. The best studies so far have found no evidence linking the chemicals typically found in antiperspirants and deodorants with changes in breast tissue.

Does hair dye use increase the risk of cancer?

There is no convincing scientific evidence that personal hair dye use increases the risk of cancer. Some studies suggest, however, that hairdressers and barbers who are regularly exposed to large quantities of hair dye and other chemical products may have an increased risk of bladder cancer.

Does bleaching cause cancer?

Yes, there are some chemicals found in bleaching agents with a known risk to cancers examples include hydroquinone, mercury etc.

Uganda Cancer Institute

Upper Mulago Hill Road

P.O Box 3935, Kampala, Uganda.

Tel: +256 414 540 410 Fax no: +256 414 530 729

Website: www.uci.org.ug