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## Understanding The Meaning Of Cancer

Cancer is a disease where abnormal cells multiply and destroy healthy cells in the body. Cancerous tumours invade the body and starve healthy cells of oxygen, nutrients and space. Cancer can be very aggressive depending on stages and location and it can also be hard to treat.

This paper talks about the overall disease, risk factors, assessment findings, diagnostic tools, and medical/nurse management of this disease. Cancer is the second-leading cause of death in the U.S but with improvement of medicine and cancer screening the survival rates has improved.

Cancer is caused by changes to the cellular DNA within cells. "The DNA inside a cell is packaged into many individual genes, each of which contains a set of instructions telling the cell what functions to perform, as well as how to grow and divide." Mayo Clinic. (2018). Cancer symptoms and causes. [online] Available at: <https://www.mayoclinic.org/diseases-conditions/cancer/symptoms-causes/syc-20370588>. Gene mutation can happen in various ways, a small percent of cancers is caused by gene mutations that the client acquires at birth from their parents. Most often gene mutations are caused after birth from a number of sources such as: age, smoking, diet, chemical agents in the body, environmental factors, viruses and bacteria, and hormones. There are various types of cancers, lung cancer is the leading cause of death among all cancers. Certain cancer is more common depending on the gender of the person. Cancer that are more common in men include prostate, lung, and colorectal cancer. In women breast, ovarian, and lung cancer are more common.

"While doctors have an idea of what may increase your risk of cancer, the majority of cancers occur in people who don't have any known risk factors." Mayo Clinic (2018).

A person's lifestyle habits play a major role in putting them at risk for various types of cancers.

People who have a life long history of smoking and alcohol consumption is among the highest at risk for having cancer. Cancer is a disease that progresses over time and can go unknown for many years. With people who have these types of addictions that damage body cells they become more susceptible to the growth of cancer cells. Another big lifestyle factor that put people at a higher risk is diet and obesity. "Foods high in fat and those smoked or preserved with salt, alcohol, or nitrates are associated with an increased cancer risk. There is evidence that obesity is associated with endometrial and postmenopausal breast cancers as well as pancreatic, colon and rectum, gallbladder, thyroid, ovarian, and cervical cancers as well as placing clients at higher risk for multiple myeloma, Hodgkin's lymphoma, and certain types of prostate cancer." (Wolters Kluwer | Lippincott Williams & Wilkins. (2014). Introductory Medical-Surgical Nursing (12th ed., pp. 256-280). Philadelphia.) The exposure to environmental factors such as radiation, light and pollutants over a period of time puts a person at risk for cancers such as leukaemia, multiple myeloma, lung, bone breast or thyroid cancers. "Chemicals in your home or workplace, such as asbestos and benzene, also are associated with an increased risk of cancer." Mayo Clinic. (2018). "Estrogens, a group of female sex hormones, are known human carcinogens. Although these hormones have essential physiological roles in both

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females and males, they have also been associated with an increased risk of certain cancers.” National Cancer Society. (2015) <https://www.cancer.gov/about-cancer/causes-prevention/risk/hormones>. With the improvement of medicine there is also a link between viruses and bacteria being a leading factor in cancer development as well. When there is a virus the cell goes through changes which can cause cancerous cells to form. One connection that has been made is a viral connection of cancer is Kaposi's sarcoma, which has been linked to HIV/AIDS. The prevention of cancer focuses on key lifestyle changes such as:

- Stop smoking
- Avoid excessive sun exposure
- Eat a healthy diet
- Exercise most days of the week
- Maintain a healthy weight
- Drink alcohol in moderation, if you choose to drink
- Schedule cancer screening exams
- Ask your doctor about immunizations

Cancer is a group of diseases that can cause various signs and symptoms, these signs and symptoms depend on the location, the size, and how it affects the organs and tissues. Most signs and symptoms are caused by the cancer growth pushing on surrounding organs, blood vessels, and nerves. If the cancer is located where there aren't any nearby organs signs and symptoms may not be noticed until it is quite large. Depending on the cancer it can release substances into the bloodstream that creates signs and symptoms that are not linked to cancer. General signs and symptoms of cancer include unexplained weight loss, fever, fatigue, pain, and skin changes. Certain signs and symptoms point to certain types of cancer. Losing 10 pounds or more can point to cancers of the pancreas, stomach, oesophagus, and lungs. Fever can be an early sign of leukaemia or lymphoma cancer. Fatigue is common amongst all cancers but specifically is an early sign of leukaemia or cancers that cause blood loss such as colon cancer. Pain goes hand in hand with this disease, it is usually a sign of metastasis as well as an early symptom of bone cancers and testicular cancer. If the person is having a chronic headache that does not get any better is a sign of a brain tumour, and back pain can be related to ovarian and colorectal cancer. Skin changes can be directly linked to skin cancers, which has certain characteristics such as hyperpigmentation, jaundice, erythema, pruritis, and excessive hair growth. “Long-term constipation, diarrhoea, or a change in the size of the stool may be a sign of colon cancer. A long-lasting sore in the mouth could be an oral [HYPERLINK 'https://www.cancer.org/cancer/oral-cavity-and-oropharyngeal-cancer.html'](https://www.cancer.org/cancer/oral-cavity-and-oropharyngeal-cancer.html) cancer. White patches inside the mouth and white spots on the tongue may be leukoplakia. Unusual bleeding can happen in early or advanced cancer. Coughing up blood may be a sign of lung cancer. Blood in the stool (which can look like very dark or black stool) could be a sign of colon or rectal cancer. Cancer of the cervix or the endometrium (lining of the uterus) can cause abnormal vaginal bleeding. Blood in the urine may be a sign of bladder or kidney cancer. A bloody discharge from the nipple may be a sign of breast cancer. Many cancers can be felt through the skin. These cancers occur mostly in the breast, testicle, lymph nodes (glands), and the soft tissues of the body.” Signs of Cancer, The American cancer Society. (2014). Retrieved from <https://www.cancer.org/cancer/cancer-basics/signs-and-symptoms-of-cancer.html>.

Diagnosing cancer is very important, depending on when it is diagnosed plays a major factor in it's cure. Cancer screening is key to a diagnosis, there are multiple ways that this can be done.

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A common physical exam, where the Dr. feels areas of the body for lumps that may indicate a tumour. During a physical exam the Dr. will also look for and notate any skin changes such as colour, or the enlargement of organs that also indicate cancer. "Laboratory tests, such as urine and blood tests, may help your doctor identify abnormalities that can be caused by cancer." Mayo Clinic. (2018) There are several different types of radiologic and imaging tests, X-ray Imaging, Computed Tomography, MRI, Nuclear Imaging, Ultrasound, Fluoroscopy, and Vascular Imaging.

"X-ray imaging are quick and painless tests that produce images of body structures. CT scan provides three-dimensional cross-sectional views of tissues to determine tumour density, shape, size, volume, and location as well as highlighting blood vessels that feed the tumour. MRI uses radio frequency signals in the presence of a magnetic field to differentiate diseased tissue from healthy tissue and to study blood flow. Nuclear imaging includes PET scan, SPECT scan, and Radioimmunoconjugates to identify tumours. Ultrasounds help differentiate solid and cystic tumours of the abdomen, breasts, pelvis, and heart. Fluoroscopy shows continuous X-ray images and to visualize blood flow to organs. Vascular Imaging uses contrast agents that are injected directly into veins, and arteries to assess the vasculature of a tumour. Other studies include doing a biopsy where tissue samples excised from the body are directly examined microscopically for malignant or premalignant processes. Once cancer is diagnosed it is then staged, before a client is treated for cancer based on how they tend to grow and the cell type. Stages of cancer is indicated by Roman numerals from I-IV. "Stage 0: the malignant cells are confined to the layer of cells in which they began, with no signs of metastasis. Stage I, II, and III: indicate that the tumour is of great size and/or the spread of cancer is to nearby lymph nodes and/or organs near the primary tumour. Stage IV: Cancer has invaded and metastasized to other organs of the body." Wolters Kluwer | Lippincott Williams Wilkins. (2014).

There are four primary options are used to treat cancer, surgery, radiation therapy, chemotherapy, and hematopoietic stem cell transplantation. There are also other alternative therapies such as gene therapy, and immunotherapy. "Cryosurgery is a type of treatment in which extreme cold produced by liquid nitrogen or argon gas is used to destroy abnormal tissue. Laser therapy is a type of treatment in which powerful beams of light are used to cut through tissue." National Cancer Society. (2015) "Electrosurgery uses high-frequency electric current to destroy tumour cells. Radiofrequency ablation uses high-energy radio waves through a needle to heat and destroy cancer cells. Laparoscopic surgery uses a long flexible scope through a small incision to inspect and remove pieces of tissue. Robotic surgery is similar to laparoscopic surgery, the surgeon sits at a control table and guides precise robotic arms to pass a scope through a small incision to inspect and remove tissue." Wolters Kluwer |Lippincott Williams Wilkins. (2014). Radiation therapy is used to destroy cancer cells, shrink tumours, and relieve symptoms. There are two types of radiation internal and external beam radiation. External beam radiation a machine is used to target the cancer and internal radiation a source of radiation is put inside the body. Chemotherapy uses drugs to kill cancer cells by interfering with cellular function and reproduction. "Immunotherapy, also known as biological therapy, uses your body's immune system to fight cancer. Some types of cancer are fueled by your body's hormones. Removing those hormones from the body or blocking their effects may cause the cancer cells to stop growing. Targeted drug treatment focuses on specific abnormalities within cancer cells that allow them to survive." Mayo Clinic. (2018). With every form of treatment there are also side effects and risk factors, risk for surgery includes pain after the surgery and infection. Radiation therapy has expected side effects that results from destroying normal cells in the body, these include: alopecia, erythema, desquamation (shedding of epidermis),

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alterations in oral mucosa, anorexia, nausea and vomiting, diarrhoea, cystitis, pneumonitis, fatigue, and depression of bone marrow function. "When chemotherapy enters the body, sensors in the digestive system and brain detect its presence as a foreign substance. Some people experience nausea and vomiting side effects from chemotherapy within the first few hours of receiving chemotherapy. Chemotherapy can reduce the number of neutrophils in the blood, which can lead to fever as well as infections. Hair loss is often one of the more frustrating side effects of chemotherapy and cancer treatment. Defined as two or more loose stools per day, diarrhoea may be a side effect of certain chemotherapy drugs. Constipation is also a side effect of chemotherapy." Side effects of cancer. (2018). Retrieved from [https://www.cancercare.org/publications/24understanding\\_and\\_managing\\_chemotherapy\\_side\\_effects#!hair-loss](https://www.cancercare.org/publications/24understanding_and_managing_chemotherapy_side_effects#!hair-loss).

Once cancer has been diagnosed and staged, the Dr will give the patient their prognosis which tells that person how serious their cancer is and their rate of survival. Various factors that determine cancer prognosis such as the type of cancer, the stage of the cancer, age, and time period of the diagnosis. "Doctors use survival statistics to estimate a patient's prognosis. Survival rate is the percentage of people who will be alive at a certain time after diagnosis. A 5-year relative survival rate is the percentage of people who will be alive 5 years after diagnosis. It does not include those who die from other diseases. Five-year relative survival rates include people in remission. Remission is the temporary or permanent absence of disease. This survival rate also includes those still receiving treatment. Disease-free survival rate is the percentage of people in complete remission after finishing treatment. Progression-free survival rate is the percentage of people who did not have new tumour growth or cancer spread during or after treatment. The disease may have responded to treatment completely or partially. Or the disease may be stable. This means the cancer is still there but not growing or spreading. Progression-free survival rate is the percentage of people who did not have new tumour growth or cancer spread during or after treatment. The disease may have responded to treatment completely or partially. Or the disease may be stable. This means the cancer is still there but not growing or spreading." Understanding Prognosis. (2018). Retrieved from <https://www.cancer.net/navigating-cancer-care/cancer-basics/understanding-statistics-used-guide-prognosis-and-evaluate-treatment>.

The diagnoses of cancer can be very scary and overwhelming to find out for many people. Since this is very hard news to understand and cope with, it is recommended that clients seek psychological support with their medical treatments. The most common reactions that clients feel is anxiety, fear and depression, as well as feeling guilty like this is punishment for acts they feel they did that was wrong or because of their lifestyle that may have played a role in their cancer. Most clients to express anger especially at the early stage of diagnosis that usually subsides after acceptance. Psychological support is also needed to help clients who may never reach a place of acceptance be able to participate and help manage their medical needs. It is important to involve client's family in understanding the diagnosis, treatment choices, preventing complications, and recognizing side effects and adverse reactions. Psychological support can be difficult in patients who prognosis is terminal, this type of prognosis can be physical and emotional draining to the client. Without support the capability of coping with this can be impossible, usually this type of client is in a lot of pain, so managing their pain and nutrition is key for their best quality of life.

Cancer is not easily detected, unfortunately it is a disease that is more often found after being present in the body. However, due to a better understanding of this disease there are many ways to limit the chances of having cancer. Once cancer is diagnosed picking what type of

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treatment for the patient is the most important next step. Depending on diagnostic findings and prognosis treatment can be manageable of this disease by preventing complications and refraining from factors that would put the patient at risk. Living a healthy lifestyle and cancer screenings puts people at a low risk for ever dealing with this disease. A cancer diagnoses does not mean life is over, most people with the right amount of medical and psychological support can still have enjoyment and fulfilment in life.

## References

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