

This booklet has been written to help you understand more about cancer.

Cancer is the general term used to describe the group of diseases in which cells are growing in an uncontrolled and purposeless way within the body. Many people think of it as a single disease but in fact there are over two hundred types of cancer with many important differences between them. Many cancers can be cured, others can be controlled and symptoms can be relieved by modern treatments.

When cancer is diagnosed the initial reaction is often fear of the unknown. Knowledge about your illness can help to make that fear manageable and help you maintain control over some important areas of your life. Being able to share the knowledge with those you are close to may enhance the way you all deal with the disease.

This booklet is intended as a starting point but not a substitute for talking to those who are helping to look after you. You may like to use this information as the basis for discussions with your doctor. **Do ask questions.** It is important that you understand your disease and the treatments that are being suggested so that you can be confident in the decisions you make.

This booklet has been produced by The Cancer Council South Australia with the valuable assistance of the Acting Director of the Department of Medical Oncology at the Royal Adelaide Hospital.

November 2006

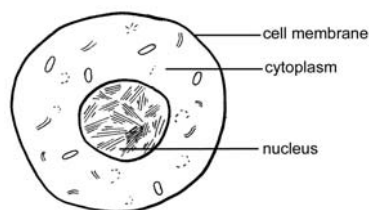
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Normal cells and cell growth

To understand about cancer it is first necessary to know a little about cells.

Cells are the microscopic building blocks of the body. Most cells are extremely small and it would take hundreds to cover a pinhead. The human body is made up of many millions of cells.

Each cell is enclosed within a membrane which separates it from other cells and surrounding fluids. The cytoplasm, or body of the cell, contains many different structures which are responsible for the efficient working of the cell, including energy production and the disposal of waste materials.

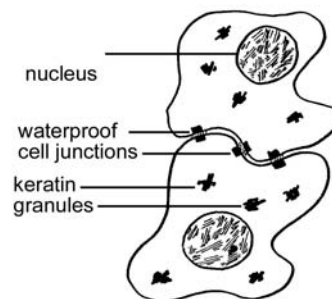
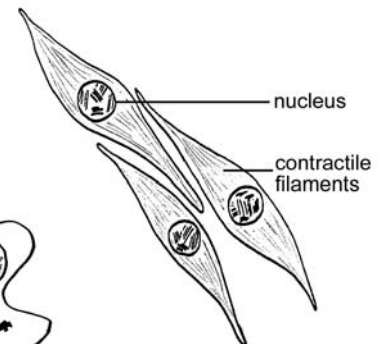


The nucleus is the largest structure within the cell and acts as the “control” centre. It contains the genetic information which is coded in a chemical known as deoxy-ribonucleic acid (DNA) and this is arranged into 46 chromosomes (23 pairs) in each human cell nucleus. There are thousands of genes (segments of DNA) in each chromosome and these control inherited characteristics such as physical appearance. Genes also control the day-to-day activity, structure and multiplication of the cells.

There are many different and specialised types of cells which make up the tissues and organs of the body, such as skin, muscles, lungs, liver, heart or brain. Just as these tissues are all different, the cells of which they are made are also quite different in appearance and have very different tasks to perform in the body.

For example:

muscle cells are elongated and able to contract



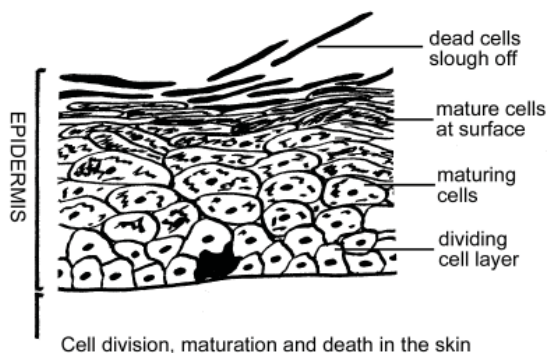
skin cells are specialized to provide a waterproof covering for the body.

Within a particular tissue or organ, there may also be many different types of cell, each of which has its own specific task(s). For example, in a muscle there are also blood vessels, nerves and other supporting structures. Although cells and tissues may look different and perform different tasks, in a healthy body they work together in much the same way as members of a team.

Growth of the body occurs through an orderly process of cell division. Cell division involves the duplication of the chromosomes and the formation of two daughter cells from the original parent cell. During division, the chromosomes separate so that each new cell receives the same number of chromosomes and set of genes as the original cell.

Following cell division, most newly produced cells mature and develop their specialized structures. This process is called differentiation. As cells mature they lose the ability

to divide. Most cell types have a limited lifetime (which may be as short as a few days) and a pool of cells in each tissue remains immature, retaining the ability to divide. In the adult, these cells are responsible for maintaining cell numbers at a consistent level, the rate of cell division balancing the rate of cell death. The diagram below illustrates this process in the skin.



The rate of cell division is highest during the rapid growth of foetal development and childhood. Stimulation or injury of a tissue may cause a temporary increase in the rate of cell division in the affected area but this decreases once the wound is repaired. Some organs, such as the sexual organs, have their own cycles of activity and rest periods during adult life.

The rate of cell division is subject to complex control processes within the body. For example hormone levels can control the growth of certain tissues. Damage to the genetic material (mutations) in the nucleus of a cell can also result in abnormalities in the control processes, and cancer may develop.

Cancer is abnormal cell growth

Cancer is the general term used to describe cells that grow and spread around the body in an uncontrolled way. It results from an alteration in the genetic control of cell division, probably within a single cell. When this cell divides, the new cells inherit the same abnormal behaviour from the parent cell and each in turn divides to produce more cancerous cells.

The general characteristics of cancer cells are that:

- + they remain immature and may be quite different in appearance.
- + the rate of cell division may be increased and growth can be rapid and haphazard.
- + they compete with normal cells for nutrients and space but have no useful role in the body.
- + they are able to invade and destroy adjacent tissues and organs, reducing the ability of these normal tissues to carry out their essential functions.
- + they are able to separate from the original growth and spread around the body through the blood or lymph systems. New growths can then become established in other areas of the body, growing from these cells.

As the cancer cell population expands, it forms a mass or tumour, and a high proportion of cells remain capable of further division. It is this uncontrolled growth and the ability of the cells to spread into adjacent tissues and around the body that makes cancer dangerous to health.

The word tumour also includes any swelling or lump and does not necessarily mean a cancer. If your doctor uses this word, do check what is meant.

Another word used to describe cancer cells is malignant. Malignant is a term used to refer to any condition that, if uncorrected, tends to worsen so as to cause illness or death. Thus, cancer cells are also called malignant cells and the tumour is called a malignancy.

The natural history of cancer

The natural history of an illness is the course it will follow if there is no outside intervention such as treatment. It is important to remember when reading this section that **treatment can cure more than half the people with cancer. For many others the disease can be controlled, sometimes for many years.** The information provided here is to give you an understanding of the underlying disease process. As will be stressed many times in this booklet, information about your specific cancer and what is happening in your body is **only available from your doctors**, so do ask questions and don't assume that what you read or see happening with other people necessarily applies to you.

A cancer starts from one cell which undergoes a malignant change and multiplies out of control. The cells have to double in number about 30 times (producing approximately one thousand million cells) for a tumour to reach a centimetre cube in size. This may take only a few months or often a few years. As it is unusual to detect a cancer before it reaches this size, at diagnosis a tumour may have been present for quite some time, possibly many years. For example, a typical cancer with a cell doubling time of 50 days would take four years to be detectable. A cancer may have a cell doubling time of up to 210 days and could take 15 years to reach the size where it can be felt as a distinct lump.

This initial multiplication of cells forms what is called the primary tumour. There are over 200 different types of cancer reflecting the large number of different cells and tissues from which they can be derived. Normal cells vary in their appearance, function and rate of division. The type of cancer, its behaviour and response to treatment depends on the cell type in which the cancerous change occurs and its location in the body.

In most cancers, the multiplication of malignant cells results in the formation of a solid tumour. The tumours grow by expansion and malignant cells invade adjacent tissues, replacing normal tissue. However cancer originating in the bone marrow such as leukaemias don't form solid tumours. The cancerous cells instead are released directly into the blood stream and circulate around the body.

Cancer cells have the ability to separate from the primary tumour and spread around the body. The cancer cells can enter blood vessels and lymph channels and may grow there or spread to other sites in the body. Cancer cells that have separated from the **primary** tumour may multiply to form **secondary** growths. This process is called **metastasis**.

For each type of cancer there is a characteristic pattern of spread. Some cancers metastasise early in the course of the disease, others not until much later, if at all. For some, spread is predominantly through the blood stream and secondary growths tend to develop in organs such as lung, liver, bones or brain. In others, cancer cells spread mainly via the lymph system and secondary growths are more likely to develop in lymph nodes, starting with those closest to the primary tumour. Some cancers do not spread around the body but tend to grow within a localised area, invading and destroying adjoining tissues and organs.

A cancer retains most of the characteristics of the primary tumour, wherever it is growing.

A breast cancer, for example, remains a breast cancer even if it is forming secondary growths in the liver, lungs or bone. This secondary breast cancer growth will generally behave and respond to treatment like the primary tumour and will be quite unlike a primary tumour of the liver, lungs or bone.

Cancer is a health problem in two major ways. First the growth of the tumour (either primary or secondary) can destroy vital tissues or organs such as the liver or lungs. Symptoms associated with cancer are often the result of the destruction of tissues, obstruction of organs or pressure on nerves or tissues by the growing tumour. This can lead to the failure of vital organs such as the lungs or liver. Growth of a cancer can also produce generalized effects such as loss of weight, tiredness and a decreased resistance to infection.

What causes cancer

Much research effort has been aimed at identifying the factors (or carcinogens) that can trigger a cancer. Known carcinogens include ultraviolet radiation (e.g. in sunlight), certain viral infections, some drugs and many chemicals including those in cigarette smoke. There are still many cancers for which there is no known cause. We do know that **there is not one single cause of cancer** but that different factors act in combination.

The risk of developing certain cancers can be reduced by a change in lifestyle such as reducing exposure to the sun and avoiding occupational hazards such as asbestos. There is evidence that the food we eat and certain types of cancer are related. A sensible diet includes a wide variety of foods with plenty of fruit and vegetables and high fibre breads and cereals. Cutting down on the amount of fat eaten is also important. Many different cancers have been linked to tobacco and giving up smoking may be the most important act a person can do to minimise their risk of cancer. Drinking alcohol increases the risk of developing a number of cancers. Therefore it is recommended to limit or avoid alcohol intake.

Cancer is not limited to humans but occurs in all species of animals and plants. It can be found in any age group although most cancers occur in older people. Many adult cancers develop in cells lining internal and external organs which, by their position, have the greatest exposure to possible cancer-causing factors. Others are found in organs that undergo major changes during the life time such as the sexual organs. Certain cancers are specific to children and these tend to occur in tissues in which rapid cell division and differentiation are taking place such as the bone marrow, bone, and muscles.

Changes in the genetic control of cell division and differentiation are part of the process of carcinogenesis (the development of a cancer). Damage to the genetic material (DNA) can occur and accumulate throughout life due to exposure to carcinogens, increasing the chance of a cancer developing. Some of the changes associated with cancers are the activation of normally inactive oncogenes and the inactivation of tumour suppressor genes. Depending on the particular genes that are malfunctioning, the cancer may be slow-growing or fast; it may or may not respond to different treatments and it will be more or less aggressive in its spread.

There are some cancers which seem to occur more commonly in members of the same family, but hereditary predispositions can be difficult to distinguish from other environmental factors. Women with a strong family history of breast cancer have an increased chance of getting breast cancer themselves. The increased risk may be small to large depending on the number of relatives affected, the age of onset and the type of breast cancer they had. Abnormal genes associated with the increased risk of breast cancer have recently been identified but as yet there are no tests that can be routinely used to identify people at risk.

It is also possible to inherit conditions that predispose to the development of cancer. For example, familial adenomatous polyposis is a disease in which polyps develop in the lining of the colon. It is strongly linked to the later development of cancer of the colon.

The role of the immune system as a defence against cancer is complex. We know much more about how the immune system defends the body against invasion from outside, by bacteria or viruses for example. It is quite different when the “invader” comes from within, when it is the body’s own tissues and cells that give rise to the cancer. It seems unlikely that deficiencies in the immune system play a significant role in the development of most cancers, since the cells continue to be recognised as “self” and do not stimulate an immune response.

However the immune system does seem to recognise certain types of malignant cell as “foreign”. This seems to be true of leukaemia, lymphoma and some other rare cancers. People with a deficient or suppressed immune system do seem particularly vulnerable to the development of these cancers.

There are many myths associated with cancer. One is that cancer is infectious or contagious. This is not so. The known link between some viral infections and particular types of cancer (for example human papilloma virus and cervix cancer) is that infection may increase the risk of developing the cancer at a later time. Cancer is not catching.

There is no proven link between cancer and stress or any particular personality type. Attempts to correlate psychological factors with the development or recurrence of cancer have met with little success, perhaps not surprising given the complexity of both the mind and tumour biology. An excess of stress can impact on our health and impede recovery from illness.

Making the diagnosis

There is no single, simple method to diagnose cancer.

It may take several months or years for malignant cells to multiply to the point where they become a detectable cancer. The symptoms produced by a cancer depend on its location and unfortunately it is possible for cancer to become widespread before it starts to produce any symptoms at all. Sometimes cancers may be discovered accidentally during routine tests or the investigation of non-specific symptoms.

The cancers that are easiest to detect are those that are on the skin and which show, for example, as a change in a mole or wart. Others may start close to the surface and can be seen or felt as a lump or thickening. There are also some parts of the body that are relatively easy to examine for early signs of cancer such as mouth and throat, cervix and vagina or rectum and anus.

Screening tests have been developed to allow for the early diagnosis of some cancers. Tests that are available include the Pap smear test to pick up abnormalities in cervical cells, often before they become cancerous and mammography (breast X-ray) for the detection of breast cancers at an early stage. Screening tests are specifically for people with no symptoms of ill health. If you have any worrying symptoms, you should visit your doctor who can arrange for appropriate diagnostic tests and refer you to a specialist if necessary.

Warning signs of cancer are non-specific and can include a sore which does not heal, any unusual bleeding or discharge, persistent indigestion or difficulty in swallowing, persistent hoarseness or cough, a change in normal bowel habits or an unexplained loss of weight. The symptoms may not be due to cancer but if they are, early treatment means a greater chance of cure.

There are many diagnostic tests available to your doctor to help determine whether your symptoms might be due to cancer. Which tests are used depends on the symptoms and the suspected location of the problem.

X-rays, CAT scans (computers linked to sophisticated X-ray machines), magnetic resonance imaging (MRI), nuclear medicine scans and ultrasound are all methods of forming a picture of the inside of the body. The pictures are interpreted by doctors specially skilled in this work. Most of these procedures are quite painless.

Other methods of internal examination consist of passing long flexible tubes (a bit like a fine telescope with a light at the end) into various passages and cavities of the body to allow direct visual examination. Some examples of these are bronchoscopy (examination of the respiratory system),

colonoscopy (visualization of the colon) and laparoscopy (for examination of the abdominal cavity). Most of these tests can be done as an out-patient.

It is very important to know the type of cancer (remember that there are over 200 different cancers) that is present as this provides information on how it is likely to behave, where it may spread, the rate at which it might develop and its sensitivity to different treatments. Examining a sample of the cancerous tissue under a microscope is part of this process. The sample may be a scraping of cells (cytology) or a piece of solid tissue (biopsy). A tissue biopsy may be obtained in several ways including surgical removal of all or part of the tumour. Sometimes a small sample can be taken using a fine needle under a local anaesthetic.

A histopathologist is the specialist in this field and will usually be able to diagnose the type of cancer based on the appearance of the cells under the microscope. Preparation and examination of the specimens can take up to several days which accounts for some of the delays you may experience in obtaining your results.

Blood tests are rarely useful in making a definite diagnosis of cancer except in the leukaemias where malignant cells can be found in large enough numbers in the blood stream. However abnormalities in a routine blood test can indicate a problem which may prove to be cancer on further testing. Additionally some blood tests may be used to follow the progress of some types of cancer.

In addition to the type of cancer, it is also important to assess the size of the primary growth and also look for evidence of secondary growths. There are now many specialised techniques to identify the extent and activity of a cancer, often without the need for surgery. It is usually necessary to carry out many different tests, including those already mentioned, to build up a picture of what is happening inside the body.

Sometimes cancer is widespread before it is diagnosed and it may not always be possible to find the primary tumour. Microscopic examination of secondary growths may give some clues as to their origin and a search for the primary can sometimes be successful from the information provided. If the primary cannot be isolated, an appropriate treatment plan can still be devised on the information available.

Making an accurate diagnosis can take time and may be a very frustrating or anxious experience. It is very important that you are able to talk to your doctor and ask questions in order to understand what is happening.

Understanding the classification of cancers

Many names exist for different cancers and this can seem very confusing. The most useful names are based on the cell type of origin, the organ of origin and on tumour behaviour. Classification of cancers can help the doctor in the planning of treatment and give some indication of prognosis. The use of standardized names world-wide also assists in the continuing investigation of cancer and the exchange of information.

The word malignant is usually applied to cancers and describes the behaviour of the cells (see page 7). Not all tumours are malignant. Benign tumours are an abnormal growth of cells which do not usually present a serious threat to health. The tumour is usually encapsulated and the cells are not able to invade neighbouring tissues or spread to other parts of the body. Sometimes the distinction between benign and malignant tumours becomes blurred and it can be useful to think in terms of “how benign” or “how malignant”.

The name of a cancer frequently ends with -oma. The ending -oma means tumour and is also applied to benign tumours. A wart is a benign tumour of the skin and is also called a papilloma.

Malignant tumours are divided into several major groups depending on the cell type of origin.

Carcinomas are 85% of all malignant tumours and develop from epithelial cells which are the covering and lining cells of the body. For example:

- a squamous cell carcinoma is derived from the large, keratin-containing cells found on the surface of epithelia such as the skin or lining the cervix or mouth.
- an adenocarcinoma develops from glandular cells in epithelial tissues. These cells are found, for example, in the lining of the colon and bowel or the airways of the lung.

Sarcomas develop in connective tissues such as bone, muscle and fatty tissues and form about 6% of all malignant tumours. For example:

- an osteosarcoma is derived from bone forming cells
- a rhabdomyosarcoma develops from muscle cells

About 8% of cancers occur in the blood forming tissues of the bone marrow. They can be divided into:

- the leukaemias which develop from the different types of white blood cell which develop in the bone marrow
- the lymphomas which develop in lymphatic tissues such as the spleen or lymph nodes.

There are a small number of other types of malignant tumour that occur in specialized cell types.

It is important to include both the cell type of origin and the organ of origin in the name of a cancer. For example, squamous cell carcinomas are found in skin, lung, oesophagus, cervix and other organs. Although developed from the same cell type, **these cancers may behave in very different ways**. For example:

- precancerous changes can be detected in cervical cells by a Pap smear test.
- squamous cell carcinomas of the skin can be detected early because of their visibility.
- squamous cell carcinoma of the oesophagus is often widespread before it produces any symptoms.

Each organ is composed of many different types of cells, each of which can give rise to different cancers. For example, primary lung cancers are not all the same and include:

- squamous cell carcinoma: derived from cells lining the airways and tending to grow within the lung and chest cavity.
- adenocarcinoma: developed from mucous producing cells lining the airways, with a high incidence of distant metastases.
- mesothelioma: derived from cells that form the covering of the lung, which may develop in multiple sites and grow rapidly to encase the lung.
- large cell carcinoma: named after characteristic large rounded cells seen under the microscope, with a high incidence of distant metastases.
- small cell carcinoma: named after distinctive small cells seen under the microscope, which is a rapidly growing cancer with early metastasis but more responsive to chemotherapy than other lung cancers.

It is also common for other types of cancer to spread to the lung and produce secondary growths there. These will behave like the primary tumour from which they have arisen.

Staging of cancers

Staging is a description of the extent of spread of a cancer and is usually assessed at the time of diagnosis. The information is important as it may influence choices about the most appropriate treatment. Staging does not imply that there is a regular or predictable progression in the growth of a cancer.

A commonly used system for the staging of many cancers is the TNM system. It is based on the size and degree of invasion of the primary tumour (T), the number of lymph nodes containing cancer cells and their location in relation to the primary tumour (N) and the presence or absence of distant metastases (M). The criteria and their significance in terms of the prognosis differ with the different cancers.

There are also other systems for specific cancers. An internationally agreed staging system for cancer of the cervix is briefly described below:

- Carcinoma-in-situ. The cells show premalignant changes and have the potential to develop into invasive cancer if not treated.
- Stage I. The malignant cells appear confined to the cervix.
- Stage II. The malignant cells have grown into the vagina and uterus.
- Stage III. Further spread into the vagina, uterus and pelvic wall is evident. Lymph nodes in the pelvic region are frequently positive for cancer cells.
- Stage IV. The primary tumour may show extension into the bladder or rectum, lymph node spread is common and secondary growths in other parts of the body may be found.

Preinvasive cancer of the cervix can be eradicated by a variety of techniques including minor surgery. Radical surgery and/or radiotherapy are more commonly used for Stage I and II cervical cancers whereas radiotherapy alone is more likely to be used for Stage III or IV disease.

Treatments for cancer

There is no single, simple, reliable treatment that can be used for all types of cancer. It is vital for your doctors to obtain the maximum information possible before formulating a treatment plan or protocol. In addition to the type, location and extent of spread of your cancer, they must also take into account factors such as your age and general state of health.

Treatment may be aimed at:

- remission** partial or complete removal of cancer from the body;
- cure** completely removing or destroying all cancer cells;
- control** stopping or slowing down the multiplication of cells;
- palliation** reducing troublesome symptoms such as pain or nausea caused by the cancer or its treatment.

There are three main methods of treating cancer, used alone or in combination:

- surgery** the cancer cells or tumour are physically removed from the body;
- radiotherapy** radiation is used to destroy the cancer cells within a localised area;
- chemotherapy** cell toxic drugs are used to destroy or inhibit the growth of cells throughout the body;
- adjuvant** when chemotherapy or radiotherapy is used in addition to definitive surgery.

There may be many different specialists involved in your treatment including:

- surgeons** specialize in the use of surgery to remove a cancerous growth;
- radiation oncologists** specialize in the treatment of cancer with radiation;
- medical oncologists** specialize in the treatment of cancer with drugs (chemotherapy);
- haematologist** specialize in the treatment of cancer of the blood and/or lymphomas.

Many people find they can maintain a sense of well being through taking an active part in their care. Many doctors are quite willing to discuss the various treatment options available, including experimental and unproven treatments. You will get the most useful advice if you can speak openly to your doctor about your particular needs and concerns.

When making decisions about treatment, you will have time to consider all the options and discuss them with your partner or family. It can be hard to take in all the information at once. Discussing the treatment goals, methods and possible side effects with your specialist(s) will help you to decide which treatment will be best for you. Another medical opinion may be reassuring and most doctors will be pleased to refer you to another specialist for a second opinion. Your general practitioner can play a valuable role in obtaining information from the different specialists and in discussing and explaining this to you.

Be specific about the information you want. It can help to write out a list of your questions before you see your doctor and take these with you to your appointment. However the reality is that many questions cannot be answered easily. The uncertainty you are facing might be the most difficult thing to cope with.

What is important is that you are able to obtain information about all the options open to you, both medical and supportive, then you can make an informed decision that is right for you and the way you want to live your life.

Surgery

The cancer cells or tumour are removed from the body together with a margin of normal tissue. Frequently lymph nodes close to the cancer may also be removed.

Surgery can sometimes cure a cancer if it is confined to a single primary site at the time of diagnosis. A histopathologist will examine the removed tissues for any evidence of invasion or metastasis. If there is any evidence of spread the surgeon may suggest further surgery or other treatment.

Sometimes it is impossible to operate because of the position of the tumour, but removal of even part of the mass may help prevent complications or relieve symptoms. Surgery using lasers can sometimes be used to destroy tumours obstructing vital organs such as the lungs when conventional surgery is unable to reach them.

Radiotherapy

Radiotherapy does not attempt to remove the cancer from the body but rather to destroy it where it is. Radiation comes in several forms. It can be generated electrically by machines rather like large X-ray machines or the radiation from radio-active substances can be used. Radiotherapy is usually given from outside the body, as a beam directed at the cancer. It does not make the person radioactive. Alternatively it can be given internally, by implanting a radioactive source when it is known as brachytherapy.

Radiotherapy is a localized treatment; that is, only the cells and tissues in the irradiated area are affected. Radiation is harmful to all cells but in general cancer cells are more sensitive to its effects than healthy normal tissues. It can be a very effective treatment for local tumour control. Cancers vary in their responsiveness to radiation. For some,

radiotherapy may be the only treatment given, or it may be used in conjunction with other forms of treatment.

Radiotherapy is usually given in several doses spread over a few days to several weeks to minimize the damage to normal tissues and to allow repair. A variety of side effects may be experienced depending on the area of the body being treated and the type of treatment given. They will vary considerably from person to person and most people complete treatment without major problems.

Radiotherapy also has an important role in controlling symptoms and it may be used to shrink a tumour in order to relieve pain, to reduce pressure on nerves or other sensitive structures or to clear a blockage.

Radiotherapy can cause a variety of side effects depending on the part of the body that is being treated. Most can be controlled and they usually disappear within a few weeks of completing treatment.

Chemotherapy

Drugs or chemotherapy that interfere with cell activity can be used to destroy or inhibit the growth of cancer cells. The drugs act in different ways and for any given type of cancer, some are more effective than others. Combinations of several drugs with different actions are frequently used to maximize the anti-cancer effect but minimise damage to normal cells.

Chemotherapy can be used to cure or completely control some cancers and it may be used in conjunction with other treatments if there is a possibility that some cells have spread, or metastasised. It may also be used to shrink tumours to relieve symptoms such as pain or obstruction of a vital organ.

The drugs may be given by mouth or injection but circulate around the body in the blood stream and can therefore reach cancer cells wherever they are present. The speed with which cancer cells are killed varies with different types of cancer and the different drugs that can be used. As a result, treatment times may vary from a few weeks to months or even years.

Normal dividing cells such as those in the bone marrow, lining the digestive tract or hair follicles can also be damaged by the drugs. This can produce a variety of side effects which vary with the individual and the drugs used. Common side effects include tiredness, nausea, hair loss and an increased susceptibility to infections. Many side effects can be prevented or treated so ask for information on how you can help yourself and tell your doctor if you are having any symptoms. Treatment protocols usually include rest periods to allow time for normal tissues to recover.

The bone marrow produces most of the blood cells in the body and is vulnerable to the damaging effects of chemotherapy. The potential for severe side effects limits the treatment dosages that can be routinely used. There are now drugs available to stimulate the regrowth of the bone marrow. Sometimes these drugs are used to enable more rapid recovery of the bone marrow between treatments given.

Hormone therapy

Some cancers, such as those starting in the breast, prostate and uterus, are sensitive to the balance of hormones in the body. Control of the cancer growth can often be achieved by altering this balance, either - through hormone tablets or injections or surgically removing the glands that produce hormones. For example, cancer of the prostate may be successfully controlled for many years by removal of the testicles or by taking oestrogen tablets. In post-menopausal women, breast cancer may be controlled by taking anti-oestrogen tablets.

Experimental treatments and clinical trials

For most people with cancer, the established medical treatments offer the best hope for elimination or control of the disease. New methods of treatment are being developed and techniques that aim to change the behaviour of cancer cells are showing promise. Developing new cancer treatments is a difficult process that may take many years, involving extensive laboratory testing. More commonly, different combinations and sequences of drugs and other treatments are tried in order to find a more effective therapy. The carefully evaluated comparison of different treatments in two or more groups of people is called a clinical trial. People are never given a type of treatment that is known to be less effective than the best so far available.

If your doctor suggests that you take part in research or a clinical trial, you need to understand what is involved and to be given sufficient detailed information on the risks and benefits so that you are able to give informed consent. Do ask all the questions that you want and remember that participation is always voluntary. You may also withdraw at any time if you want to.

Palliative care

Palliative care is the name given to treatment concerned with the relief of symptoms. Surgery, radiotherapy and chemotherapy are not only used with a curative intent but also have a role to play in symptom control. For example, a cancer growth causing an obstruction in the bowel may be removed surgically or shrunk by radiotherapy to relieve the blockage.

Pain is one of the most feared symptoms but if it occurs, it can be controlled effectively in most cases. Other worrying symptoms such as nausea, constipation and breathlessness can also be helped. Palliative care may be appropriate for anyone. For example, control of nausea during chemotherapy is palliative, while the chemotherapy itself may have a curative intent.

Palliative care is also an important component of hospice care, the care given to people who are not expected to recover from their illness. Their focus is on symptom relief and maintaining quality of life by responding to the total range of individual needs and by providing supportive care to the whole family.

Unproven cancer treatments

Unproven cancer treatments are sometimes referred to as “alternative medicine” but this is not the case as they are not a true alternative but are treatments that have no scientific basis and are not supported by credible evidence of their effectiveness. Examples of unproven treatments that are not recommended by The Cancer Council are laetrile, shark cartilage, herbal treatments, psychic surgery and high dose vitamin C.

Diets for treating cancer have received much publicity. Most doctors and nutritionists recommend a varied and well balanced diet and one that you enjoy eating. There is no scientific evidence that any particular food or diet can cause a cancer to shrink or increase survival. Some so-called “cancer diets” are in fact deficient in essential nutrients and may be quite boring, time consuming to prepare, or expensive. **What is most important is that you have an adequate food intake to maintain the functioning of your body.**

You have the right to make decisions about your treatment, which includes using unproven treatments. You also have the responsibility to obtain information about all the options for treatment, the possible consequences and the support services available. You should be suspicious if someone tries to persuade you to stop conventional treatment or to spend large amounts of money on a “cure”.

Surviving cancer

The variations between individuals and the many unanswered questions about cancer prevent doctors from being able to make accurate predictions about the results of treatment. The first goal in treatment is to achieve a complete remission. Remission means that treatment has killed or removed all or nearly all the cancer cells in the body. It does not necessarily mean a cure as it is not possible to detect a small number of cancer cells that might remain in the body.

If a person survives longer than the period of risk for recurrence of their cancer, they are considered cured. Depending on the type of cancer, it may be necessary to wait two to ten (or even more in some cases) years from the time the cancer was treated before it is possible to say it has been cured. Cure means complete removal of all cancer cells from the body so that the person has the same life expectancy as a person who never had cancer. There are increasing numbers of adult cancers with significant cure rates and the situation is even more encouraging with the childhood cancers, many of which respond very well to treatment.

Survival is often measured in terms of five year survival rates. This is a statistical measure and a five year survival of 70% means that 70% of people with a specific type of cancer will be alive at the end of five years. It does not mean that survival is only for five years. Many people will live for very much longer and some will have been cured. Cancers with the highest survival rates include lip cancer, testicular cancer, early melanoma and Hodgkin's Lymphoma.

There has been a steady improvement in survival rates over the last 15 years and this trend is likely to continue. With continuing research the reasons for these changes can be identified which should improve medical treatment and early detection tests for future patients.

Helping yourself

You have everything to gain from a well-informed and positive attitude to your disease. Knowing what can happen and the possible side effects of treatment can leave you and your family better prepared to cope with any adjustments you may have to make. Everyone is different and so is their cancer. It is essential to talk to your doctors and nurses.

Psychological support is important, whether from your family, friends, other patients or professionals and this can help you develop your own inner resources. The reduction of worry and stress are an important component of good health. Relaxation techniques, meditation and hypnotherapy are often used in conjunction with treatment to reinforce its benefits and help you cope with anxiety and side effects. Exercise appropriate to your age and health can also play a valuable role.

Many people believe that a positive attitude helps them in coping with cancer, yet this means different things to different people. For some it is a willingness to understand what is going on, accept the reality of their disease and enjoy life. For others it is maintaining a fighting spirit. It does not mean putting on a brave face. It is normal to experience a wide range of emotions. Acknowledging and being able to express these feelings leads to the development of realistic hopes and goals for the future. We are all individuals with our own way of dealing with difficult situations. There is no way of coping with cancer that is universally appropriate.

Help is available

If you are worried about symptoms you think might be cancer, your local general practitioner is the person best able to help you. If you do not have a family doctor, you may prefer to go to a community health centre or women's health centre. If appropriate, your doctor will refer you to a specialist for further investigations.

When cancer is diagnosed, you and your family may want support and information, not only on the disease and its treatment but in coping with the changes and demands that it makes on the whole family. There are many and varied services throughout South Australia. For more information contact **The Cancer Council Helpline 13 11 20**.

Health care in South Australia is provided through a mixture of private and government services. Most of your cancer treatment will be provided by medical specialists, either as an in-patient in hospital or as an outpatient in a hospital clinic or in their rooms. Your family doctor may not be directly involved in your cancer treatment but remains an important provider of general medical care and support and can help you to understand what is going on.

Public hospitals and the larger private hospitals provide a comprehensive range of specialist services which may include cancer treatment clinics, pain clinics and hospice/palliative care teams. You will also have access to a wide range of allied health professionals including dietitians, social workers, physiotherapists and specialized nursing staff.

Domiciliary Care Services provide a wide range of professional services to support people in their own homes including social workers, occupational therapists, physiotherapists, podiatrists, dietitians and paramedical aides. Assistance with aids such as walking frames or shower chairs is available and minor alterations to the home such as the provision of ramps for wheelchairs can be arranged.

Hospital admissions are usually kept to a minimum and many people may require nursing services at home for a period. The Royal District Nursing Society (R.D.N.S.) provides comprehensive nursing care to people in their own homes throughout Adelaide and some country areas. In other country areas, the local hospitals coordinate outreach nursing. Private nursing agencies can also provide visiting and in-home nursing care.

Emotional support is essential, for the whole family and for each member individually. Friends, your doctors and nurses, or your local minister of religion will often be the people to whom you can talk and who will help you through this time. There are a variety of community support services or a cancer support group may offer the help you want. Some people prefer to seek professional counselling.

Social workers can provide assistance with personal, family or financial problems and they are available in public hospitals, community health centres, domiciliary care services and at The Cancer Council. A diagnosis of cancer may hit the financial resources of a family the hardest and a social worker or budget adviser can give you expert advice.

You may have a range of other needs such as help with housework, child care or transport to treatment or you may want information on your cancer or its treatment. Community services are available so talk to your doctor or nurses or ring **The Cancer Council Helpline 13 11 20** to find out about these services.

From The Cancer Council South Australia

The Cancer Council is involved in aspects of the fight against cancer and can provide the support to all who may be affected directly or indirectly by cancer. Contact **The Cancer Council Helpline 13 11 20** if you want to talk with a professional counsellor, for general information about cancer and its treatment, for information about services and resources available in your local community or if you want to borrow books or videos.

The Cancer Council South Australia
202 Greenhill Road, Eastwood 5063
PO Box 929, Unley 5061
chl@cancersa.org.au
www.cancersa.org.au

Services are available at no charge to all patients, relatives or friends. Monday–Friday, 8.30 am to 5.30 pm

This booklet is one of a series produced by The Cancer Council to help you understand more about your illness and to help yourself. Other titles available are:

About chemotherapy

About surgery

Cancer information on the internet

Caring for the person with advanced cancer

Clinical trials

Clinical trials an overview

Emotions and cancer

Guide for partners of women with breast cancer

Guide to cancer services in Adelaide

Hair loss

How can I relax?

I want to help

Making choices - Alternative and complementary therapies

Meeting the challenge of advanced cancer

Nutrition for people having cancer treatment

Oral health during cancer treatment

Questions you might like to ask your doctor

Sexuality for men with cancer

Sexuality for women with cancer

Skin care during cancer treatment

Understanding and controlling cancer pain

Understanding radiation therapy

What About Me? (for children when a parent has cancer)

What do I eat now?

When you're diagnosed with cancer