What is known about cancer?

What is cancer?

‘Cancer’ is characterised by an overgrowth of cells that serves no useful purpose and is not under the normal control of cell growth and specialisation [1-3].

Cancer is not a single disease, but a large number of diseases. Many types of cancer can spread throughout a person’s body.

Cancers are sometimes called ‘tumours’ and ‘neoplasms’, but these terms can also be used for non-cancerous growths. Neoplasms can be ‘benign’ (not cancerous) or ‘malignant’ (cancerous).

Generally, a cancer:

- is made up of relatively unspecialised cells;
- grows quickly and invades surrounding tissues; and
- can lead to secondary areas of tumour growth in other areas of the body (a process known as metastasis).

The place where the cancer first develops (such as in the lungs) is known as the ‘primary’ site, and where it occurs as a result of metastasis (such as bones for lung cancer) as a ‘secondary’ site.

How do cancers happen?

For all cancers, there are changes (mutation) of particular genes within a cell (there are four main types of genes that control cell growth) [2, 3].

This alteration damages the mechanisms that regulate normal cell growth and differentiation.

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More detailed information about cancer in Indigenous people can be found at:

http://www.healthinfonet.ecu.edu.au/cancer_review
Mutations that make a person more likely to develop cancer may be inherited [2, 3].

They can also occur by themselves or after exposure to something in the environment (such as chemicals - as in tobacco smoke - radiation or some viruses).

As well, changes to a person’s immune system may reduce the body’s ability to recognise and destroy abnormally mutated cells. (This can happen, for example, when a person has HIV/AIDS.)

**How does cancer spread?**

After development of a primary cancer (such as cancer of the lung or breast), it can spread in three main ways:

- spreading into body cavities or surfaces;
- through the body’s lymphatic system; (The lymphatic system is made up mainly of very thin tubes running throughout the body. These tubes collect fluid that leaks from the very small blood vessels (capillaries) and returns it to the blood circulation through a special channel called the thoracic duct.)
- penetration of blood vessels and spread with blood [2, 3].

The process of cancer spread is known as metastasis [2, 3]. A tumour/neoplasm with the ability to metastasise is, by definition, malignant.

**What are ‘risk factors’ for cancer?**

Different kinds of cancer have different risk factors - that is, factors that are linked with their development - but a number of cancers share common risk factors [2, 3]. (It is important to know that some people with one or more risk factors may never develop a cancer, and that other people who do develop cancer have no apparent risk factors. Even when a person who has a risk factor is diagnosed with cancer, there is no way to prove that the risk factor actually caused the cancer.)

Environmental factors are believed to be associated with around three-quarters of all cancers [1]. These include:

- chemicals
- diet
- infectious diseases
- radiation

Some cancers may be a result of inherited genetic faults, which can also play a part in the development of cancers more linked with environmental factors. The causes are unknown for many cancers.

Important risk factors for cancer are tobacco use (through inhaled chemicals), unhealthy diet, and lack of physical activity [1]. It is believed that about one-third of all cancer deaths are related to dietary factors and lack of physical activity in adulthood.

**How is cancer diagnosed?**

Most cancers are diagnosed when a person experiences symptoms associated with:

- damage to tissues at the primary site (for example shortness of breath due to tissue destruction in lung cancer);
- damage to nearby tissues or organs;
- activity of the tumour itself (for example, abnormal production of hormones)
- bleeding or infection where the tumour has damaged adjacent surfaces (for example, bleeding in cancer of the large bowel); and
- blockage of bodily functions (for example, bowel obstruction in cancer of the large bowel) [2, 3].

Clinical information is important to the diagnosis of cancer, which is usually confirmed by special tests (for example, a chest x-ray for lung cancer or examination of cells from a cancerous lump in the breast) [2, 3].

Even before a person has symptoms from a cancer, it may be detected by what are called ‘screening tests’ [2, 3]. Examples are Pap smears for cervical cancer or colonoscopy for bowel cancer. (Colonoscopy involves the insertion by a doctor of a long, flexible, lighted tube into a person’s back passage to look at the inside of their bowel.)

**References**

The Australian Indigenous HealthInfoNet is an innovative Internet resource that contributes to ‘closing the gap’ in health between Indigenous and other Australians by informing practice and policy in Indigenous health.

Two concepts underpin the HealthInfoNet’s work. The first is evidence-informed decision-making, whereby practitioners and policy-makers have access to the best available research and other information. This concept is linked with that of translational research (TR), which involves making research and other information available in a form that has immediate, practical utility. Implementation of these two concepts involves synthesis, exchange and ethical application of knowledge through ongoing interaction with key stakeholders.

The HealthInfoNet’s work in TR at a population-health level, in which it is at the forefront internationally, addresses the knowledge needs of a wide range of potential users, including policy-makers, health service providers, program managers, clinicians, Indigenous health workers, and other health professionals. The HealthInfoNet also provides easy-to-read and summarised material for students and the general community.

The HealthInfoNet encourages and supports information-sharing among practitioners, policy-makers and others working to improve Indigenous health – its free on line yarning places enable people across the country to share information, knowledge and experience. The HealthInfoNet is funded mainly by the Australian Department of Health and Ageing. Its award-winning web resource (www.healthinfonet.ecu.edu.au) is free and available to everyone.