4 Feature cancer sites

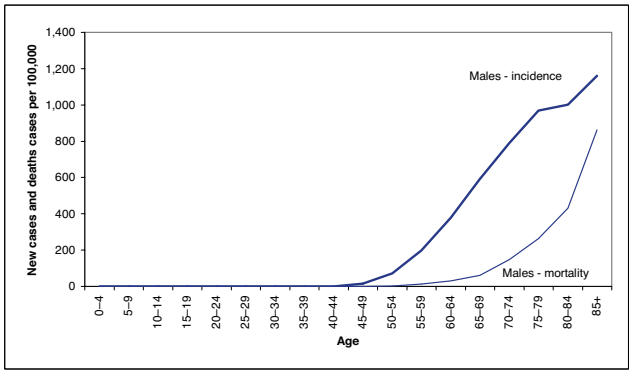
This section sets out some key information about the patterns, risk factors, treatments and trends in thirteen selected cancers.

4.1 - Prostate cancer

	New cases	Inc. Rate	% cancers	Risk	Deaths	Mort. Rate	% cancer deaths	Survival %
Males	946	121.5	24.6	1 in 11	222	31.3	12.2	73.3%

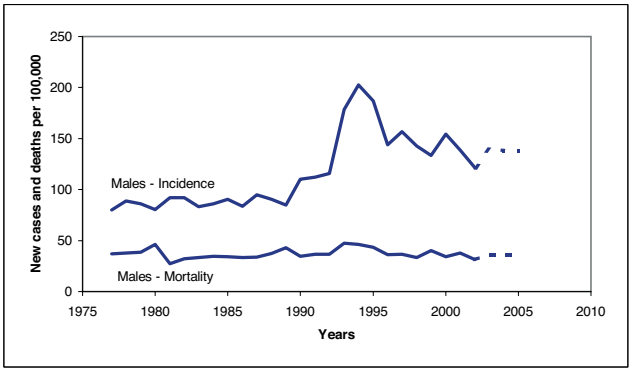
Prostate cancer has become the most commonly diagnosed malignancy in males, apart from the common skin cancers.

In South Australia, a two-fold increase in incidence rates was observed in 1990-1995 compared with rates in the 1980s.



Similar trends have been reported in other countries. This rise has been attributed to the wide-spread use of prostate-specific antigen (PSA) testing, frequently followed by trans-rectal ultrasonography and biopsy (TRUS).

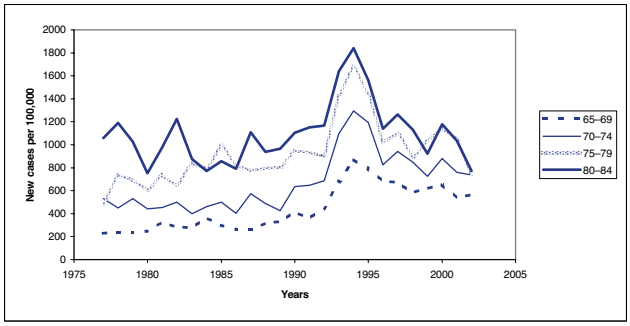
For the same period, the death rate for prostate cancer increased only marginally and this may be attributable to a greater awareness reflected on death certification.



Because the prevalence of latent disease is very high, affecting about half of men over 60 years of age, increased investigations can lead to substantial increases in numbers of detected cancers of uncertain clinical significance.

The management of prostate cancer ranges from radical prostatectomy, radiotherapy, hormonal therapy and chemotherapy, to "watchful waiting", where a case is monitored for any signs of extension of the disease beyond the prostate capsule.

Longitudinal studies are underway to determine whether widespread PSA testing results in reductions in prostate cancer-specific mortality.



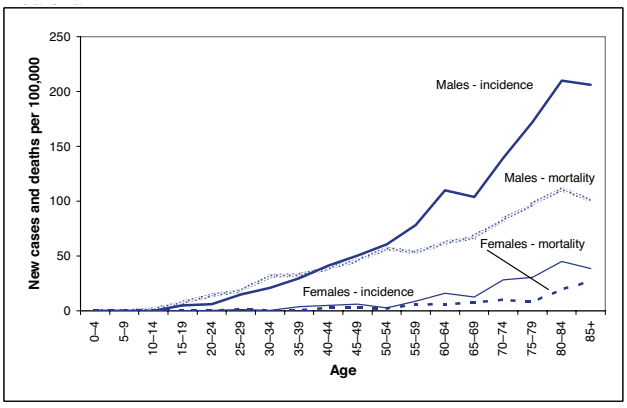
The causes of prostate cancer are uncertain although western diets high in animal fats and proteins have been implicated. Populations with high intakes of fruit and vegetables have been reported to have lower incidence and mortality rates. More recently, sexual activity has been reported to have a protective effect. As reported for other populations, incidence rates are higher for the upper socio-economic areas which may reflect differences in access to PSA testing and biopsy.

4.2 - Melanoma

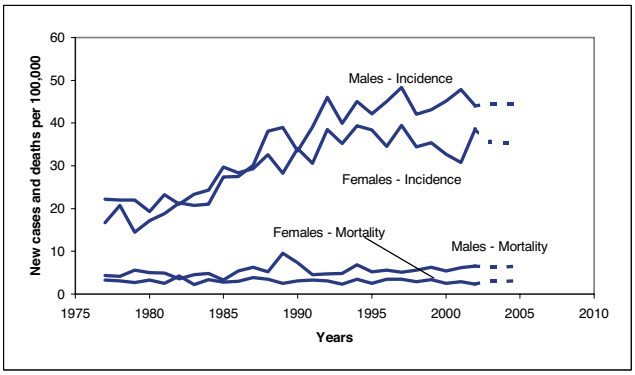
	New cases	Inc. Rate	% cancers	Risk	Deaths	Mort. Rate	% cancer deaths	Survival %
Males	340	44.0	8.8	1 in 31	51	6.6	2.8	89.0
Females	330	38.7	9.1	1 in 35	23	2.3	1.5	92.3

Melanoma is more common in Australia than in any other country in the world. The incidence of melanoma has increased for both sexes in South Australia over the past 20 years with some plateauing in more recent years.

The increase has been larger in males, in the older age groups, and in sun-exposed occupations such as farmers and labourers.

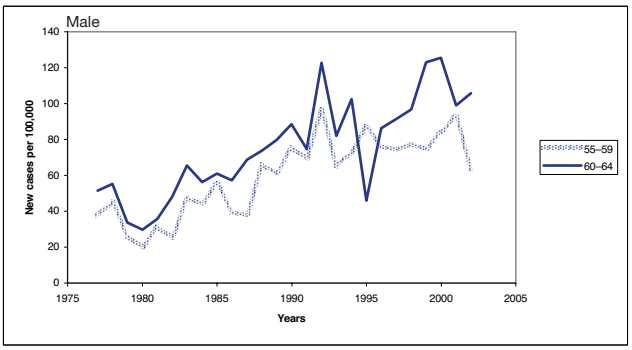


Excessive exposure to sunlight, particularly during childhood, is considered to be a major risk factor, with intermittent acute exposures to sunlight being a causal factor in the observed high rates amongst some professional and clerical workers.

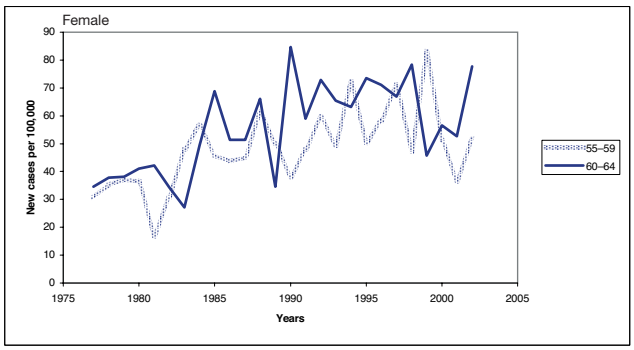


Melanoma has been observed to be more common in general among the Australian-born than among migrant populations in South Australia. It is rarely found in the Aboriginal population or others with pigmented skin such as immigrants from Asia.

Despite the increasing incidence of melanoma, mortality rates have remained fairly stable with the exception of elderly males. The latency period for melanoma is very long and the increases in incidence are likely a cohort effect being the result of excessive exposure to sunlight in the 1960s.



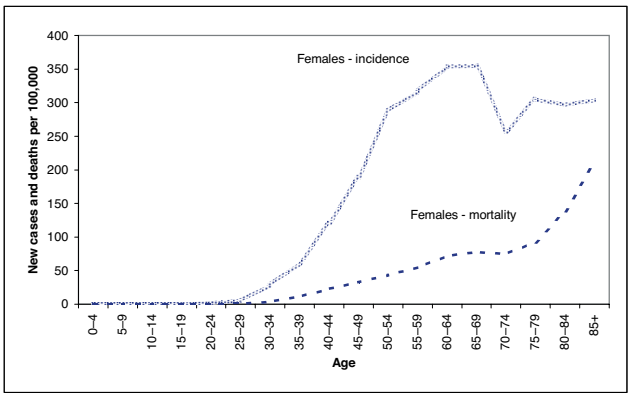
Management is focussed on early detection of small lesions which can be excised before local spread and metastasis occurs. Preventive measures are promoted by organisations such as the Cancer Council South Australia and Health Promotion South Australia. Campaigns are directed at minimising exposure to sunlight by the wearing of suitable clothing including hats, making use of shade, avoiding the sun at high risk times such as noon, and applying effective sun screens.



4.3 - Breast cancer

	New cases	Inc. Rate	% cancers	Risk	Deaths	Mort. Rate	% cancer deaths	Survival %
Females	1,040	120.4	28.8	1 in 10	290	30.9	19.3	77.5

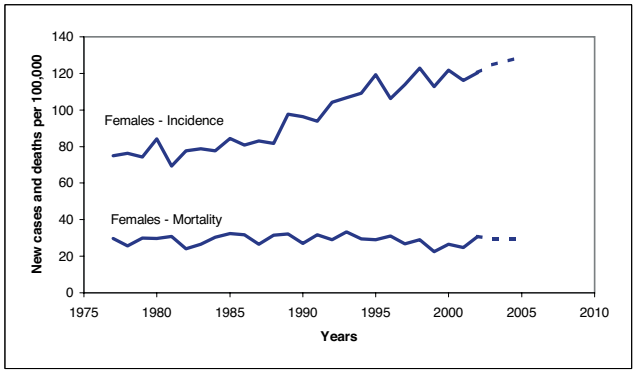
The incidence of female breast cancer increased during the late 1990s following the introduction of mammographic screening. This was particularly apparent in the 50-69 year old target group.



An effect of screening and allied early detection initiatives was the increasing numbers of small lesions with a diameter of less than 15mm.

During the 1980s, and before the advent of screening, the proportion of such small lesions was about 15%. By the year 2000, this corresponding proportion was about 40%. Among the screen-targeted 50-69 year olds, the proportion of small lesions increased from 13% to 44%. Apart from better survival, such tumours are less likely to require radical treatment.

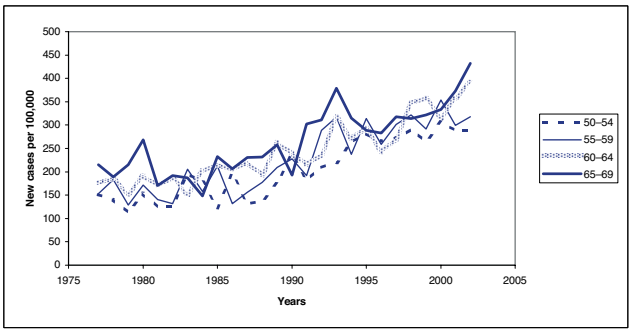
Breast cancer-specific mortality had fallen by 10% for all ages between 1977-1981 and 1997-1999.



The impact of any cancer screening takes many years to show an effect. Screening in SA women was still limited in 1991-1993 and it is expected to be several years before a sustainable reduction in mortality attributable to mammography can be demonstrated.

Risk factors for breast cancer include a family history, increased body size, a history of benign breast disease, and nulliparity or late stage at the first full-time pregnancy. Less well established risk factors include high fat and alcohol intake and exposure to ionising radiation.

Management is determined by disease stage, age and patient general condition. The increasingly diagnosed small lesions may be treated by simple lumpectomy with or without radiotherapy. Larger lesions, and those with lymph node involvement, require more extensive surgery, usually with radiotherapy and chemotherapy. Tamoxifen and similar medications have become valuable chemotherapeutic assets for many cases of invasive breast cancer.

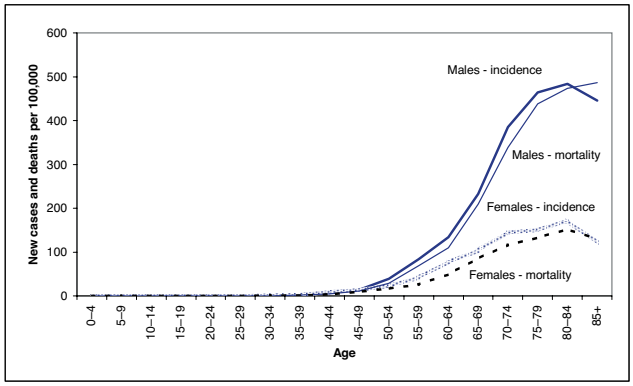


4.4 - Lung cancer

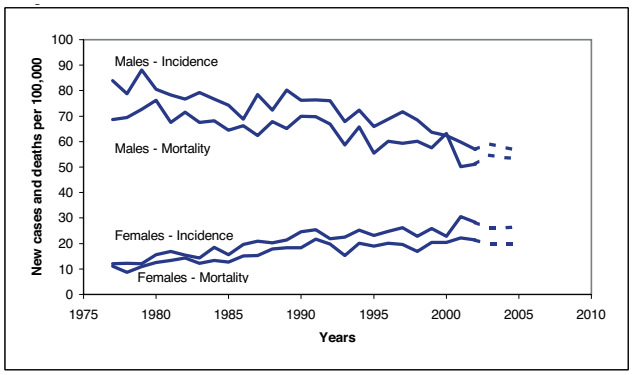
	New cases	Inc. Rate	% cancers	Risk	Deaths	Mort. Rate	% cancer deaths	Survival %
Males	443	56.8	11.5	1 in 24	398	51.1	21.9	10.5
Females	268	28.4	7.4	1 in 42	208	21.4	13.8	13.4

The incidence of lung cancer has fallen by about 25% in males over the past 25 years with an equivalent reduction taking place in mortality. Most of this reduction occurred in younger age groups.

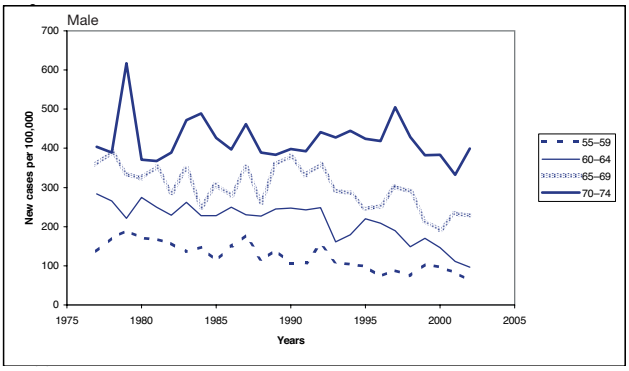
By comparison, females showed a 65% increase in incidence for the same period. Most of this increase occurred before the early 1990s with smaller increases occurring thereafter. Female lung cancer mortality showed a similar pattern with a 50% increase in mortality occurring up to 1991.



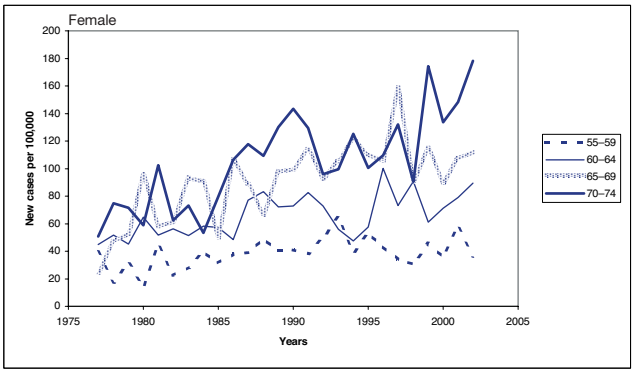
Higher incidence rates are typically found in the lower socioeconomic areas of Adelaide. Aboriginal women have particularly high rates of this disease. Overseas-born males have a higher incidence of lung cancer than Australian-born males, with immigrants from the UK and Southern Europe being at an elevated risk. Asian-born males have a lower risk of lung cancer than Australian-born males.



It is accepted that the smoking is the most powerful risk factor, although lung cancer can be caused by exposure to some occupational carcinogens including ionising radiation (especially radon gas), asbestos, petroleum, chromates, nickel and arsenic. Smoking is considered to be more strongly associated with small-cell and squamous-cell lesions, than with



adenocarcinomas. It is accepted that most of the decreased incidence in South Australian males has been due to reduced tobacco smoking from the 1970s. This is confirmed by Registry data which shows a decreasing ratio of small-cell or squamous-cell to adenocarcinoma cell lesions in males over the past 25 years.



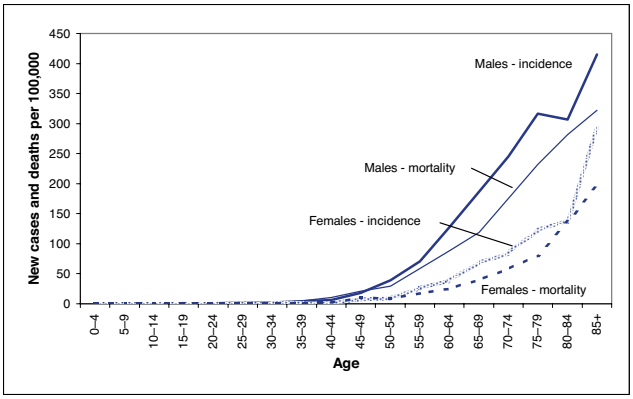
Preventive measures include anti-smoking campaigns, and air filtration and the wearing of personal protective equipment in occupational settings.

Surgical resection is the treatment of choice for early stage lung cancer. Radiation therapy can be an effective form of primary treatment, in pre-surgical debulking, and is of benefit in the palliation of haemoptysis, bronchial obstruction and bone pain in metastatic disease. Chemotherapy may be used in the primary treatment of small cell cancers and as palliation in the later stages of this disease.

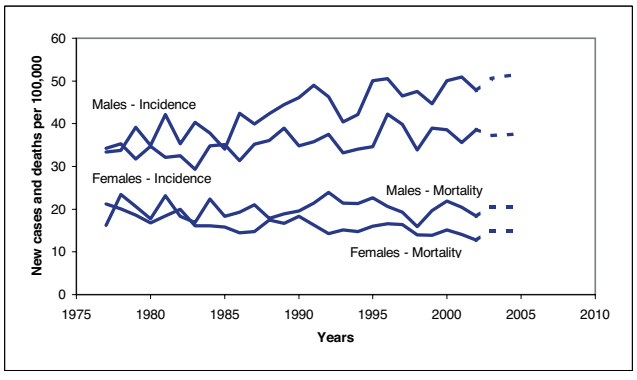
4.5 - Colon cancer

	New cases	Inc. Rate	% cancers	Risk	Deaths	Mort. Rate	% cancer deaths	Survival %
Males	373	47.8	9.7	1 in 27	138	18.3	7.6	53.4
Females	381	38.7	10.5	1 in 39	133	12.7	8.8	54.0

Cancers of the colon are mainly adenocarcinomas. There has been an increase in incidence of about 20% in males and 6% in females over the past 25 years. Mortality rates have decreased by 25% in females and by 14% in males in more recent years.



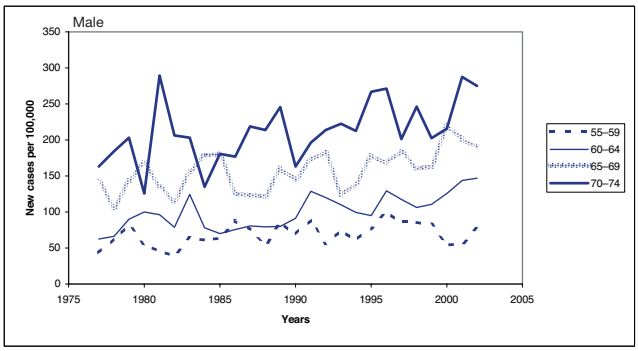
Suggested risk factors include diets high in processed foods, fat and animal protein, but low in fibre, fresh fruit and vegetables. Other probable contributors include more sedentary life styles, and in females, older age at first birth and lower parity.



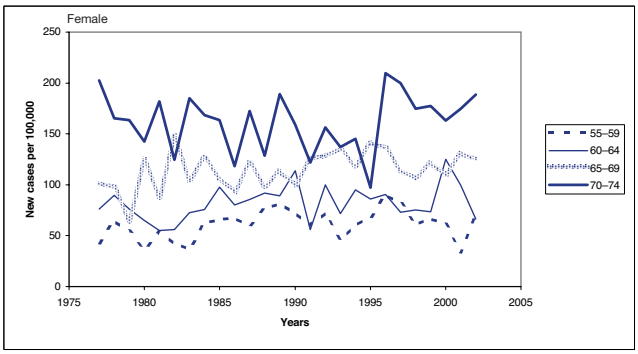
Incidence rates may have increased artificially through an increased detection by faecal occult blood testing and more frequent use of colonoscopy.

South Australian data have shown an increased incidence in upper socioeconomic areas. Aboriginal residents have a comparatively low incidence of colon cancer.

Those born in Australia appear to be at higher risk than the overseas-born, with migrants from Southern Europe having a particularly low incidence. By occupation, higher rates have been observed in white collar workers including managers, medical practitioners, pharmacists, optometrists, physiotherapists, and teachers.



Cancers of the colon are removed by wide surgical resection of the primary lesion together with all mesentery that contains lymph nodes to which the malignancy is likely to spread. Post-operative radiotherapy is used for tumours dissecting the bowel wall or with cancer positive lymph nodes.

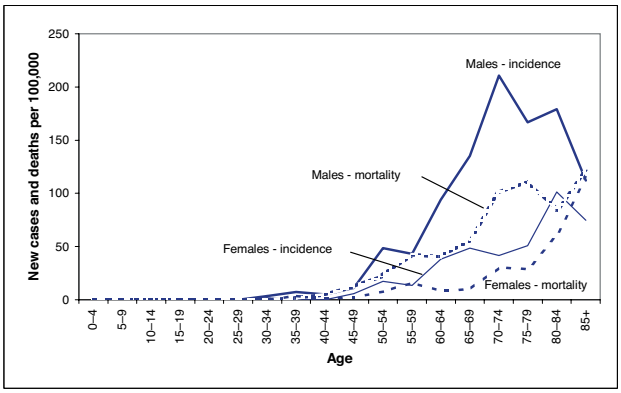


Advances in case survival, after stage adjustment, reflect improved surgical management and more recently, gains in adjuvant chemotherapy.

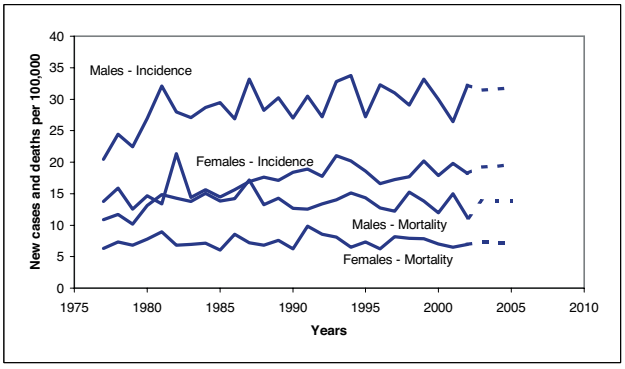
4.6 – Rectum cancer

	New cases	Inc. Rate	% cancers	Risk	Deaths	Mort. Rate	% cancer deaths	Survival %
Males	254	32.2	6.6	1 in 36	87	11.2	4.8	53.6
Females	173	18.2	4.8	1 in 71	71	6.9	4.7	57.3

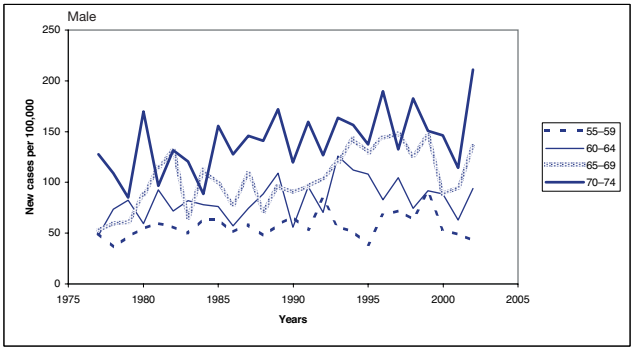
Cancers of the rectum have shown an increased incidence of about 30% in males and 25% in females over the past 25 years. The increase was most evident at the rectosigmoid junction. Mortality rates have remained fairly stable over this time in both sexes, with some improvement in the most recent years.



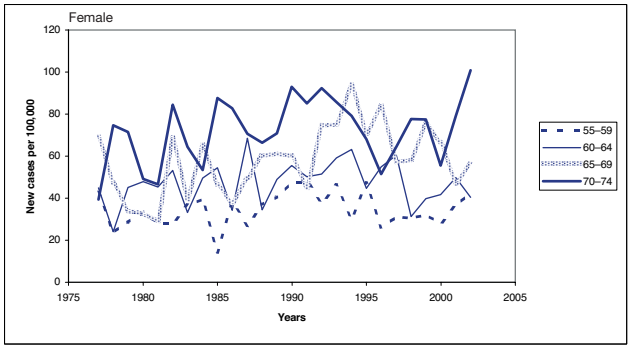
Like colon cancers, cancers of the rectum have a higher incidence in Adelaide than in country areas, with upper socioeconomic areas having higher rates. Australian-born residents have a higher incidence than those born overseas.



Risk factors are considered to be similar to those for colon cancer but studies have found a link with excessive alcohol consumption and with HIV and other sexually transmitted infections for cancers of the anal canal.



Management is by surgery. Local excision of rectal cancers helps to avoid a colostomy for well differentiated lesions less than three centimetres in diameter. Lesions that do not meet these criteria are best removed with more extensive procedures. Additional therapy may include trans-anal radiation and, increasingly, adjuvant chemotherapy.

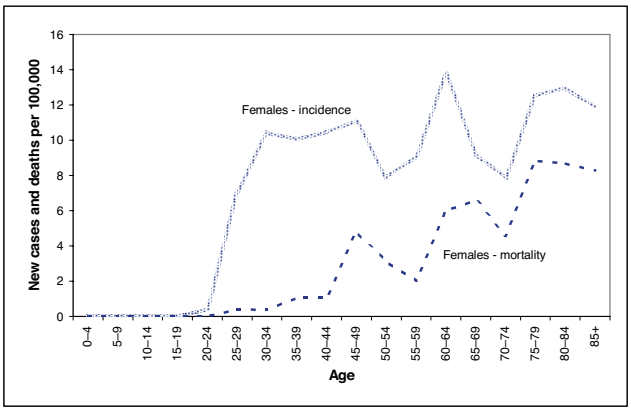


4.7 – Cervix cancer

	New cases	Inc. Rate	% cancers	Risk	Deaths	Mort. Rate	% cancer deaths	Survival %
Females	40	4.9	1.1	1 in 282	19	2.1	1.3	71.9

The incidence of cervix cancer has fallen by about 40% over the past 25 years. This is attributed to the detection and early treatment of precursor lesions through screening.

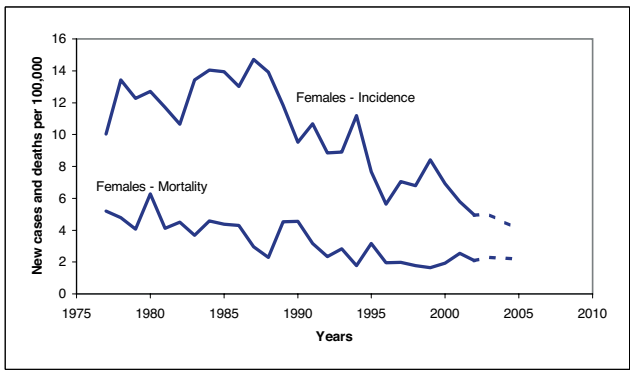
Mortality rates have reduced by over 69% for the same period. Overall, the proportional reduction in mortality has been greater than the corresponding decline in incidence. This is attributed to earlier intervention following detection through Pap smear screening, in addition to disease prevention initiatives.



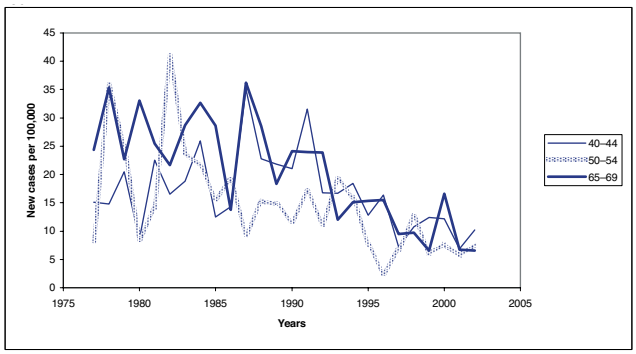
Increased cervical cancer incidence is found in the lower socioeconomic areas of Adelaide, in keeping with socioeconomic trends in other populations. Aboriginal women have been found to have 5-6 times higher incidence rates than other South Australians.

Management ranges from a simple cone biopsy wherein the affected part of the cervix is removed, to more radical surgery followed by radiotherapy and chemotherapy.

Risk factors include an early age at first sexual intercourse and multiple male sex partners. Barrier contraception appears to reduce the risk of cervical cancer. These associations support the hypothesis that strains of human papilloma virus (HPV) are involved in human cervical cancer biology. DNA sequences of HPV have been found with greater frequency in cervical cancer cells than in normal cervical cells.



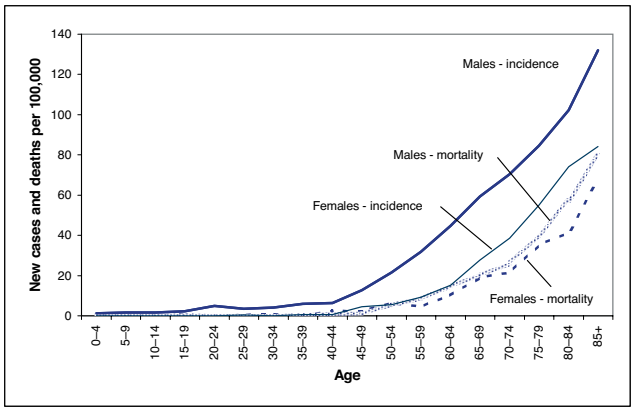
HPV infection of the cervix has been shown to be closely related to cervical intraepithelial neoplasia (CIN). This is in turn related to cancer of the cervix.



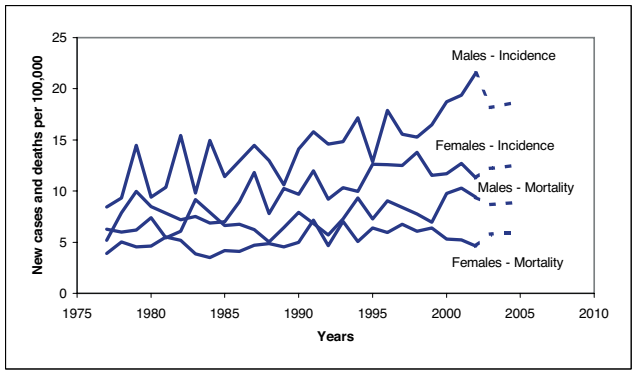
4.8 - Non-Hodgkin's Lymphoma

	New cases	Inc. Rate	% cancers	Risk	Deaths	Mort. Rate	% cancer deaths	Survival %
Males	218	28.0	5.7	1 in 49	88	11.5	4.8	58.3
Females	161	17.9	4.5	1 in 68	66	6.9	4.4	56.4

An increased incidence of non-Hodgkin's lymphomas of 35% in males and 45% in females has been recorded in South Australia over the past 25 years, with most applying to persons over 50 years of age. Most of the increase was attributable to increasing rates of diffuse non-Hodgkin's lymphomas. Mortality rates have remained stable apart from an increase in females aged 70 years and over.

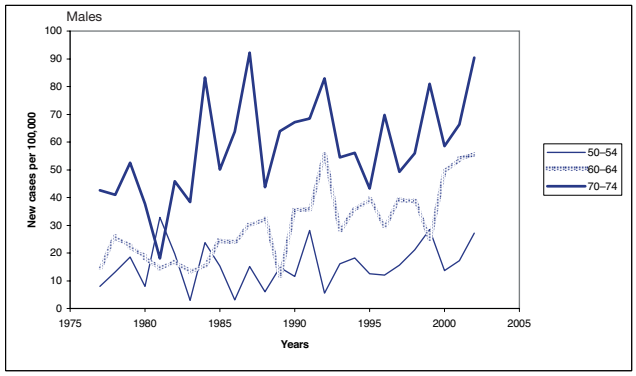


Risk factors for diffuse non-Hodgkin's lymphoma include HIV and other viral infections, hair dyes, immunosuppressive states, and exposure to biocides and other environmental carcinogens.

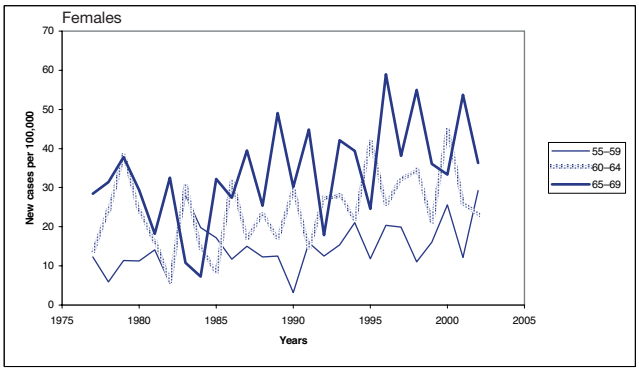


Overseas-born South Australians tend to have lower incidence rates than the Australian- born. For non-Hodgkin's lymphomas, Adelaide residents have higher rates than those who live in country areas.

The primary role of surgery is in the diagnosis and anatomic staging of lymphoma with the exception of splenectomy and gastro-intestinal disease where other therapies have a significant risk of fatal perforation or haemorrhage. Radiotherapy is confined to areas of clinically evident disease.



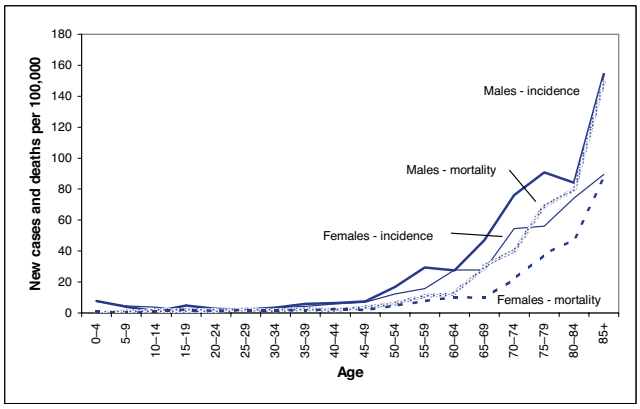
The prime means of treatment is chemotherapy with a variety of programs, including single agents and combinations such as "CHOP" (cyclophosphamide, doxorubicin, vincristine and prednisolone).



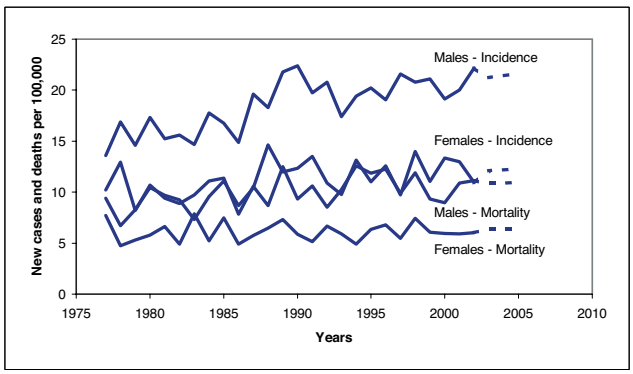
4.9 - Leukaemia

	New cases	Inc. Rate	% cancers	Risk	Deaths	Mort. Rate	% cancer deaths	Survival %
Males	170	22.2	4.4	1 in 65	83	11.1	4.6	46.8
Females	102	10.9	2.8	1 in 118	59	6.0	3.9	47.2

The incidence of leukaemia has risen by about 30% in both males and females over the past 25 years, largely due to increases in diagnosed chronic lymphatic leukaemia and acute myeloid leukaemia. Mortality rates have remained stable over this period, although some reduction was evident for chronic myeloid leukaemia, possibly reflecting advances in chemotherapy. The overall increase in incidence may be secondary to increased diagnostic sensitivity with more blood and other hemopoietic tissue analyses being performed on older people.

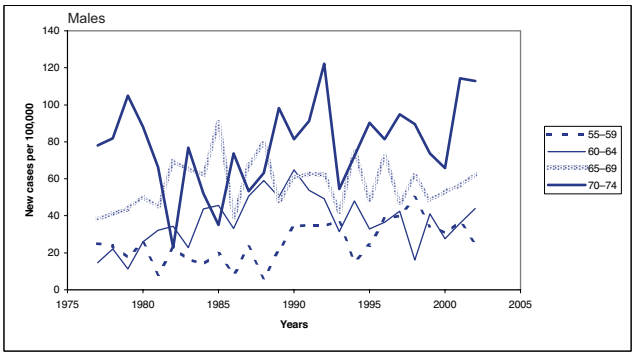


Acute Lymphocytic Leukaemia (ALL) is the commonest cancer in childhood with peak incidence occurring between two and four years of age. Exposure to ionising radiation and cytogenic abnormalities are associated with this tumour. Aggressive multi-drug programs are used to eradicate the tumour and prevent recurrence.

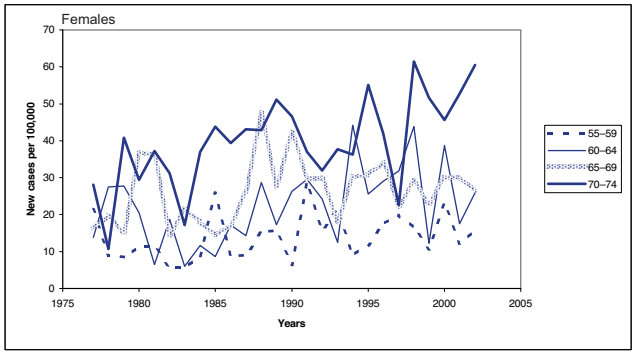


Chronic Lymphocytic Leukaemia (CLL) is usually an indolent disease with no effective treatment. The complications of CLL cause most morbidity and mortality.

Acute Myeloid Leukaemia (AML) is a group of tumours where cells of bone marrow origin predominate. Risk factors include Down's syndrome, ionising radiation, benzene, chloramphenicol, and phenylbutazone. Peak incidence occurs at about 60 years of age. Treatment involves intensive chemotherapy and bone marrow transplantation, following ablative therapy. Survival rate at five years is about 12%.



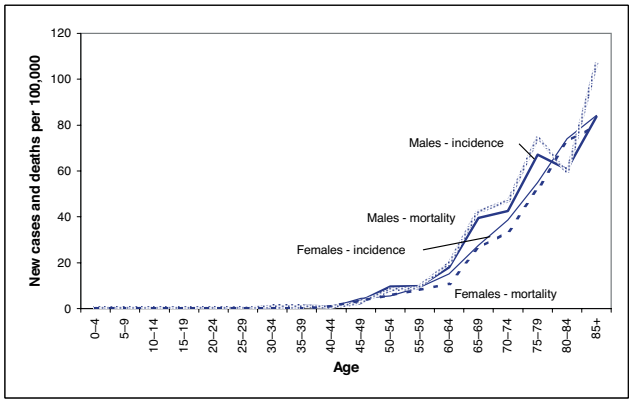
Chronic Myeloid Leukaemia (CML) is characterized by myeloid hyperplasia, splenomegaly, and eventual transformation into acute leukaemia – called a blast crisis. Incidence peaks at about 60 years. Risk factors include radiation and benzene exposure. Recent advances in chemotherapy induce transient responses. Bone marrow transplantation is compromised by the usual complications.



4.10 – Pancreas cancer

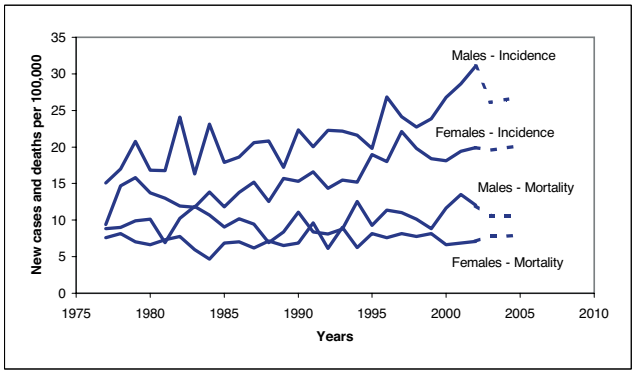
	New cases	Inc. Rate	% cancers	Risk	Deaths	Mort. Rate	% cancer deaths	Survival %
Males	69	8.9	1.8	1 in 193	71	9.1	3.9	3.4
Females	71	7.1	2.0	1 in 229	77	7.6	5.1	3.0

The incidence and mortality rates for cancer of the pancreas for all ages combined has not significantly changed over the past 25 years, apart from a progressive reduction in rates in males below 70 years of age for the second half of this period.

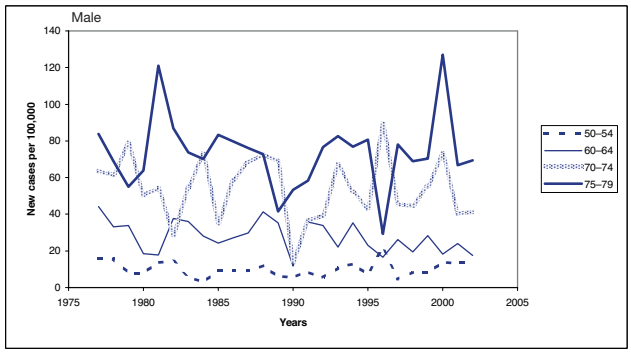


Pancreatic cancer has been more common in males than in females, but the ratio has fallen to one due to the declining incidence in males.

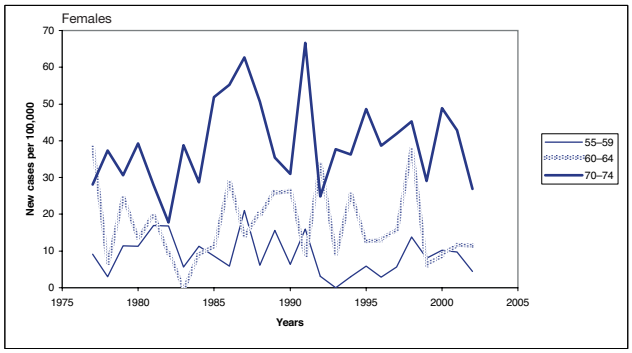
The disease appears to be more prevalent in lower socioeconomic areas of Adelaide, with Aboriginal residents having a higher incidence than other South Australians. Immigrants from Asia have a low incidence of this cancer.



Risk factors include smoking, where many studies have established a dose related association. Excess alcohol consumption is suspected but study conclusions are complicated by differentiating the effects of two substances which are frequently taken together. Benzidine workers and those exposed to coke and coal gas operations appear to be at greater risk.



Surgery continues to be the mainstay of curative therapy although most patients do not fit into this category. With improved imaging techniques such as NMRI, more tumours are being diagnosed at an early stage however case survival remains low. Palliation is by adjuvant chemotherapy and radiotherapy.

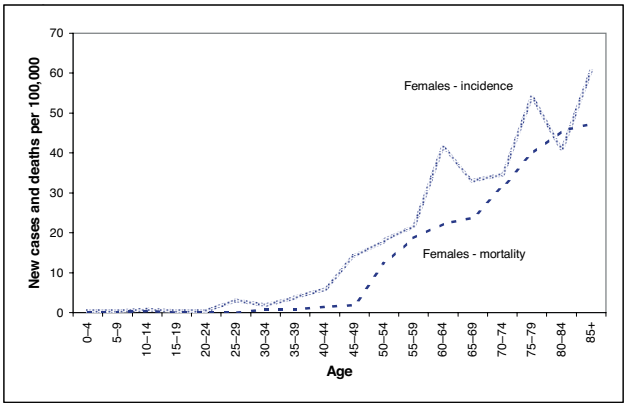


4.11 – Ovarian cancer

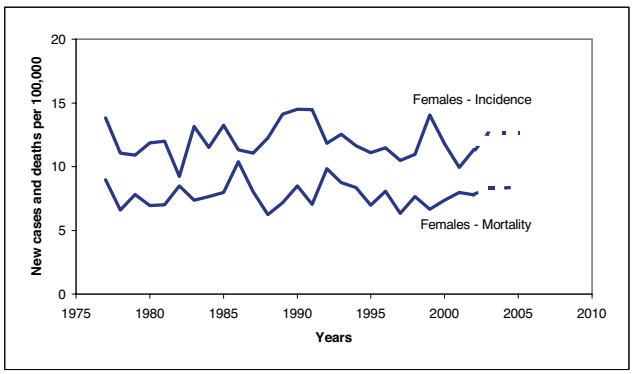
	New cases	Inc. Rate	% cancers	Risk	Deaths	Mort. Rate	% cancer deaths	Survival %
Females	104	11.3	2.9	1 in 119	71	7.8	4.7	36.0

Among gynaecological cancers, ovarian tumours have proven to be the most difficult to prevent or cure because they remain clinically silent for a considerable time and are frequently diagnosed at a late stage.

It is a heterogeneous group comprising mainly epithelial tumours (80% to 90% of all ovarian cancers) of which most are serous or mucinous cystadenomas.



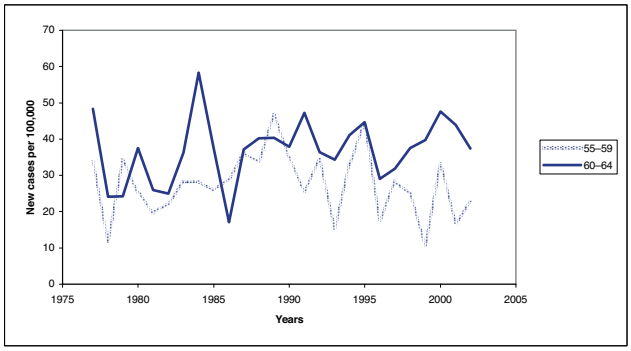
It is among the ten most common cancers in women, and one of the most lethal. In South Australia, only about 38% of these cases survive beyond five years, with age at diagnosis is an important predictor of survival.



The cancer is more prevalent in lower socioeconomic areas, and more common in Australian-born women than in female immigrants.

Risk factors include nulliparity, low parity, and older age at first birth. Use of combined oral contraceptives appears to reduce the risk of ovarian cancer.

Treatment is dependent on the tumour biology and extent of local spread and overall stage, assessed on a case by case basis. Surgery aims to remove as much of the tumour as possible leaving masses no larger than 2cms in diameter or none at all. Surgery is followed by chemotherapy and / or radiotherapy.

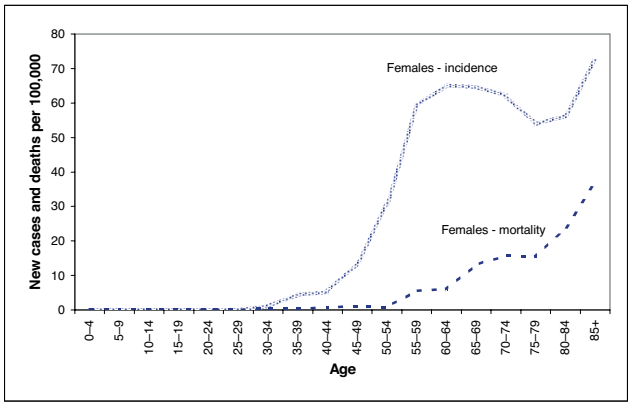


Advances in combination chemotherapy, including platinum-related drugs, together with whole abdominal external beam radiotherapy to reach all peritoneal surfaces, has become a favoured management for ovarian cancer after surgery.

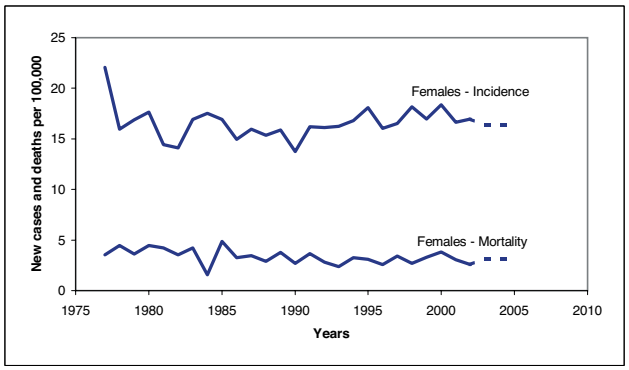
4.12 – Uterine cancer

	New cases	Inc. Rate	% cancers	Risk	Deaths	Mort. Rate	% cancer deaths	Survival %
Females	152	17.0	4.2	1 in 162	26	2.6	1.7	79.4

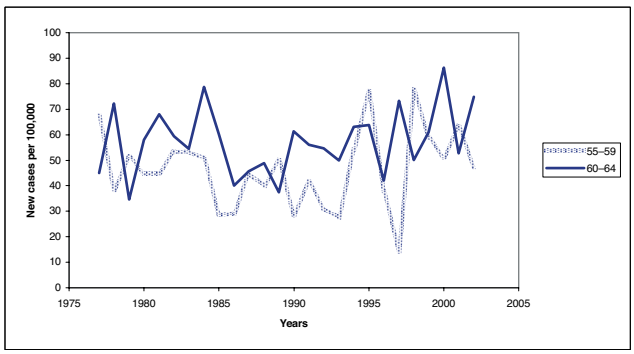
Most cancers of the uterus, other than cervical cancer, are endometrial cancers of which the majority are adenocarcinomas. The remainder are mostly sarcomas. Endometrial cancers gained prominence in Western Countries in the 1970s, attributed to the use of oestrogens to control post-menopausal symptoms. The use of combined oestrogens and progestogens in oral contraception appears to be protective, and in part responsible for a fall in incidence which has remained stable in South Australia over the past 25 years.



This disease remains among the top ten cancers diagnosed in females. A reduction in mortality has been observed for cancers of this site without any corresponding change in incidence.



As well as unopposed oestrogen therapy, risk factors include endogenous oestrogen producing states as in obesity, hormone producing ovarian cancers, and polycystic ovary disease. Infertility, nulliparous women and women of low parity are more likely to develop endometrial cancer. Adenomatous hyperplasia may be a precursor and secondary to reversible oestrogen–progestogen imbalance.

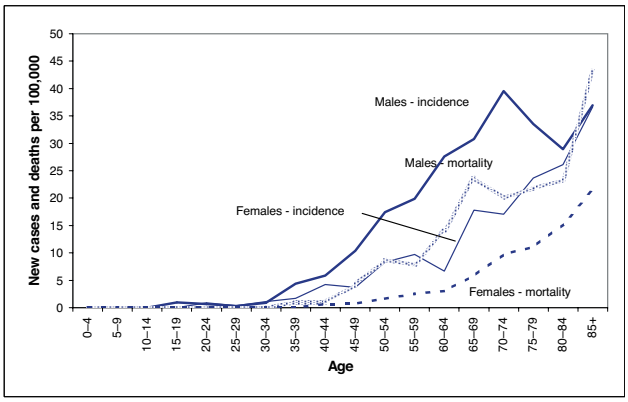


The mainstay of treatment is surgery the extent of which is guided by the stage and grade of the tumour. Radiation therapy, especially implantation, is used as an adjuvant treatment with surgery, and in the frequent inoperable patient. Treatment with progestogen is used to induce regression of metastases and in young women for the primary tumour where fertility is to be preserved. Gains in survival are due to advances in combination surgery, radiotherapy, hormonal therapy and chemotherapy.

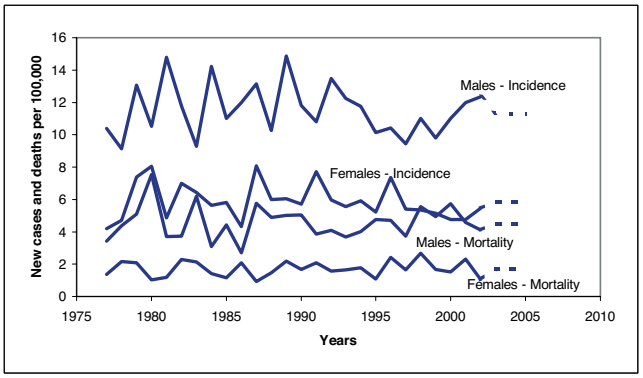
4.13 - Head and neck cancer

	New cases	Inc. Rate	% cancers	Risk	Deaths	Mort. Rate	% cancer deaths	Survival %
Males	97	12.3	2.4	1 in 97	42	5.4	2.3	51.6
Females	38	4.1	1.1	1 in 339	11	1.1	0.7	62.2

Head and neck cancers are usually squamous cell carcinomas of the upper respiratory and digestive tract. Sites include tongue, salivary glands, gum, mouth, oropharynx, nasopharynx, and hypopharynx.

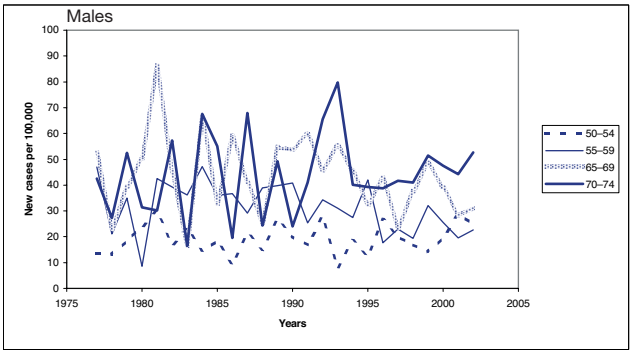


These cancers increasingly involve multiple medical disciplines such as radiotherapy, head and neck surgery, dentistry, maxillofacial prosthodontics, nutrition, speech therapy, social work, and palliative care. Functional and social problems can have a major psychological impact.



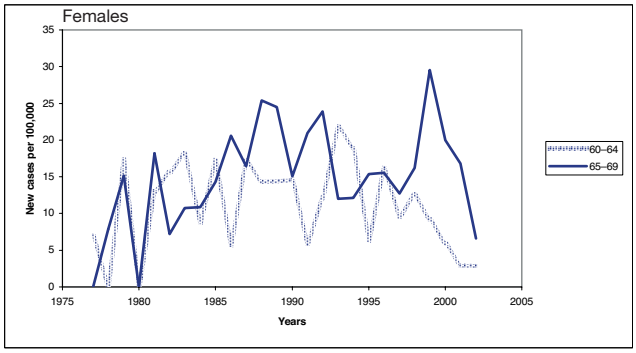
Squamous cell carcinomas of the upper aero-digestive tract mucosa generally afflict males in their 50s and 60s and have accounted for about 3% of malignancies in this group over the past 25 years. Historically, the proportion of males with these tumours has been greater by a factor of 2-4, depending on the site. This disparity is declining as women increasingly present with laryngeal cancer, probably as more with a long smoking history reach the age of risk.

Risk factors other than smoking tobacco, include wood dust, wood exposure, leather manufacturing, nickel refining, snuff, alcohol and, for the nasopharynx, nitrosamines.



Tumours frequently run a complicated course with recurrences through vascular and lymphatic spread in this complex anatomical region, often appearing as new tumours.

Primarily, treatment is by surgery and radiotherapy. Conventional re-sectional surgery, endoscopic techniques, laser surgery, cryotherapy and electrocautery are surgical treatment modalities. Radiation may be delivered by external beam, interstitial implantation, or surface contact. Currently, chemotherapy is undergoing rigorous assessment as an adjunct to surgery and radiotherapy.



Medical co-morbidity is common in cases of head and neck cancer, particularly due to chronic liver and pulmonary disease. This reflects the presence of common risk factors and it is important to assess the patient for concurrent or past history of other cancers, especially respiratory, bladder, and upper gastrointestinal cancers.