

# Review of cancer among Indigenous peoples



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## Impact on Indigenous people

The impact of cancer on Indigenous people often attracts much less attention than it deserves, for two main reasons. First, the level of identification of Indigenous people in cancer notifications is known to be poor [1] [2]. There are currently no national data on cancer incidence in Indigenous Australians due to poor data quality in several jurisdictions and for those Indigenous patients who are registered, there is concern that not all are correctly identified as Indigenous [2]. Identification of Aboriginal and Torres Strait Islander people is not yet included on pathology forms and the extent to which Aboriginal and Torres Strait Islander cancer patients are identified in hospital inpatient statistics varies across Australia [3] but Indigenous identification in the registries has been improving [4]. Second, the fact that cancer has often been reported in terms of the proportions of deaths it causes (19% of Indigenous deaths compared with around 30% of non-Indigenous deaths in Australia [5]), rather than by rates, has tended to give the erroneous impression that cancer does not have a great impact among Indigenous people. Alternative analyses, however, suggest that there are around 45% more cancer deaths among Indigenous Australians than expected on the basis of non-Indigenous rates [1] [6].

## Extent of cancer among Indigenous people

Although Aboriginal and Torres Strait Islander Australians are less likely to have some types of cancer than other Australians, Indigenous people are significantly more likely to have cancers that have a poor prognosis, are usually diagnosed with cancer at a later stage, are less likely to receive adequate treatment, and are more likely to die from cancers than other Australians [2]. The patterns of Indigenous cancer incidence and mortality are largely explained by the higher prevalence of risk factors, most notably tobacco use.

## Hospitalisations

In 2006-07, for New South Wales (NSW), Victoria (Vic), Queensland (Qld), Western Australia (WA), South Australia (SA) and the Northern Territory (NT) combined, neoplasm was the primary reason for hospitalisation at a rate of 0.6 for Indigenous Australians with 16.0 per 1,000 of Indigenous Australians compared with 24.6 per 1,000 [\[7\]](#).

In 2005-06, cancer was responsible for 1,423 hospitalisations of Indigenous males and 2,109 hospitalisations of Indigenous females, both representing just over 1% of all hospitalisations in which the patient was Indigenous [\[4\]](#). For both Indigenous and non-Indigenous Australians, from age 25 years onwards, hospitalisation rates for cancer increased but were considerably lower for Indigenous than for other Australians across all age groups.

In 2005-06, the five most common malignant cancers for which Indigenous males were hospitalised were lung cancer (140 hospitalisations), skin cancer (106 hospitalisations), prostate cancer (59 hospitalisations), secondary cancer of the respiratory and digestive organs (51 hospitalisations) and secondary malignant neoplasm of other sites (45 hospitalisations). The five most common malignant cancers for which Indigenous females were hospitalised during the same period were breast cancer (140 hospitalisations), lung cancer (112 hospitalisations), skin cancer (108 hospitalisations), cervical cancer (84 hospitalisations), and secondary cancer of other sites (60 hospitalisations) [\[4\]](#).

## Incidence

In 2000-2004, across Australia, there were 3,083 cancers diagnosed among Aboriginal and Torres Strait Islander people [\[4\]](#). The most common cancers diagnosed among Indigenous males in this period were of the lung, bronchus and trachea (19% of all male cancer reported), prostate cancer (10%), colorectal cancer (10%), cancer of unknown primary site (6%), and lymphomas (5%) [\[4\]](#). The most common cancers diagnosed among Indigenous females were breast cancer (25% of all female cancer cases reported), cancer of the lung, bronchus and trachea (12%), colorectal cancer (9%), cancer of the cervix (7%) and cancer of unknown primary site (6%). In the same period, more new cases of cancer were reported among Indigenous females (1,598) than Indigenous males (1,485) compared with the non-Indigenous population.

## Mortality

Cancer is a major cause of Indigenous mortality in Australia, exceeded only by circulatory and respiratory diseases [\[3\]](#) [\[8\]](#). Data show that Indigenous people with cancer are more likely to die from their disease [\[9\]](#). In 2007, one of the leading causes of death for Aboriginal and Torres Strait Islander peoples resident in Qld, WA, SA and the NT was cancer, accounting for nearly one fifth of all Indigenous deaths (19%) compared with nearly one-third of total non-Indigenous deaths (30%) [\[5\]](#). Even though neoplasms accounted for a higher proportion of all non-Indigenous deaths than Indigenous deaths, Indigenous people are overrepresented in deaths from cancer compared with non-Indigenous Australians (the SMR [\[i\]](#) for males and

females was 1.4 and 1.5 respectively) [3]. This apparent contradiction is the result of a high number of deaths for other causes in the Indigenous population as well as high mortality rates from neoplasms for Indigenous Australians in the middle age groups.

Cancer groups where Indigenous people were over-represented included malignant neoplasms of the lip, oral cavity and pharynx (7% of total Indigenous cancer deaths compared with 2% of non-Indigenous cancer deaths), malignant neoplasms of the respiratory and intrathoracic organs (26% Indigenous, 20% non-Indigenous) and malignant neoplasms of the female genital organs, which includes cervical cancer (14% total Indigenous females, 9% non-Indigenous females) [4]. Other cancer groups where Indigenous people were under-represented included, melanoma and other malignant neoplasms of skin (1% of total Indigenous cancer deaths compared with 4% on non-Indigenous cancer deaths), and malignant neoplasms of male genital organs, which includes prostate cancer (4% of total Indigenous males, 13% of non-Indigenous males).

In 2001-2005, for Qld, WA, SA and NT combined, for age-groups 0-24 years and 65 years and over, the rates for Indigenous males and females were similar to those for non-Indigenous males and females but for the age groups 35-44, 45-54 and 55-64 years, the rates for Indigenous males and females were about twice the non-Indigenous rates [4].

## Specific cancers

In 2000-2004, for NSW, Vic, Qld, WA, SA and NT, age-standardised incidence, even with under-reporting, was higher among Indigenous males and females for lung cancer, cancers of the mouth and throat and cancer of unknown primary site [4] (see Table 1). High rates of smoking earlier in life are the likely cause of a high incidence of cancers of the lung, mouth and throat, while high incidence of unknown primary site is likely to be associated with late diagnosis. The rates for cervical cancer among Indigenous females were more than double those for non-Indigenous females. Among the less common cancers, age standardised incidence was also higher for the Indigenous population than for the non-Indigenous population, for cancers of the liver and gallbladder, pancreatic cancer, cancer of the oesophagus, and, in males only, thyroid cancer but incidence was lower among Indigenous people for colorectal cancer, prostate cancer and lymphomas.

Table 1: Age-standardised cancer incidence rates (a) (b), by Indigenous status and sex, 2000-2004

Cancer	Indigenous rate	Non-Indigenous rate	Ratio
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Source: [4]

Notes:

1. Data for NSW, Vic, Qld, WA, SA and NT combined.
2. Age-standardised incidence per 100,000 population.

<b>Males</b>			
Lung	91.0	61.1	1.5
Unknown primary site	31.3	18.8	1.7
Colorectal	39.7	76.4	0.5
Prostate	55.7	140.6	0.4
Lymphomas	42.6	58.8	0.7
Thyroid	4.8	3.4	1.4
Pancreas	16.2	10.9	1.5
Oesophagus	16.5	8.1	2.0
Liver and gallbladder	20.5	9.7	2.1
Mouth and throat	25.6	11.4	2.2
All cancers	426.3	555.7	0.8
<b>Females</b>			
Lung	43.6	28.1	1.6
Breast	84.7	115.0	0.7
Unknown primary site	27.0	14.2	1.9
Colorectal	36.6	52.4	0.7
Cervix	16.9	7.1	2.4
Lymphomas	22.2	38.7	0.6
Thyroid	6.4	9.8	0.7
Pancreas	11.9	8.8	1.4
Oesophagus	4.4	3.4	1.3
Liver and gallbladder	13.9	5.4	2.6
Mouth and throat	11.2	10.6	1.1
All cancers	351.8	397.7	0.9

## Lung cancer and other smoking-related cancers

Lung cancer is an aggressive form of cancer that originates in the respiratory system and has the ability to spread to other parts of the body [10]. In 2007, trachea and lung cancer accounted for 5.0% of all deaths of Indigenous people compared with 5.6% of non-Indigenous people [5]. Lung cancer in general, has a low cure rate and a short survival time. Overwhelmingly, smoking is the largest risk factor for lung cancer.

In 2004-05, rates revealed that half (50%) of the Indigenous population (over 18 years) were current daily smokers (smoking one or more cigarettes per day) [11] with a slightly higher rate recorded for Indigenous Australians living in remote areas

(52%) [10]. For both males and females, smoking was more prevalent among Indigenous than non-Indigenous adults with rates changing little since 1995 [11] [12].

## Cervical cancer

Like other cancers, cervical cancer is a disease where normal cells change and multiply resulting in a growth or tumour [13]. Specifically, cervical cancer affects the cells of the cervix (the lower part of the uterus where it joins the inner end of the vagina).

In 2005-2006, for NSW, Vic, Qld, WA, SA and NT combined, cervical cancer was the fourth leading cancer responsible for the hospitalisation of Indigenous Australian women (84 hospitalisations) [4]. In 2000-2004, in NSW, Vic, Qld, WA, SA and NT combined, the age-standardised incidence rate for cancer of the cervix was nearly two and half times more for Indigenous women (16.9) compared with non-Indigenous women (7.1) [4]. During this period, cervical cancer accounting for 7% of all cancers diagnosed among Indigenous women.

In 2003-2006, in Qld, WA, SA and the NT, for women aged 20-69 years the age-standardised mortality rate for cervical cancer, for Indigenous women was 10.3 per 100,000 women, more than five times as high as the rate of 2.0 per 100,000 for other Australian women in the same age range [13]iii (see Table 2).

Cervical screening programs have been associated with a reduction in mortality from cervical cancer of about 56% [14] [15] but low participation in screening is believed to be a major factor in mortality rates of Indigenous women.

Table 2: Age-standardised and age-specific mortality rates for cervical cancer in women by Indigenous status, Queensland, Western Australia, South Australia, Northern Territory, 2003-2006

Age group (years)	Indigenous	Non-Indigenous
0-14	0.0	0.0
15-19	0.0	0.1
20-24	0.0	0.1
25-29	0.0	1.0
30-34	6.3	1.1
35-39	4.8	1.1
40-44	16.7	2.0

Source: [13]

Notes:

1. Deaths were derived by state and year of registration.
2. The number of deaths is presented as a 4-year block of data.
3. Only Queensland, Western Australia, South Australia and the Northern Territory have Indigenous death registration data considered to be of a publishable standard.
4. Rates are the number of deaths from cervical cancer per 100,000 women and age-standardised to the Australian population at 30 June 2001.

Table 2: Age-standardised and age-specific mortality rates for cervical cancer in women by Indigenous status, Queensland, Western Australia, South Australia, Northern Territory, 2003-2006

Age group (years)	Indigenous	Non-Indigenous
45-49	3.6	2.3
50-54	13.6	2.8
55-59	19.7	2.6
60-64	9.4	4.5
65-69	52.8	4.9
70-74	20.4	4.5
75+	49.2	10.2
All ages	10.0	2.0
Ages 20-69	10.3	2.0

High cervical cancer incidence is preventable; it is one of the few preventable cancers with Pap smear testing proving an efficacious screening test for detection of precursors of the disease [4] [16]. In Australia, cervical cancer screening is available to all women through Medicare, with biannual examination recommended from onset of sexual activity until age 70 [8].

In 2004-05, 49% of all Indigenous women aged 18 years and over had a pap smear at least once every two years [17]. In a project aimed at implementing an organised population screening strategy to address poorer outcomes for cervical cancer in Aboriginal and Torres Strait Islander women in three Indigenous communities, a female Indigenous worker and female GP were employed to develop and implement local plans aimed at improving service coordination and access, GP knowledge, recall systems and health promotion [15]. This local partnership approach was found to improve service collaboration, GP awareness, recall systems and health promotion and assisted in improving participation of Aboriginal and Torres Strait Islander women in screening for cervical cancer [15].

## Breast cancer

In 2000-2004, in NSW, Vic, Qld, WA, SA and NT combined, breast cancer was the most common cancer experienced by Aboriginal and Torres Strait Islander women (accounting for 25% of all cancers diagnosed among Indigenous women) but the age-standardised incidence rate was lower than for the non-Indigenous population (84.7 and 115.0 respectively) [4]. This lower incidence rate among Indigenous women is consistent with previous years [18] [19].

It is possible that the fact that breast cancer incidence rates are slightly lower for Indigenous women than non-Indigenous women reflects differences in reproductive history, such as nulliparity (no birth) or low parity, first childbirth after 30 years of age, early onset of menarche, late menopause, and breastfeeding frequency and duration [20] [21] [22]iv. Some aspects of childbearing practices among Indigenous women may help protect against breast cancer [20]. There may also be differences between Indigenous and non-Indigenous women in relation to other actions and habits implicated in the development of breast cancer such as the use of oral

contraceptives, hormone-replacement therapy, physical inactivity, a diet rich in fat and animal protein, and alcohol consumption [3] [20].

Further reason for the lower reporting of breast cancer incidence among Indigenous women compared with non-Indigenous women may be due to lower participation in early detection programs and lack of access to appropriate services as well as reduced likelihood of receiving and completing treatment [15]. Although the incidence of breast cancer in Indigenous women is lower than for non-Indigenous women, age standardised mortality rates are higher [15] [23].

In 2005-2006, in NSW, Vic, Qld, WA, SA and NT combined, Indigenous Australian women were hospitalised for breast cancer more than any other cancer (140 hospitalisations) [4]. In 2001-2005, in Qld, WA, SA and NT combined, the age-standardised mortality rate from breast cancer for Indigenous women was 26.7 compared with 23.9 for non-Indigenous Australians (see Table 3) [24]. In the age group 50-69 years, for the period 1996-2000, the age-standardised mortality rate from breast cancer for Aboriginal and Torres Strait Islander women, decreased from 55.7 per 100,000 women to 45.4 deaths per 100,000 women compared with mortality rates for non-Indigenous women decreasing significantly from 67.2 per 100,000 women to 51.8 deaths per 100,000 women [24].

**Table 3 Age-standardised and age-specific mortality rates for breast cancer in women by Indigenous status, Queensland, Western Australia, South Australia and the Northern Territory, 2001-2005**

Table 3: Age-standardised and age-specific mortality rates for breast cancer in women by Indigenous status, Queensland, Western Australia, South Australia and the Northern Territory, 2001-2005

Age group	Indigenous	Non-Indigenous	Australia
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Source: [24]

Notes:

1. Only Queensland, Western Australia, South Australia and the Northern Territory have Indigenous death registration data considered to be of a publishable standard; therefore, data from these jurisdictions only are included in the analysis by Indigenous status.
2. 'Australia' includes all states and territories of Australia. 'Indigenous' and 'Non-Indigenous' includes Queensland, Western Australia, South Australia and the Northern Territory.
3. Deaths in the 'not-stated' category are included in the column for all women, but they are not included in the other columns.

<b>0-14</b>	0.0	0.0	0.0
<b>20-24</b>	0.0	0.0	0.0
<b>25-29</b>	3.4	0.3	0.6
<b>30-34</b>	5.1	3.1	3.2
<b>35-39</b>	7.9	7.5	8.1
<b>40-44</b>	16.5	15.3	15.6
<b>45-49</b>	30.5	25.2	26.1

Table 3: Age-standardised and age-specific mortality rates for breast cancer in women by Indigenous status, Queensland, Western Australia, South Australia and the Northern Territory, 2001-2005

Age group	Indigenous	Non-Indigenous	Australia
<b>50-54</b>	19.3	37.7	39.4
<b>55-59</b>	22.9	48.4	51.3
<b>60-64</b>	68.8	61.6	61.9
<b>65-69</b>	100.4	71.7	71.2
<b>70-74</b>	149.8	78.0	79.1
<b>75+</b>	143.8	129.5	132.5
<b>All ages</b>	26.7	23.9	24.6
<b>Ages 20-69</b>	45.4	51.8	53.1

Despite cervical screening programs being associated with a reduction in mortality from cervical cancer of about 56%, there has not been a similar reduction in breast cancer mortality since the introduction of mammographic screening in Australia [15]. In 2004-2005, 29% of all Indigenous women aged 40 years and over had a mammogram [17]. Participation by Aboriginal and Torres Strait Islander women in the BreastScreen Australia Program was significantly lower than for non-Indigenous women in the target age group 50-69 years (35.8% and 55.9% respectively) but the rate for Indigenous women (35.8%) has increased significantly since the period 1999-2000 (31.8%) [24]vii. Of the 1,614,871 women aged 40 years and over participating in the screening, there were 12,580 (0.8%) who identified themselves as Aboriginal or Torres Strait Islander (0.7% in 1999-2000 and 0.7% in 2002-2003) compared with 1,590,393 non-Indigenous women [24].

With organised population screening considered an evidence based strategy to address poorer outcomes for breast cancer in Aboriginal and Torres Strait Islander women and knowing the key role general practitioners have in improving screening rates, one project aimed to implement these strategies in three Indigenous communities [15]. Across the three sites, a female Indigenous worker and female GP were employed to develop and implement local plans aimed at improving service coordination and access, GP knowledge, recall systems and health promotion. Evaluation of the project found that Aboriginal community involvement in planning and delivery of programs, employment and training of Indigenous people, and gender sensitive provision of culturally appropriate, holistic health services by GP's facilitated breast screening and access to services were improved with the assistance of transport provision and flexibility in appointments. Therefore, local partnership approaches which improve service collaboration, GP awareness, recall systems and health promotion can assist in improving participation of Aboriginal and Torres Strait Islander women in screening for breast cancer [15].

## Prostate cancer

Prostate cancer is a disease in which cells of the prostate (the male organ that sits next to the urinary bladder and contributes to the semen) become abnormal and start to grow forming tumours [3]. The reported incidence of prostate cancer varies greatly according to the availability and uptake of screening services as well as being influenced by prostate specific antigen (PSA) testing which may be less common in

Indigenous Australians [25]. Given the great differentials in uptake of cancer screening, significance of the differences between Indigenous and non-Indigenous people is not clear. National data on treatment patterns for prostate cancer are also limited although some data exist for WA [26].

## **Liver cancer**

The two major risk factors for primary hepatocellular carcinoma (liver cancer) are infection with the hepatitis B virus (HBV) and excessive consumption of alcohol [3] [27]. Both of these are common among many Indigenous groups, so the elevated incidence of liver cancer is not unexpected. In fact, the level of liver cancer (and liver cirrhosis, the other major condition associated with these risk factors) has been seen as lower than expected given the high levels of HBV [28].

## **Pancreatic cancer**

Pancreatic cancer is often described as a 'silent' disease, because early in its development it has few symptoms. Risk factors include age, smoking, a diet high in animal products and fats, chronic pancreatitis, and a family history of the disease [27] [29] [30]. (Gender is a factor also, with the disease 30% more common in males than females [29]. The particular factors responsible for the relatively high incidence of pancreatic cancer among Indigenous people have not been studied, but the most likely ones are smoking and pancreatitis (as a result of excessive alcohol consumption). As is the case with liver cancer, the prognosis for pancreatic cancer is very poor, again reflected in mortality: incidence ratios of around 1.0.

## **Colorectal (Bowel cancer)**

Colorectal cancer comprises cancers of the colon and rectum that begin to grow in the bowel wall [10]. While family history is a factor in the increased risk of developing colorectal cancer, more than two-thirds of colorectal cancers and related deaths are considered to be preventable.

Risk factors for colorectal cancer are a diet high in fat and animal foods and low in fibre, fresh fruit, and vegetables; excessive alcohol consumption; physical inactivity; obesity; and a history of polyps in the bowel [27] [30] [31]. Colorectal cancer is noteworthy because of its relatively low incidence among Indigenous people.

Data from the National Bowel Cancer Screening Program, started in August 2006, revealed the age-standardised rate of deaths from bowel cancer, in 2002-2006, in Qld, WA, SA and the NT <sup>viii</sup>, was lower in Aboriginal and Torres Strait Islander people (14.0 deaths per 100,000 population) than in non-Indigenous people (19.9 per 100,000) [32].

Participation in the National program for Aboriginal and Torres Strait Islander peoples was 17.0% of those invited while non-Indigenous people were 2.3 times more likely to accept the invitation to screen (38.6%). This equated to 1,824 people self-identified as Aboriginal and Torres Strait Islander who participated in the program, with only slightly more females than males becoming involved (986 and 838 respectively) [32].

Survival rates for people with colorectal cancer depend largely on the stage the disease has reached when it is diagnosed, with the overall 5-year survival rate around 55% [\[27\]](#) [\[29\]](#) [\[31\]](#). The 5-year survival rates for different sectors of the Australian population are not known, but the generally higher mortality: incidence ratios for Indigenous people than for non-Indigenous people suggests that the disease is generally more advanced at the time of diagnosis for Indigenous people, or that there are differences in treatment outcomes after adjusting for the stage of the cancer at diagnosis.

## **Issues surrounding Indigenous people's use of cancer services**

Information relating specifically to Indigenous people's utilisation of cancer services is limited. What there is tends to focus on Indigenous women's involvement in cervical and breast cancer screening programs [\[15\]](#) [\[16\]](#) [\[18\]](#) [\[33\]](#). This section discusses some of the barriers to Indigenous people accessing cancer screening and treatment programs. Most of the information relates to breast cancer and cervical cancer, but it is likely to be applicable also to other cancers and the health care system in general.

### **Limited knowledge about cancer and its management**

People's perceptions about cancer can have an important effect on the use of services [\[2\]](#). Research exploring Indigenous people's views of cancer has principally been conducted in Queensland and the Northern Territory with a focus on breast and cervical cancer. Findings have indicated that fear of cancer as a death sentence plays a large part in deterring individuals to seek treatment as there is a belief that help is beyond the control of medical intervention [\[34\]](#) [\[35\]](#). Research relating to breast cancer conducted in Queensland found that most Indigenous women associated lifestyles factors (e.g. smoking, diet and exercise) as contributing to cancer but findings also suggested that cancer is considered associated with factors relating to disadvantage and the loss of traditional lifestyle post colonisation [\[35\]](#). This represents a more holistic understanding of health and further highlights the importance of cultural understandings in perceptions of health and consequent health seeking behaviour [\[35\]](#). Despite the recognition and understanding of the role of lifestyle factors in health, Indigenous women in some studies showed a strong orientation towards responding to symptoms once they occurred rather than focussing on prevention of ill health [\[2\]](#) [\[8\]](#).

Research exploring the different social and structural factors affecting Indigenous women's decisions to present for screening or returning for follow-up, found that misunderstanding of cervical cancer screening, fear of cancer, distrust of health services, poor recall and follow-up systems and the economic and social burden to women presenting for treatment all contributed to the use and access of health services for screening [\[8\]](#). The poor understanding of cancer is further aggravated by the lack of Indigenous-specific health promotion and education in schools and other mainstream environments, as well as the poor advertising of cancer-related services [\[15\]](#).

## Access to services

Indigenous people are over ten times more likely than non-Indigenous Australians to live in remote areas [36]. This remoteness has implications for access to preventative, diagnostic, curative, palliative and other support services as well as to basic health infrastructure [2] [30]. Accessing needed services is then dependant on ability to travel to major cities or means relying on visiting specialists. Data from the most recent national social survey highlight the issue of transportation for Indigenous respondents with 12% reporting difficulty getting to places they needed to go compared with less than 4% of non-Indigenous respondents [37]. Travel can be particularly difficult for those who lack transport and money.

In addition to the geographical barriers affecting access to health care services, differences in the utilisation of services by Indigenous and other Australians may also be related to differences in health care status, differing levels of service provision, the cost of health care and/or language and cultural barriers [4] [15]. Therefore, Indigenous people not only need better access to locally-relevant services, but also need adequate coverage by mainstream health care services. Recent research supports current systems being adapted to incorporate community-participation methods to improve participation of Aboriginal and Torres Strait Islander women in cancer screening [15].

## Unsuitable services

Culturally specific reasons for low participation in screening have been identified [38]. Research in Queensland found that Indigenous people were required to adapt to and accept programs and services that were culturally unsafe and/or insensitive and therefore not as effective as they could have been in meeting their needs [39] [40]. Indigenous people have reported finding the health care system alienating and intimidating, particularly because much of their contact with it is for emergency and acute care. Familiarity with services is seen as a strong predictor of use of cancer screening services, thus making Indigenous women relatively poor utilisers of cervical and breast cancer screening programs [40] [41].

An important contributor to the success of cancer screening services is the availability of appropriate health workers. The vast majority of Indigenous women prefer female workers to male workers, particularly for matters relating to breast cancer and cervical cancer, which are considered 'women's business' [39] [42]. However, predominantly male staff, high staff turnover, and relatively few Indigenous health workers are common in many rural and remote areas of Australia [40] [43].

Inter-racial communication breakdowns, racism, and cultural ignorance among staff at service centres were also identified as major barriers to Indigenous women's participation in breast cancer screening programs [40]. These findings bring home the importance of giving appropriate training (including cultural training) to non-Indigenous staff [43]. Such training should include lessons on the history of colonisation and its continuing influence on the health of Indigenous Australians and on their reluctance to use mainstream health care services [39] [44]. Staff also need to be aware that Indigenous populations are diverse and heterogeneous, with different cultures and traditions [31] [39].

Some of these issues have been addressed in a recently developed program supporting general practitioners in the early detection and management of breast and cervical cancer among Indigenous women [\[45\]](#).

## Personal issues

Other research into barriers to Indigenous use of cervical cancer screening found that Indigenous women often had feelings of shame and embarrassment surrounding Pap smear tests [\[42\]](#). They also had concerns about a lack of confidentiality and were fearful of having an abnormality detected. Other barriers included difficulties in articulating their situation to staff and family members, and concerns that they would not understand the medical jargon used by screening staff [\[39\]](#) [\[43\]](#). After being diagnosed with breast cancer, some Indigenous women felt a sense of isolation—largely because the disease is relatively uncommon among Indigenous women and because they knew quite little about cancer [\[40\]](#).

In a study examining the effect of speaking a language other than English on health outcomes related to cancer diagnosis and treatment in the Northern Territory, the relative risk of cancer death was much higher for Indigenous language speakers than for English language speakers when compared with non-Indigenous people [\[46\]](#). Indigenous people were more likely to have a more advanced stage of cancer at diagnosis than non-Indigenous people, and for those whose first language was Indigenous, poorer treatment after diagnosis was also a contributing factor. It was recognised that Indigenous first language is a marker of cultural, social, economic, educational and geographic factors and not just communication difficulties. This suggests that if outcomes of cancer treatment are to be improved for those with an Indigenous first language, the issues of social and cultural proximity need to be addressed along with geographical proximity [\[46\]](#).

## Summary

Despite the need for improvements in data quality and availability, it is clear to see from the available data that cancer is an important health issue for Indigenous Australians. The patterns of incidence and mortality are largely explained by the higher prevalence of risk factors [\[2\]](#). With half of Indigenous adults being daily smokers there is a need to address tobacco smoking as a priority and to ensure that effective programming involves addressing the social and cultural role of smoking in Indigenous people [\[12\]](#). The later diagnosis of cancer in Indigenous people compared with non-Indigenous people, the differences in treatment outcomes after adjustment for cancer stage at diagnosis, and the fact that many of the cancers afflicting Indigenous people are amenable to preventive measures, have serious implications for the health sector. Committed anti-smoking programs could have a major impact on lung cancer and other smoking-related cancers, and improved screening and follow-up would prevent many deaths from cervical cancer and breast cancer [\[47\]](#). It is imperative also those health authorities address the barriers Indigenous people face in accessing cancer screening and treatment services.

In terms of the infrastructure for planning and policy development, it is important to maximise the use of the available data. Data need to be regularly collected on a

systematic basis and using nationally agreed data definitions. In particular, Indigenous status needs to be recorded in all cancer cytology registries. Such information is necessary for assessing the efficacy of preventive and screening programs and of clinical practice [31].

The health sector must ensure that the high level of cancer prevention, detection, and management that is available in Australia is as accessible to, and appropriate for, Indigenous people as it is for other Australians. It is time for decisive action to combat cancer among Indigenous Australians .

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## Endnotes

- i This does not include most chemotherapy and radiotherapy activity procedures.
- ii The SMR (Standardised Mortality Ratio) is the ratio between the observed number of deaths in the Indigenous population and the expected number of deaths that would have occurred if the Indigenous population experienced the same age-specific death rates as the non-Indigenous population.
- iii Identification of Indigenous status in Australia is fragmented and generally of poor quality in health data collection. Of the three collections used to report cervical screening indicators only the mortality database currently collects Indigenous status. Only Qld, WA, SA and the NT are currently considered to have adequate coverage of Indigenous deaths in the registration of deaths and therefore, only mortality data from these jurisdictions are analysed.
- iv Breast cancer incidence is higher generally in high socioeconomic groups, but this may reflect differences in the specific aspects listed.
- v Standardised to the 2001 Australian standard population.
- vi This difference was not significantly significant because of small numbers.
- vii While 11,898 women aged 40 years or over in 2004-2005 were classified as not stating their Indigenous status the true figure is likely to be higher because BreastScreen new South Wales classified these women as non-Indigenous. The comparison of participation rates between Aboriginal and Torres Strait Islander and non-Indigenous women should therefore be treated with caution.
- viii While the identification of Indigenous deaths is incomplete in all state and territory registration systems, Queensland, Western Australia, South Australia and the Northern Territory have been assessed by the ABS and AIHW as having Aboriginal and Torres Strait Islander death registration data considered to be of a publishable standard and therefore data from these jurisdictions only are included in the analysis by Aboriginal and Torres Strait Islander status. These four jurisdictions represent approximately 60% of the Indigenous population in Australia. Data for Indigenous deaths, state and territory and geographic location have been combined for the 5-year period 2002-06 due to the small number of deaths from bowel cancer in each year.