

# **St Helens Water District Cancer Investigation**

## **Summary Report**

### **Prepared for the George River Water Quality Panel**

# Contents

<b>1. Introduction</b>	<b>3</b>
<b>2. Results</b>	<b>4</b>
<b>3. Discussion</b>	<b>18</b>
<b>4. Conclusions</b>	<b>21</b>

# I. Introduction

This report presents the main findings of an analysis of cancer cases in the St Helens drinking water supply area and the Break O'Day municipality using the latest available cancer data from the Tasmanian Cancer Registry, covering the period 1993 to 2007. It has been prepared in response to a request from the *George River Water Quality Panel*.

In February 2010 concerns were raised on *Australian Story* (ABC TV) about toxic substances found in concentrated surface scum and water samples from the George River, which is the source of drinking water treated and supplied to the area of St Helens. Possible health risks from toxins from plantation eucalyptus trees (*E nitens*) were one of the matters raised.

In response to these concerns the Director of Public Health recommended to the Tasmanian Government that an independent panel be appointed to investigate the issues. At the Premier's request, the Chair of the Board of the Environment Protection Authority established the *George River Water Quality Panel* to review and scientifically assess the reported research findings on water quality of the George River.

Historically, similar concerns about health effects in the St Helens community, including cancers in the Break O'Day Local Government Area (LGA), were investigated in 2004 – 2005 in relation to perceived health risks from alleged pesticide contamination of the George River catchment. No significant abnormalities in cancer rates, or indications of a local environmental cause were evident at that time.

This summary provides results of cancer data analysis carried out by the Tasmanian Cancer Registry, and results of more detailed analyses undertaken by the Population Health Epidemiology Unit in the Department of Health & Human Services, Tasmania.

Firstly, cancer rates in the Break O'Day LGA are presented, and then cancer rates and trends are shown for the smaller population in the area serviced by the St Helens reticulated water supply. Data and commentary are also provided on rarer cancer types raised on the *Australian Story* program.

Cancer statistics are not usually reported at a geographic level smaller than the LGA. This is because random variation in incidence rates is common in small populations and trends over time are more difficult to interpret. Observed variations in cancer rates may be due to chance alone, as explained further below. Therefore in interpreting the cancer rates provided in this report, it is important to bear in mind that random year-by-year fluctuations can become especially obvious in small community populations.

Reports on other (non-cancer) aspects of health data are available on the DHHS website at [http://www.dhhs.tas.gov.au/news\\_and\\_media/st\\_helens\\_drinking\\_water\\_quality](http://www.dhhs.tas.gov.au/news_and_media/st_helens_drinking_water_quality), in the section titled "Background Information".

## 2. Results

### 2.1 Break O'Day Local Government Area

The most recent annual report from the Tasmanian Cancer Registry for cancer incidence and mortality (available on the internet at [www.menzies.utas.edu.au/cancer\\_reg.html](http://www.menzies.utas.edu.au/cancer_reg.html) ) presents common cancers by LGA for the years 2002-6 combined (pp. 16-21).

Residents of the Break O'Day LGA had an incidence of individual common cancers, and all cancers combined, that was not significantly different from the Tasmanian population as a whole. For example, for all cancers, males and females combined, 194 cancers were observed and 203.9 were expected, taking into account the population size and age distribution for the LGA.

In addition, a 10 year trend analysis of cancers for Break O'Day was prepared by the Tasmanian Cancer Registry in February 2010. The analysis used age standardised incidence rates (ASRs) and showed no trend or change overall in the incidence of cancers in Break O'Day from 1997 to 2007.

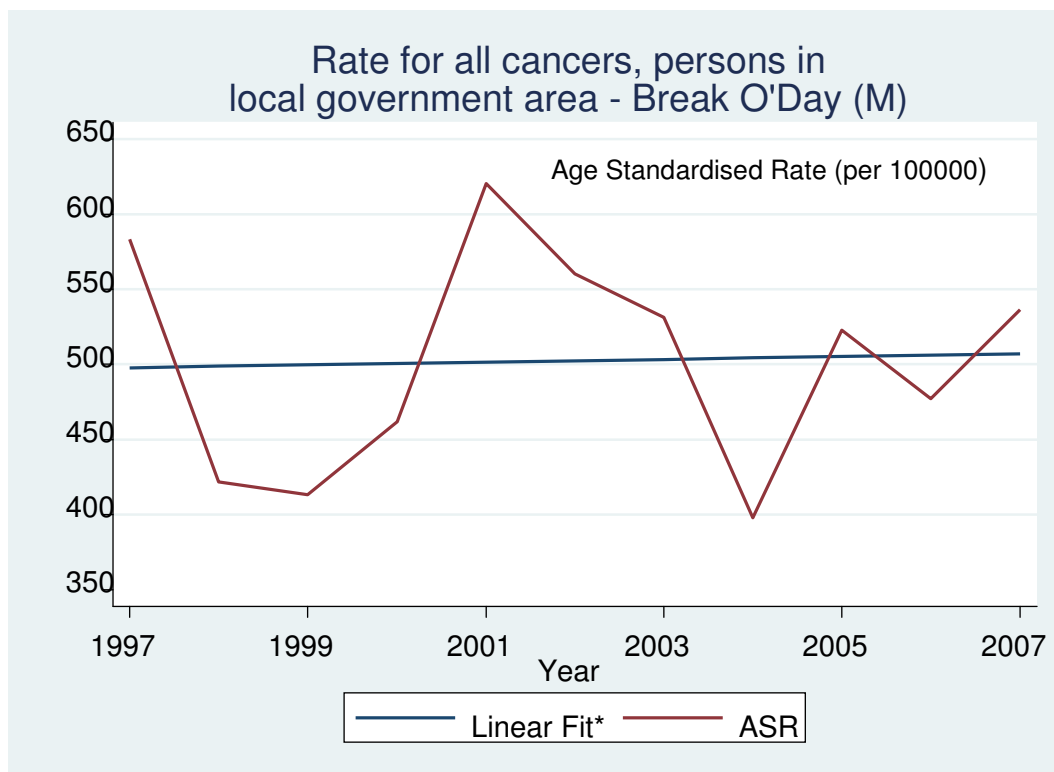
Table 1: Counts and rates for all cancers for persons (males and females combined) living in the Break O'Day Local Government Area.

Year	All Cancer Count	ASR* (per 100 000)
1997	40	583.3
1998	29	421.6
1999	30	413.2
2000	35	461.9
2001	49	620.4
2002	47	560.5
2003	45	531.2
2004	32	398.1
2005	48	523.0
2006	43	477.3
2007	53	536.5

\* Age standardised rate, standardised to the Australian 2001 population, Break O'Day population data sourced from the Australian Bureau of Statistics.

Figure 1 below shows this in graph form. The red line shows ASRs and demonstrates the year-to-year variability that can occur. The blue line represents a line of trend that is generated statistically to show whether there is an overall change in the ASRs over time. The line is almost flat indicating that overall, there has been no significant change in the incidence of cancer in the Break O'Day LGA since 1997.

Figure 1

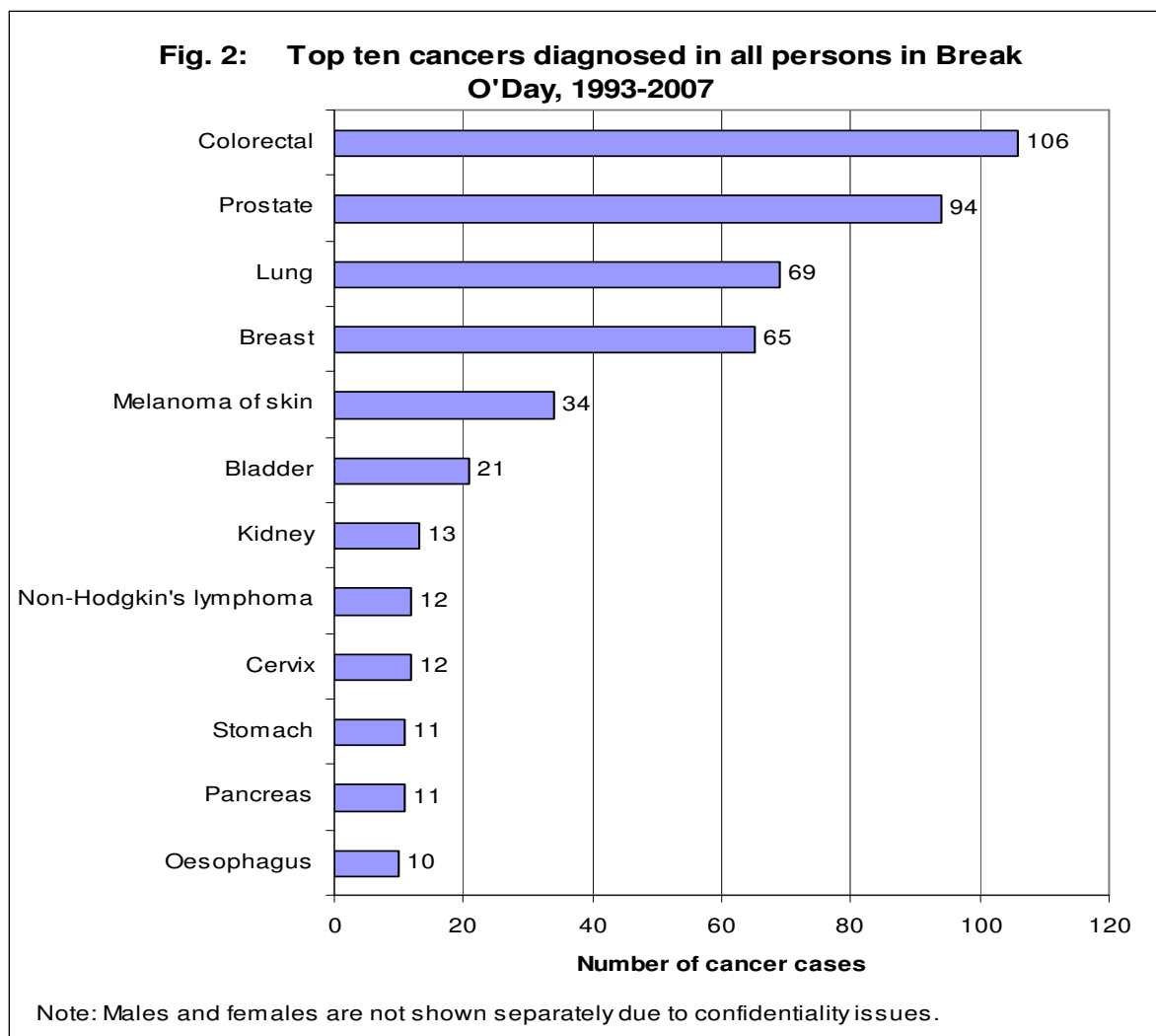


\* No significant trend

More extensive data for the period 1993–2007 were then obtained from the Cancer Registry to undertake more detailed analysis. 1993 was chosen because LGA boundaries were re-defined in 1993, meaning that data from earlier years was not comparable.

The aim of this part of the analysis was to consider whether there was an abnormal pattern, i.e. whether any particular cancer types were occurring at an abnormal rate in the Break O'Day LGA.

Figure 2 below shows the top ten<sup>1</sup> cancer types that have occurred over this time period.



The top five cancer types diagnosed in all persons in Break O'Day during 1993-2007 reflect the same cancer types that predominate in both Tasmania and Australia as a whole (AIHW 2008), but there are differences in the rates of colorectal cancer and melanomas, that are discussed below.

Table 2 below compares the number of cancers that actually occurred in Break O'Day during 1993-2007 with the number of cancer cases that would be *expected* to occur in Break O'Day taking into account the size and age distribution of the Break O'Day population. Generally, the larger the population and the older the population, the more cancer cases could be expected.

<sup>1</sup> Because non-Hodgkin's lymphoma and cervical cancer shared 8<sup>th</sup> place and stomach and pancreatic cancer shared 9<sup>th</sup> place, there are 12 different cancer types shown in this 'top ten' graph

For the Break O’Day LGA, the overall Standard Incidence Ratio (SIR)<sup>2</sup> for all cancer types combined was 96, i.e. slightly **fewer** cancers (591) occurred than expected (around 614) – however this difference was not statistically significant.

**Table 2. Standardised incidence ratio (SIR) for top 10 cancers in Break O’Day, 1993-2007 (males and females combined)**

Rank	Cancer site	Observed cases	Expected cases	SIR	99% CI (Exact Poisson)
1	Colorectal	106	81	131	100.5-167.4
2	Prostate	94	99.8	94	71-122.2
3	Lung	69	58.9	117	84.1-158.7
4	Breast (females)	64	67.5	95	67.1-129.9
5	Melanoma of skin	34	58.5	58	35.6-89
6	Bladder	21	27.5	76	40.2-130.5
7	Kidney	13	13.3	98	41.9-191.6
8	Non-Hodgkin lymphoma	12	20.4	59	24.2-118.4
8	Cervix	12	14.6	82	33.8-164.9
9	Stomach	11	12.4	88	34.8-183.2
9	Pancreas	11	11.7	94	36.9-194.5
10	Oesophagus	10	8.5	118	43.8-252.2
	Other	133	145.1	92	72.5-114.2
	Total	591	614.4	96	86.3-106.9

Grey highlighting indicates a statistically significant difference in the incidence of cancer in the Break O’Day LGA compared to the incidence of cancer for Tasmania as a whole.

The above table shows that amongst the main cancer types diagnosed in Break O’Day, the number of cases of cancer observed in Break O’Day was *mostly* similar to the number that would have been expected to occur, taking into account the size and age distribution of the Break O’Day population. The exceptions were **melanoma** for males and total persons, where there were significantly fewer cases observed than expected, and **colorectal cancer** for all persons, where there were significantly more cases observed than expected.

By ‘significantly more’ cases, what is meant is that a *statistically* meaningful (significant) difference between the observed and expected number of cases was found. Only differences that are *statistically* ‘significant’ are important in health investigations, as it is less likely that these differences happen due to chance alone. Even so, when 95% confidence intervals (CIs)<sup>3</sup> are used to test for statistical significance, it is expected that one out of every twenty communities may randomly show a significant difference from the expected rate. When multiple different cancer types within a small population such as Break O’Day are being compared, it is usual to tighten the statistical test to use 99% CIs to reduce ‘background noise’ from random variation.

Factors influencing colorectal cancer rates are outlined in the following sections of this report.

<sup>2</sup> The term “Standardised Incidence Ratio” (SIR) is used in these tables to describe the ratio of the number of cases that occurred, to the number that would be expected (after adjusting for the age of the population). A SIR of 100 would mean that exactly the same number of cases occurred, as would have been expected. A SIR of 110 would indicate that 10% more cancers occurred than would have been expected.

<sup>3</sup> Confidence intervals (CIs) are statistical statements used to indicate the reliability of an estimate. E.g. a 95% *confidence interval*, means we are 95% certain that the true population mean (average) is covered by the interval.

## 2.2 St Helens Water District

To try and determine whether there was a more localised difference in cancer risk, arising through consumption of water from the St Helens reticulated drinking water supply, first the area of the supply was defined using the Drinking Water Quality Management Plan for the St Helens system, prepared in 2006 as required by new Drinking Water Guidelines issued in 2005 under the *Public Health Act 1997*. This Plan includes a relatively detailed schema of the distribution network. Cancer Registry data (de-identified) were then obtained for this area under the Public Health Act.

The total estimated resident population of the Break O'Day LGA in 2006 was 6,218 whereas for the area serviced by the St Helens drinking water system (the St Helens Water District) the census population in 2006 was 2,645.

Cancer statistics are not usually reported for such small populations, or at a geographic level smaller than the LGA. This is because random variation in incidence rates is common in small populations and trends over time are more difficult to interpret. Observed variations in cancer rates may be due to chance alone, as explained previously. Hence in examining the standardised incidence rate ratios reported below, it is important to also take into account the confidence intervals around each rate ratio estimate.

Because of the small population size and confidentiality issues, only the numbers for the top five cancer types, for males and females combined, are shown.

Table 3 compares the number of cancers that actually occurred in the St Helens Water District during 1993-2007 with the number of cancer cases that would be *expected* to occur in that area taking into account the size and age distribution of the population.

The top five cancers diagnosed in all persons in the St Helens Water District during 1993-2007 were of the same type as for the Break O'Day LGA, and for Tasmania.

Table 3 shows that amongst the top five cancer types diagnosed in the St Helens Water District, the number of cases of cancer observed in was similar to the number that would have been expected to occur, taking into account the size and age distribution of the population. There were no cancer types where the observed number of cases could be considered to be 'significantly' higher or lower than expected.

**Overall during this time period, a total 297 cancer cases occurred in the St Helens Water District compared with an expected 300 cases.**

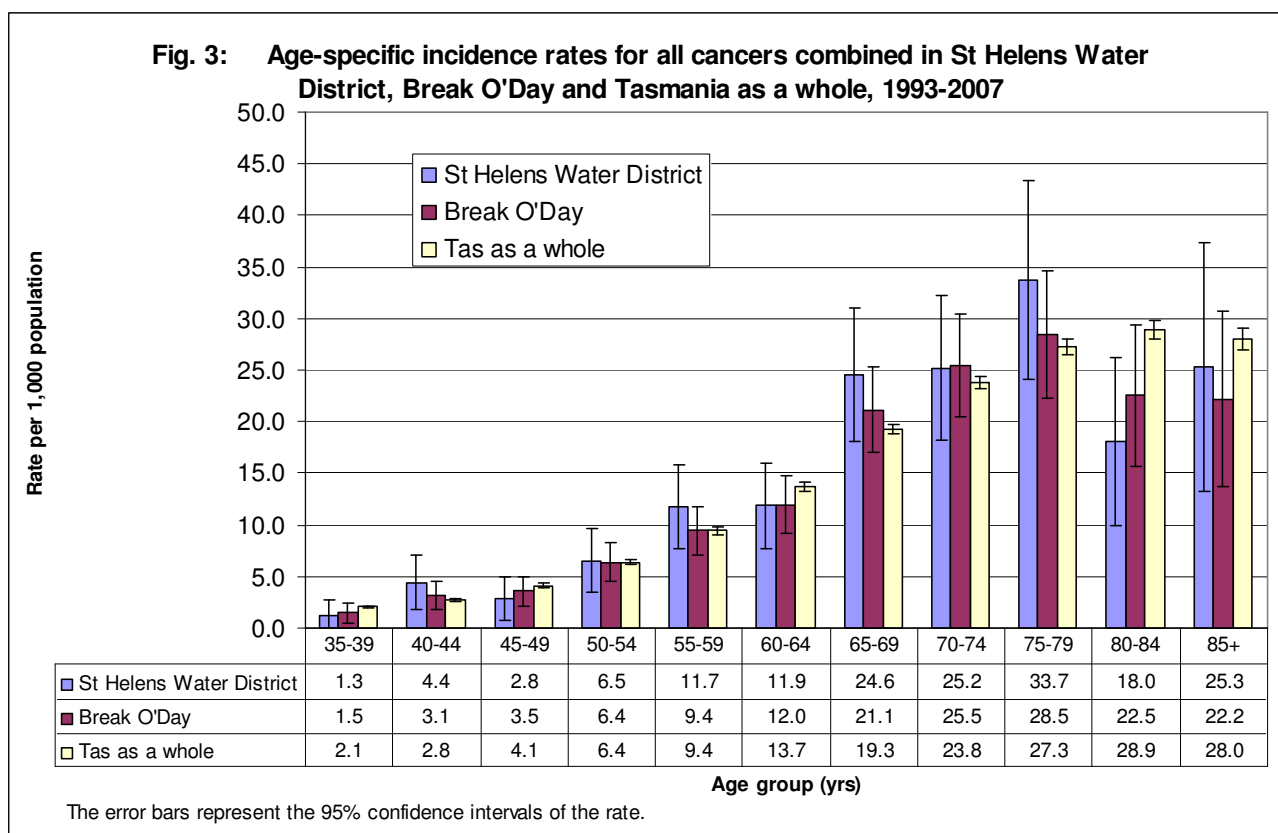
**Table 3. Standardised incidence ratios (SIR) of top five cancers in St Helens Water District 1993-2007 (All persons – males and females combined)**

Rank	Cancer site	Observed cases	Expected cases	SIR	99% CI (Exact Poisson)
1	Colorectal	54	40.2	134	91.8-188.8
2	Prostate	51	48.7	105	70.8-148.8
3	Lung	39	29.5	132	84-197.2
4	Breast (female)	29	31.3	93	54.3-146.7
5	Melanoma of skin	16	27.2	59	27.8-108.2
	All cancers combined	297	300.2	99	84.8-114.7



Further analysis was carried out to see if there was a significant shift in the age pattern of cancers, which may potentially help to give an indication of whether something abnormal is occurring in the area.

Figure 3 below shows the cancer rates<sup>4</sup> over the period 1993-2007 for the St Helens Water District, the Break O'Day LGA and Tasmania as a whole, by age group. While the rates *within* each age group appear to be different for these three geographic areas, only one of these differences is statistically significant. The cancer rate for persons aged 80-84 years in the St Helens Water District was statistically significantly lower than for Tasmanians aged 80-84 years. Once again, the small population size means that it may be misleading to interpret observed variations between age groups, but the overall pattern shown does not suggest anything unusual.



<sup>4</sup> The cancer rate is defined as the number of cases of cancer occurring in the population over a defined period of time as a proportion of the total population, usually expressed as the number of cases per 1,000 population.

## **2.3 Trends in top five cancer types in St Helens Water District and/or the Break O'Day LGA compared with Tasmania and Australia, 1994 – 2005**

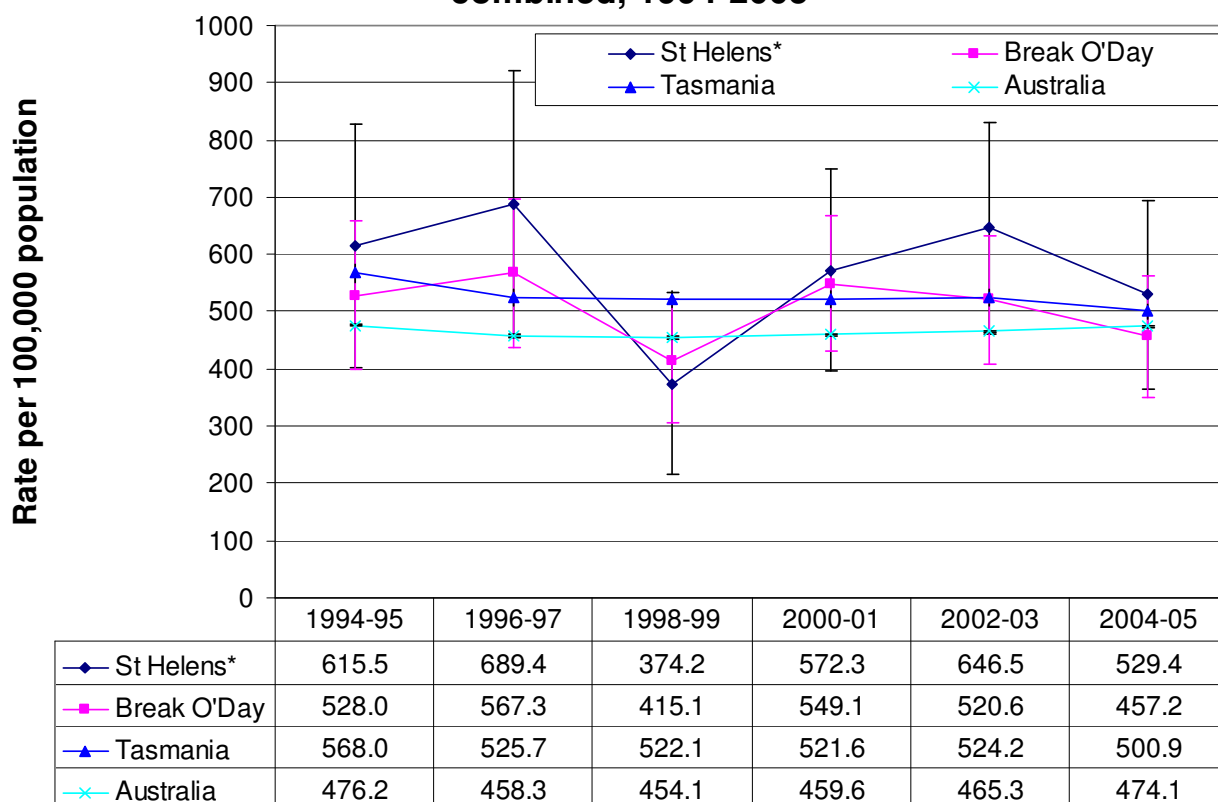
The foregoing analyses **combined cancer** data across the 1993 – 2007 time period in order to gain sufficient numbers for statistical analysis. But this approach may risk failing to detect a recent increase in rates. It is recognised that cancers may have a long 'latency period' between exposure to causal factors and subsequent appearance and medical diagnosis. Therefore cancer incidence data from 1994 to 2005 (the latest available national data by cancer site) have been used to compare trends for the top five cancers by geographical area (St Helens Water District area, Break O'Day LGA, Tasmania and Australia as a whole), to determine whether there has been a recent increasing trend.

Because of the small population size, the cancer rates are presented as 2-year annual averages to reduce statistical variation from fluctuations in numbers from year to year.

For the period 1994-2005, the age-standardised cancer incidence rates for all-causes (cancer sites) combined in the St Helens Water District, the Break O'Day LGA and Tasmania as a whole were all consistently higher than the national rates except in 1998-99. But these differences for the St Helens Water District and the Break O'Day LGA were not statistically significant from either the Tasmanian or the national cancer rates (as the confidence intervals around the rates overlapped in all time periods – see Figure 4).

However, in comparing Tasmania as a whole with Australia, the age-standardised incidence rate for all cancers combined in Tasmania was higher than Australia as a whole in all time periods and these differences were statistically significant at the 5% level. This has been well-recognised previously and relates to a range of factors – in particular, the higher prevalence of lifestyle-related risk factors for cancer (smoking, risky alcohol consumption, physical inactivity, etc) that exists in Tasmania, which in turn are driven primarily by socioeconomic differences.

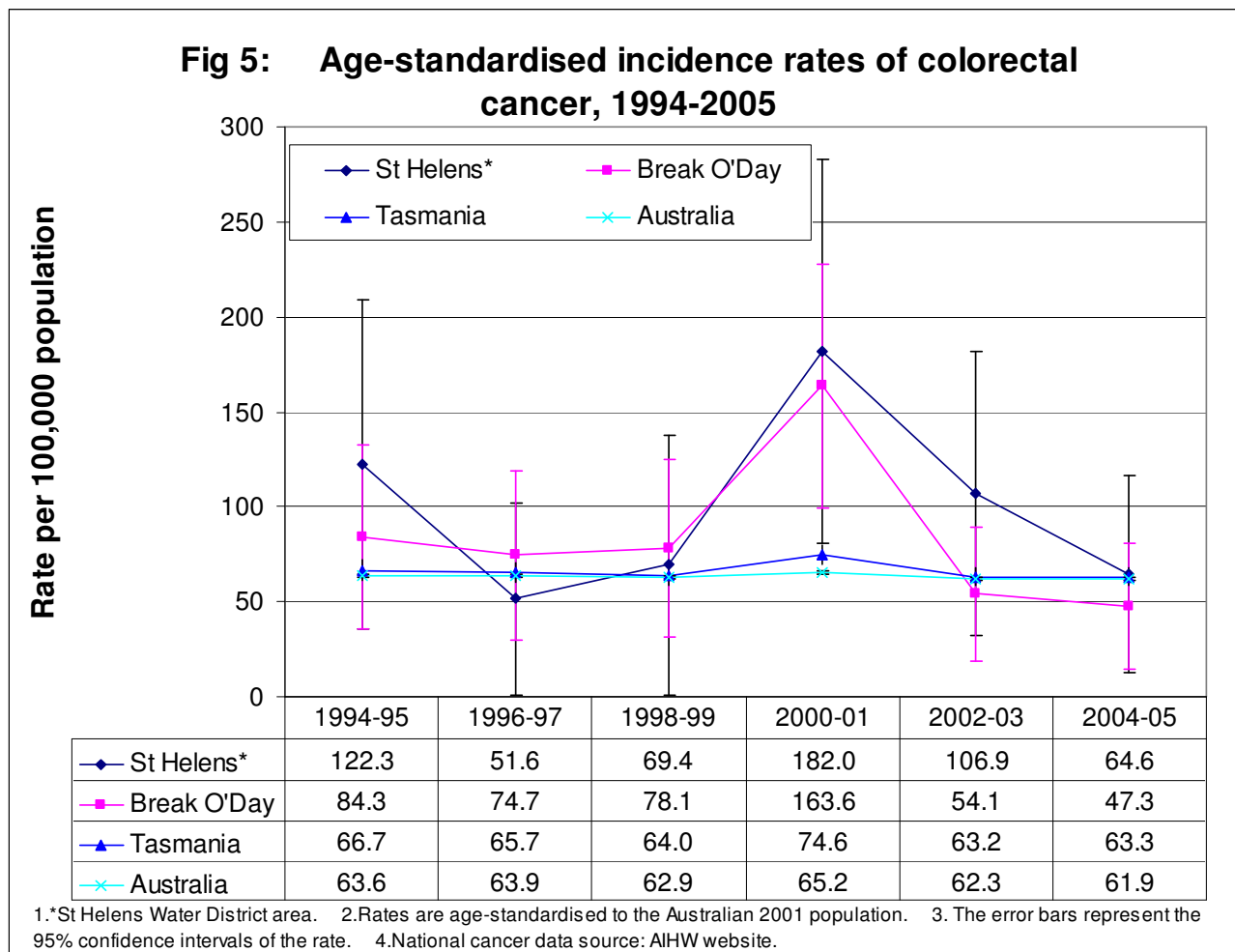
**Fig. 4: Age-standardised incidence rates of all cancers combined, 1994-2005**



1.\*St Helens Water District area. 2. Exclude non-melanocytic skin cancer. 3.Rates are age-standardised to the Australian 2001 population. 4. The error bars represent the 95% confidence intervals of the rate. 5.National cancer data source: AIHW website.

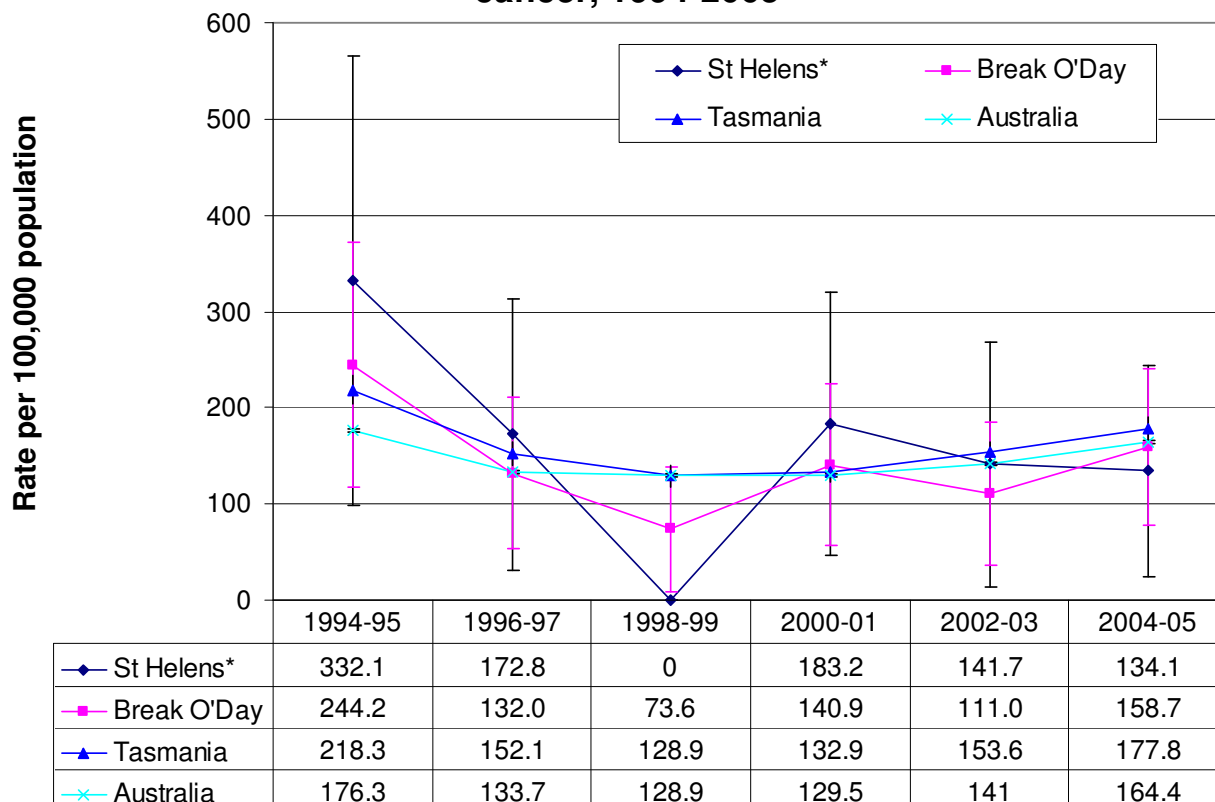
The age-standardised incidence rates of **colorectal cancer** in the St Helens Water District and the Break O'Day LGA fluctuated considerably from years to years, with peak rates occurring in the period 2000-2001 (182.0/100,000 and 163.6/100,000 respectively).

For the St Helens Water District and the Break O'Day LGA, there were statistically significant differences in the incidence rates for colorectal cancer found only for the period 2000-01, but not for all other time periods when compared to the Tasmania and national rates (Figure 5).



The age-standardised incidence rates of **prostate cancer** in the St Helens Water District and the Break O'Day LGA were higher than the rates in Tasmania and Australia as a whole for the periods 1994-95 and 2000-01, however these differences were not statistically significant (Figure 6).

**Fig 6: Age-standardised incidence rates of prostate cancer, 1994-2005**

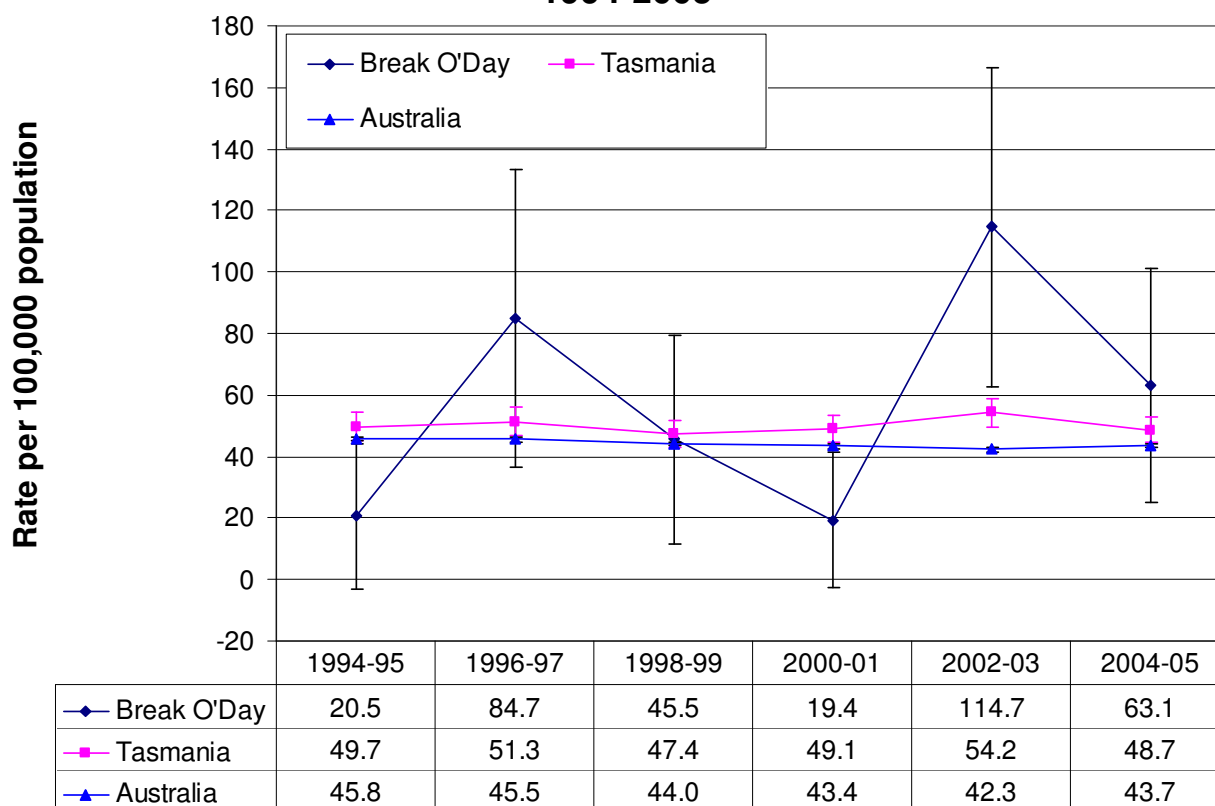


1. \*St Helens Water District area. 2. Rates are age-standardised to the Australian 2001 population. 3. The error bars represent the 95% confidence intervals of the rate. 4. National cancer data source: AIHW website.

Similar trend graphs for the St Helens Water District for other cancer types are not provided because of the small numbers and lack of statistical reliability. Trends for lung cancer, breast cancer and melanoma are compared between the Break O'Day LGA, Tasmania and Australia.

The age-standardised incidence rates of **lung cancer** in the Break O'Day LGA were higher than the rates in Tasmania and Australia as a whole for the periods 1996-97, 2002-03 and 2004-05. However, this was statistically significant only in the years 2002-03 (Figure 7).

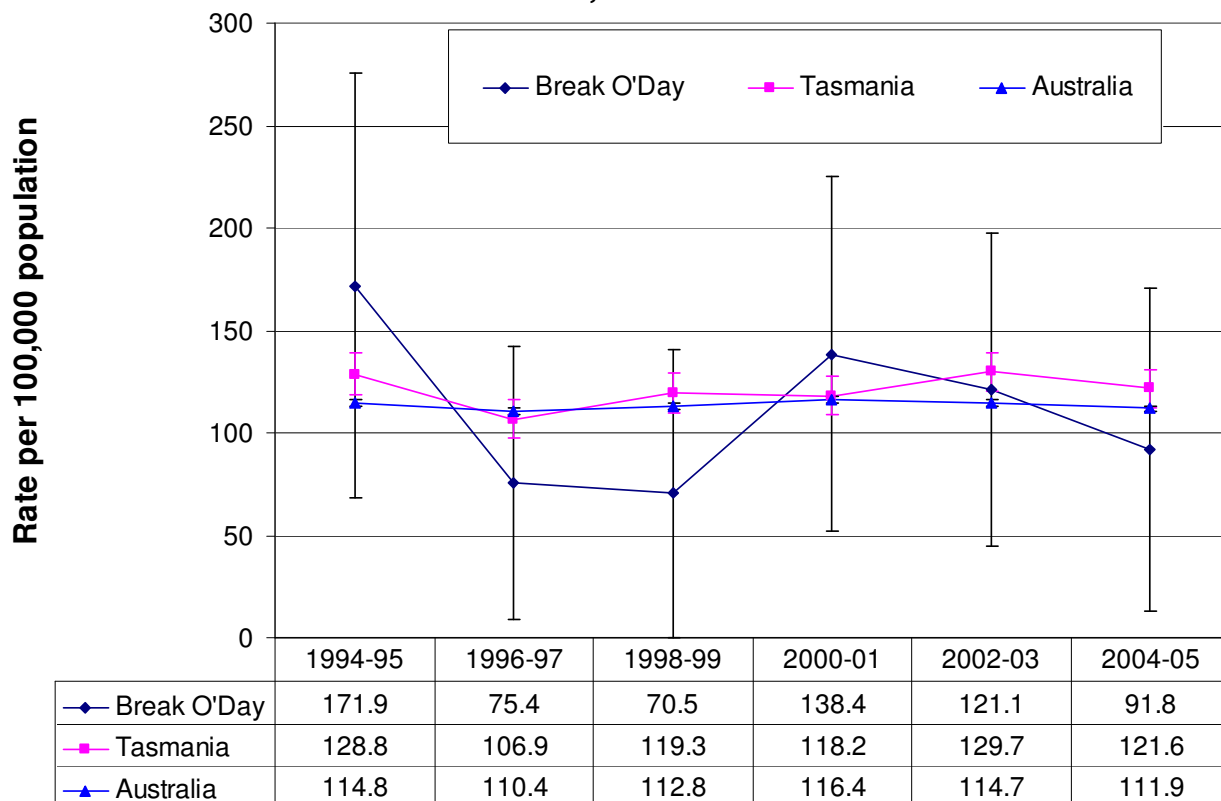
**Fig. 7: Age-standardised incidence rates of lung cancer, 1994-2005**



1. Unable to present trends for St Helens Water District area due to small numbers of cases. 2. Rates are age-standardised to the Australian 2001 population. 3. The error bars represent the 95% confidence intervals of the rate. 4. National cancer data source: AIHW website.

For the period 1994-2005, there were no statistically significant differences in the incidence rates of **breast cancer** found in the Break O'Day LGA, when compared to the Tasmania and national rates (Figure 8).

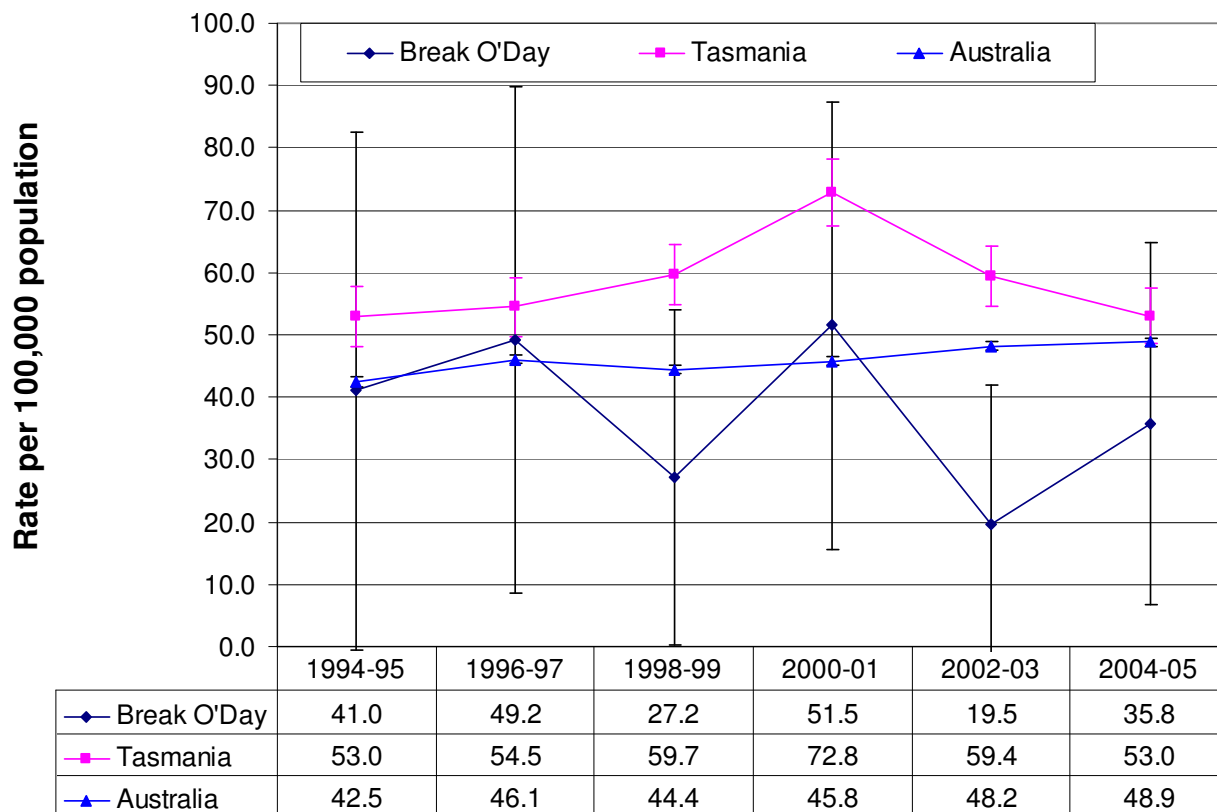
**Fig. 8: Age-standardised incidence rates of female breast cancer, 1994-2005**



1. Unable to present trends for St Helens Water District area due to small numbers of cases. 2. Rates are age-standardised to the Australian 2001 population. 3. The error bars represent the 95% confidence intervals of the rate. 4. National cancer data source: AIHW website.

The age-standardised incidence rates of **melanoma of skin** in the Break O'Day LGA were lower than the rates in Tasmania and Australia as a whole for the periods 1998-99, 2002-03 and 2004-05; however, this was only statistically significant for the years 2002-03 (Figure 9).

**Fig. 9: Age-standardised incidence rates of melanoma of skin, 1994-2005**



1. Unable to present trends for St Helens Water District area due to small numbers of cases. 2. Rates are age-standardised to the Australian 2001 population. 3. The error bars represent the 95% confidence intervals of the rate. 4. National cancer data source: AIHW website.



## 2.4 Other (less common) cancer types

On the ABC's *Australian Story* program it was stated that the local GP from St Helens felt there had been an unusual number of cancers of the gall bladder, head and neck, and cancers of the gut including oesophagus, stomach and colorectal cancers in the area in recent years.

It was considered important to consider such claims because one of the possible indicators or features of an unusual environmental cause of cancers can be a significant increase in a single type of rare cancer (e.g. mesothelioma and asbestos exposure).

Therefore Cancer Registry data were examined to check for the incidence of such cancer types specifically in the St Helens Water District. Actual numbers cannot be reported here for confidentiality reasons, but the Standardised Incidence Ratios (SIR) are provided, along with their confidence intervals (CI) to help place the ratios in perspective.

A very small number of **cancers of the gall bladder** have occurred in the St Helens Water District over the period 1993 – 2007, giving a SIR of 96 (99% CI 4.9 – 443.2) – i.e. **the same number as expected / no significant difference**.

A small number of **head and neck cancers** have occurred in the St Helens Water District over the period 1993 – 2007, resulting in a SIR of 128 (99% CI 44.7 – 285.1) – i.e. **no significant difference from the numbers expected**.

A small number of **oesophageal** and **gastric cancers** have occurred in the St Helens Water District in the period 1993-2007, giving a SIR of 210 (99% CI 73.2-467.6) for oesophageal cancer and a SIR of 80 (99% CI 17.3-227.4) for gastric cancer, i.e. **no statistically significant difference from the numbers expected**.

It was stated on the ABC's *Australian Story* that there were only approximately 18 cases of Waldenstrom's Anaemia (macroglobulinaemia) in Australia at that time, with two cases in the St Helens area. However, Cancer Registry data show that 45 cases have been diagnosed in Tasmania alone over the past 20 years, including two from Break O'Day LGA. The incidence rate for Tasmania in 2002 to 2006 is very similar to mainland Australia, which has recorded over 400 cases during this time period. The case numbers in Break O'Day are too low to reliably report rates but there is no evidence for an unusual cluster of Waldenstrom's Anaemia.

Although not mentioned specifically in the *Australian Story* program, an increased incidence of Gastrointestinal Stromal Tumour (GIST - a relatively uncommon cancer affecting the wall of the intestines), has been raised previously as a concern. A new code for this type of tumour was used from 2003 and therefore in comparing 1993 - 2002 figures to 2003 - 2007 it is difficult to be certain whether the numbers of cases that occurred in the earlier period are directly comparable.

However data from the Tasmanian Cancer Registry for the period 1993 – 2002 shows there were 15 possible GIST cases (11 confirmed, 4 unconfirmed) in the whole of Tasmania - and none of those occurred in the Break O'Day LGA. In the period 2003 - 2007 in Tasmania there were 29 GIST cases, with only one occurring in the Break O'Day area.

Specialist oncology advice<sup>5</sup> indicates that around 2002 a new and more specific type of diagnostic test was introduced, together with a specific (highly successful) treatment for this type of tumour, and this led to an apparent increase in the number of GIST cases diagnosed.

There is no evidence for an increased number of GIST cancers in the Break O'Day LGA, and neither is there evidence for any abnormal trend across Tasmania

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<sup>5</sup> Professor Ray Lowenthal: personal communications 2005 and 2010.

### 3. Discussion

Based on statistical analysis of the cancer incidence data for 1993-2007, there does not appear to be any evidence of a cancer cluster or abnormal trend in cancer incidence in the Break O'Day LGA or the St Helens Water District. The observed pattern of cancers does not meet internationally accepted cancer cluster criteria as described below (PACE International Union, Health & Safety Department 2003):

1. A large number of cases of one type of cancer, rather than several different types
2. A rare type of cancer rather than a common type
3. A number of a certain type of cancer in age groups not usually affected by that cancer.

Differences in age-standardised rates by geographical area are generally explained by variations in underlying cancer risk (socioeconomic factors influencing rates of smoking, risky alcohol consumption, physical inactivity, etc), the availability and utilisation of diagnostic procedures including cancer screening programs, reporting and coding inconsistencies, and normal incidence rate fluctuations.

Age has a very strong association with cancer risk, as demonstrated in Figure 3 (page 7). Figure 10 below shows how the Break O'Day population has a lower proportion of young people and higher proportion of older people compared with Tasmania.

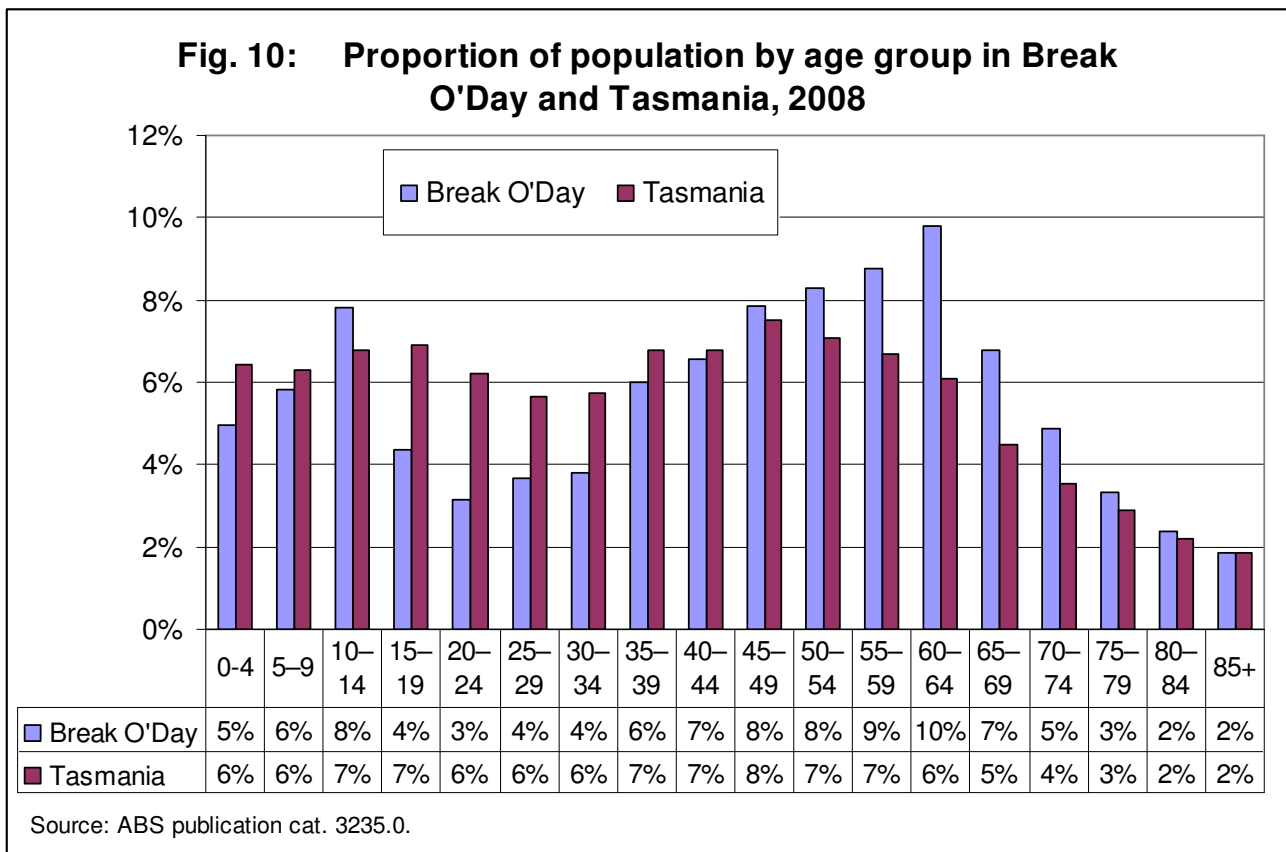
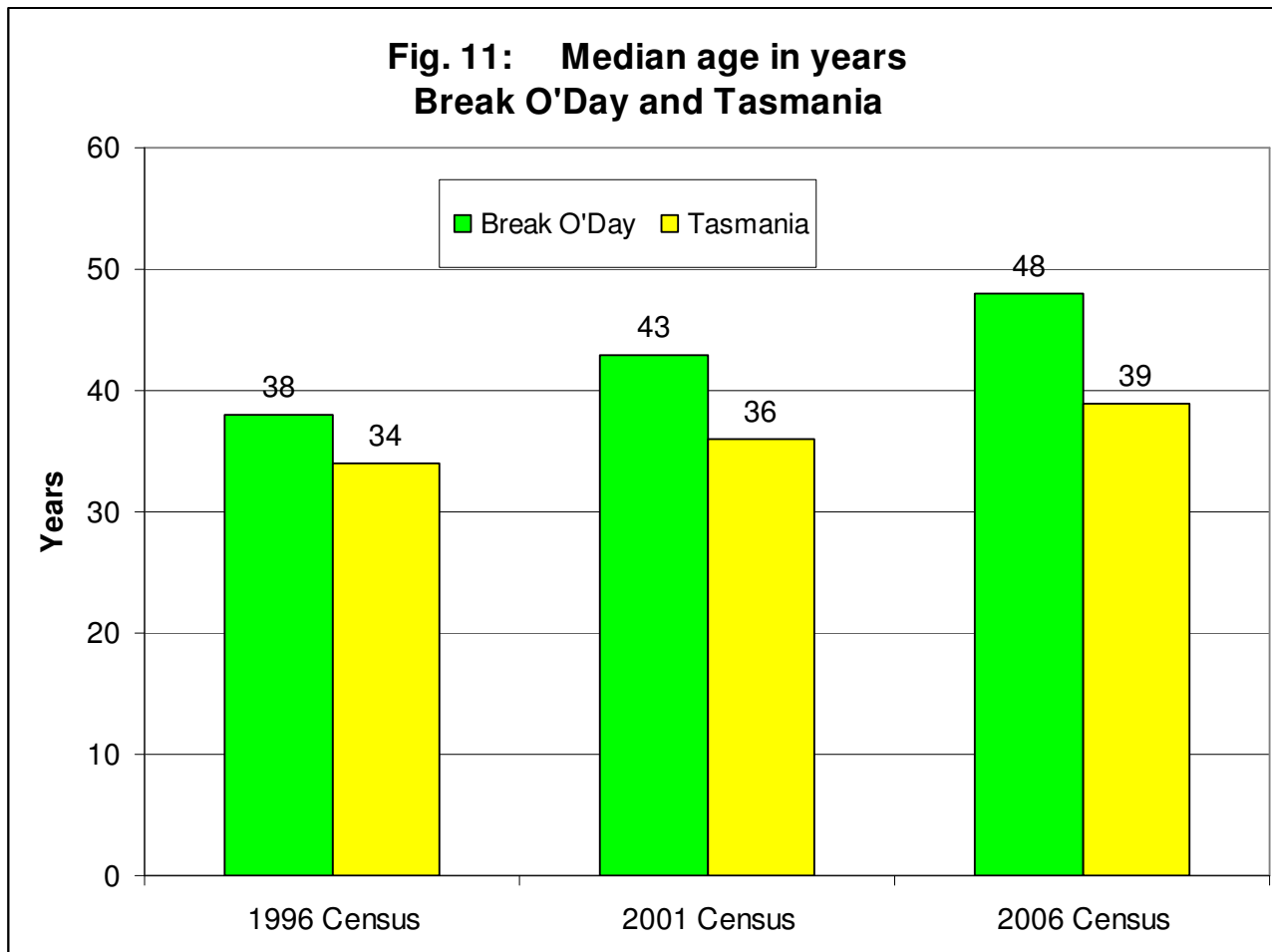


Figure 11 below demonstrates how this average age difference has been steadily increasing, with a much more marked increase in the median age of Break O'Day residents relative to Tasmania (where the average age is also increasing steadily). Over the past 3 census periods commencing 1996, the median age in the Break O'Day LGA has increased by 10 years, from 38 to 48 years, compared to a 5-year increase for Tasmania. In 2006, 50% of the Break O'Day population was aged 48 years or more, versus 39 years for Tasmania overall.



Another powerful association with cancer rates is socioeconomic status, which itself is associated with a range of cancer risk factors.

The Socio-Economic Indexes for Areas (SEIFA)<sup>6</sup> for 2006 show Break O'Day with an index score of 904 (Index of Relative Disadvantage), well below the Northern Region score of 959. Within the Break O'Day area, Stieglitz and St Helens have index scores of 931 and 891 respectively.

The lower socio-economic profile of Break O'Day is also illustrated by a higher dependence on income support payments, partly due to an older age profile. According to 2007 Centrelink data, 40.4% of the total Break O'Day population had either a Health Care Card or a Pensioner's Concession Card, well above the Tasmanian rate of 28.9%.

<sup>6</sup> The SEIFA Index is an index created and used by the Australian Bureau of Statistics to reflect relative disadvantage among populations. The lower an area's index value for the Index of Relative Socio-Economic Disadvantage, the more disadvantaged that area is.

In 1996 the median personal gross weekly income in Break O'Day (\$188) was the lowest of Northern Region LGAs, and also much lower than the Tasmanian average of \$246 per week. Education levels were also described as lower in this LGA.<sup>7</sup>

In 1998 30.8% of adults in the Break O'Day LGA were current smokers, versus 24.7% for Tasmania as a whole. A relatively high proportion of residents in Break O'Day drank alcohol every day, and a relatively high proportion were physically inactive, compared with Tasmania as a whole. These are all risk factors for colorectal cancer. The appearance of colorectal cancer – as with almost all cancers – generally occurs years after cells begin the process of malignant transformation due to various processes of cell damage.

In Australia, one in 12 people will be diagnosed with bowel cancer by the age of 85, and bowel cancer is the second largest cause of cancer deaths. If diagnosed early, 90% of cases can be treated successfully.

Bowel cancer screening has been increasingly promoted in Australia (commencing with Rotary Bowelscan around 20 years ago) and there is now a national program as well as Bowelscan. Local campaigns and initiatives aimed at detecting early pre-cancerous lesions can also lead to short-term increases in actual cancer diagnosis.

While the cancer rates described in this report have been adjusted to take the older age distribution of the area into account, it is likely that there are other cancer risk factor variables (e.g. smoking, alcohol, physical inactivity as described above) that are relevant to a number of cancer outcomes, and the rates cannot be adjusted for these.

The ability to detect possible subtle differences in cancer rates due to potential environmental influences against a background of strong factors such as those described above is likely to be very limited. While the available cancer data do not suggest any such influences are discernable at all, it may be appropriate to continue to monitor cancer rates for the area.

A positive approach for communities with a higher number of recognised cancer risk factors – such as appears to be the case with St Helens – is to enhance efforts to improve lifestyle risk factors, and maintain high levels of participation in cancer screening programs such as mammography, cervical cancer screening, and bowel cancer screening.

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<sup>7</sup> DHHS (2000): Demographic and Health Analysis of the Northern Region. Analysis and Research Series, Number 4. October 2000. ISSN 1442 - 1690

## 4. Conclusions

Based on statistical analysis of the cancer incidence data for 1993 – 2007, as well as trends data for the period 1994-2005, there does not appear to be any evidence of a cancer cluster or abnormal trend in cancer incidence in either the Break O’Day LGA or the St Helens Water District.

Overall during the period 1993 – 2007, a total 297 cancer cases occurred in the St Helens Water District compared with an expected 300 cases given the age distribution of the population.

A short-term increase in colorectal cancer rates occurred in the area in 2000- 2001, but was not sustained and there is no indication of any adverse trend in this cancer type.

The pattern of cancer types does not suggest any unusual environmental cause, nor is there any evidence for an increased number of rare or unusual cancer types.

In keeping with Tasmania as a whole, the residents of St Helens and the Break O’Day municipality face an ongoing challenge from cancer in the future as a result of the ageing of the overall population in that area, and the lifestyle and socioeconomic risk factor profile of the population in the area.

However there is also the prospect that concerted local and statewide action to address cancer-associated risk factors will have the potential to improve health outcomes in the area and increase life expectancy as well as contribute to reduction of other chronic diseases that typically cause premature death, such as heart disease, stroke and other diseases.

The Department of Health and Human Services will continue to monitor cancer incidence rates in the area.