PART 2: GEOGRAPHICAL ANALYSIS

CANCER INCIDENCE BY LOCAL GOVERNMENT AREA (LGA) 1996 - 1999

CANCER INCIDENCE AND MORTALITY BY REMOTENESS 1993 -1999

CANCER INCIDENCE BY SOCIO-ECONOMIC STATUS 1996 –1999

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EXECUTIVE SUMMARY

Introduction

Part 2 of this report describes the distribution of cancer incidence and mortality in Tasmania by geographical area of residence. This report describes:

- Cancer incidence by Local Government Area (LGA) 1996 – 1999,
- Cancer incidence and mortality by remoteness 1993 – 1999,
- Cancer incidence by socio-economic status 1996 – 1999.

The aim of the analyses was to identify whether there were any associations between where people live in Tasmania and trends in cancer incidence and mortality. This analysis can help identify whether people are disadvantaged in terms of access to adequate cancer diagnosis and treatments based on where they live, and may assist with the planning of health services and health promotion campaigns.

Summary of results

Cancer incidence by Local Government Area (LGA) 1996 - 1999

There was little variation in the incidence of cancer across LGAs. The only areas with an incidence of cancer that was statistically significantly different from that in the Tasmanian population as a whole were:

- The Glenorchy LGA, which had a significantly above-average incidence of all cancers in males,
- The West Tamar LGA, which had a significantly below-average incidence of smoking-related cancers in males.

These differences are likely to reflect differences in the distribution of behavioural and environmental risk factors for cancer in these LGAs.

Cancer incidence and mortality by remoteness 1993 - 1999

Patterns of cancer incidence and mortality in populated localities in Tasmania were compared according to their remoteness, as defined by the Accessibility/Remoteness Index for Areas + classification. The incidence of all cancers combined, prostate cancer in males and breast cancer in females was found to be significantly higher in persons living in inner regional parts of Tasmania than in those living in more remote areas. Cancer mortality in remote and very remote areas was not statistically significantly different to cancer mortality in more accessible areas for either males or females.

Cancer incidence by socio-economic status 1996 - 1999

The major finding was that Tasmanians living in localities of relatively low socio-economic status had significantly higher incidence rates of lung cancer and all smoking-related cancers combined. Males living in localities of relatively high socio-economic status had significantly higher incidence of melanoma.

Conclusions

Few differences in cancer incidence and mortality rates were detected in Tasmania by local government area or remoteness. The observed socio-economic differentials in cancer incidence are likely to reflect differences in lifestyle, behavioural and environmental risk factors across socio-economic groups.

CANCER INCIDENCE BY LOCAL GOVERNMENT AREA (LGA) 1996 - 1999

Introduction

This section of the report describes the geographic distribution of cancer incidence in Tasmania by Local Government Areas (LGAs) for the period 1996 to 1999. The availability of cancer incidence data by LGA can assist in the planning of health services and health promotion campaigns. Observed differences in cancer incidence by geographic area may suggest differences in the distribution of risk factors for cancer.

Methods

Persons diagnosed with cancer notified to the Tasmanian Cancer Registry between the years 1996 and 1999 were assigned to one of twenty-nine Local Government areas[30] based on the locality where the person was living at the time they were first registered for any cancer since the Registry began in 1978. The Estimated Resident Population (ERP) for each LGA by sex and five-year age groups was obtained from the Australian Bureau of Statistics for the years 1996, 1997, 1998 and 1999 to calculate incidence rates. The time period from 1996 to 1999 was chosen for this analysis because mid-way between the 1991 and 1996 Censuses in 1993 there was a dramatic change made to Local Government Area boundaries with the number of LGAs reduced from forty-seven to twenty-nine. Only at the time of the 1996 Census were collection district boundaries revised in line with the changes made to LGA boundaries. The analysis for remoteness and socio-economic status is based on 1996 Census collection district data, hence we choose the time period of 1996 to 1999 for cancer incidence by LGA analysis.

Standardised Incidence Ratios (SIRS) were calculated to compare the observed and expected number of cancer cases for each LGA in Tasmania. The number of cases expected in each LGA was estimated by applying the age specific incidence rates for Tasmania as a whole to the population for each LGA. The SIRs were then calculated as the number of observed cases in each LGA divided by the expected number of cases for that LGA multiplied by 100[31]. These SIRs were then smoothed or 'shrunk' using the Empirical Bayes method to obtain smoothed SIRs (page x in the Methods section describes this method). Smoothing is an established technique used to reduce the effect of chance fluctuations caused by differences in LGA size. If the resulting SIR was above 100 for a particular LGA the cancer incidence rate in that LGA is greater than that in Tasmania on the whole and if the ratio was below 100 the incidence was lower in that LGA compared to Tasmania as a whole[32].

The smoothed SIRs for each LGA were categorised into five groups: <85.0 low, 85.0 to 94.9 below average, 95.0 to 104.9 average, 105.0 to 116.9 above average, and = 117 high. An SIR for an LGA was considered to be statistically significant, or different from the Tasmanian population if the 99% confidence intervals did not overlap that of the SIR for Tasmania as a whole, that is if the 99% CI did not include 100. An alpha level of 0.01 was chosen because of the large number of comparisons being made between LGAs. The analytical methods used are explained in detail in the methods section of this report.

Variation in the incidence of cancers across LGAs was examined for all cancer types, but is presented here for the cancer types most frequently diagnosed in Tasmanians – all cancers combined (excluding NMSC), smoking-related cancers, and single cancer sites – breast (female), colorectal, lung, melanoma, and prostate cancer.

Cancer incidence by Local Government Area

While there was some variation in incidence for many cancers across LGAs in Tasmania, the differences were only statistically significant for two comparisons:

i) The incidence of all cancers for males living in Glenorchy was statistically significantly higher than the average (smoothed SIR: 111, 99% CI 101-121, p<0.01) for Tasmania as a whole,

ii) The incidence of smoking-related cancers for males living in the West Tamar LGA was statistically significantly lower (smoothed SIR: 67, 99% CI 39-95, p<0.01) than for Tasmania as a whole.

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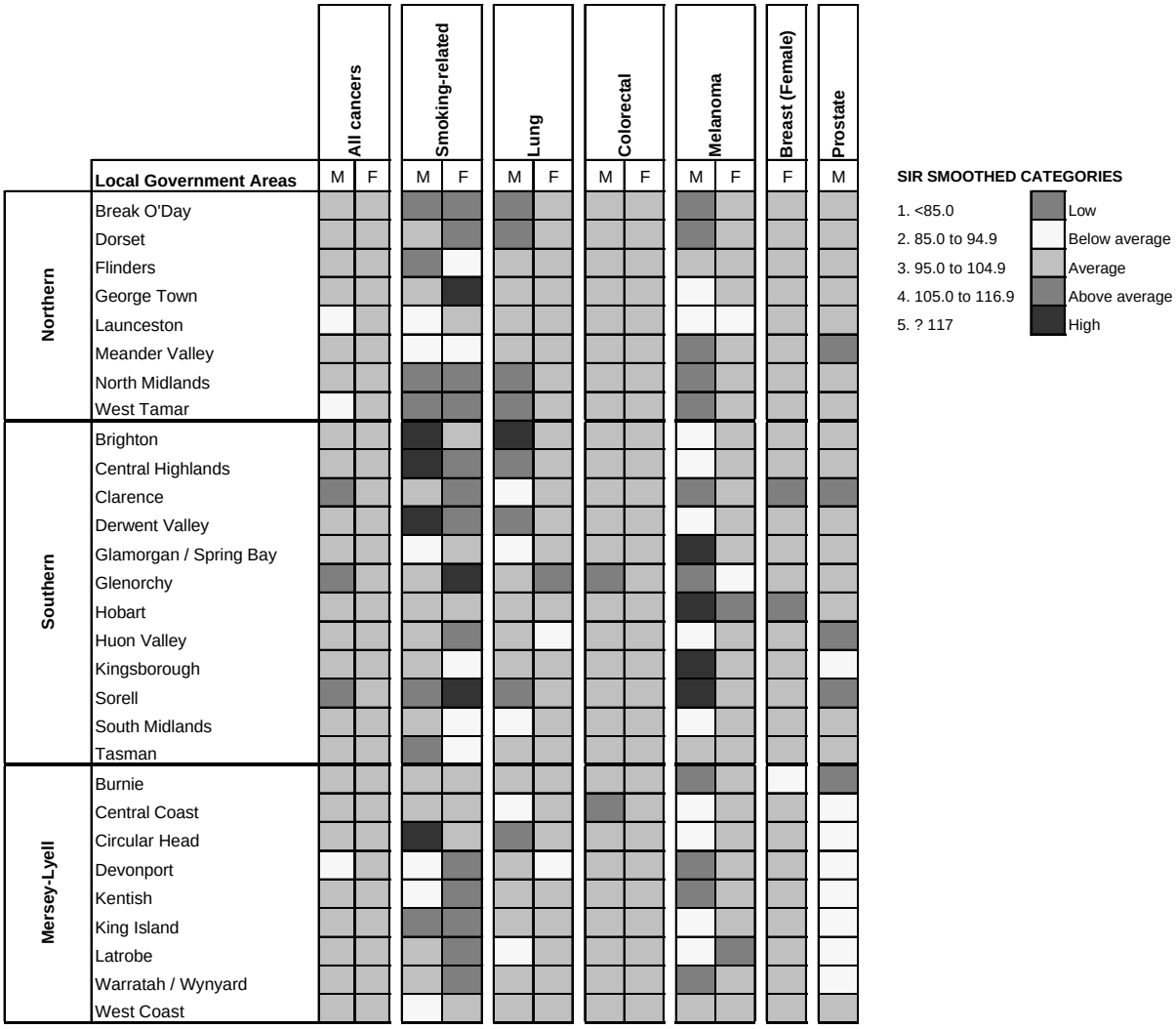
[30] National Localities Index, Australian Bureau of Statistics, Cat. No. 1252.0, Commonwealth of Australia, 2001.
[31] Lewis NM, Nguyen H, Smith DP, Coates MS, Armstrong BK. Geographic distribution of cancer in New South Wales in 1991 to 1995 by Local Government Area. Sydney, NSW Cancer Council, 1999.
[32] Lewis NM, Nguyen H, Smith DP, Coates MS, Armstrong BK. Geographic distribution of cancer in New South Wales in 1991 to 1995 by Local Government Area. Sydney, NSW Cancer Council, 1999.

The variability in the incidence of cancers across LGAs can be seen in **Table 35** where smoothed SIRs are reported.

Variations in the observed number of cancers in an LGA can be caused by chance fluctuations. The smoothing of SIRs reduces chance fluctuations by 'shrinking' the SIR estimates in areas with small populations towards the SIR for the State as a whole. The SIRs for areas with large populations remain much the same after smoothing[33].

Figure 77 shows smoothed standardised incidence ratios (SIRs) for males and females on a scale of 5 categories (low to high) for Local Government Areas in Tasmania. A smoothed SIR in the range of 95.0 to 104.9 (category 3) indicates that the incidence of cancer for that LGA is no different to that for Tasmania as a whole. While there was some variation in SIRs for some cancers across LGAs, the differences were only statistically significant for two comparisons: 1) The incidence of all cancers for males living in Glenorchy was statistically significantly above average (smoothed SIR: 111, 99% CI 101-121, P<0.01) and, 2) the incidence of smoking-related cancers for males living in the West Tamar was statistically significantly lower (smoothed SIR: 67, 99% CI 39-95, p<0.01), than the average for Tasmania. These differences are likely to reflect differences in the distribution of behavioural and environmental risk factors for cancer in these LGAs.

Figure 77: Cancer incidence by Local Government Area (LGA) 1996-1999



[33] Lewis NM, Nguyen H, Smith DP, Coates MS, Armstrong BK. Geographic distribution of cancer in New South Wales in 1991 to 1995 by Local Government Area. Sydney, NSW Cancer Council, 1999.

Summary

Overall, there was little variation in incidence for cancers across Tasmania by LGAs between 1996 and 1999, except for the statistically significantly above average incidence of all cancers found for males living in Glenorchy, and for the statistically significantly low incidence of smoking-related cancers found for males living in the West Tamar, compared to Tasmania's population as a whole. These differences are likely to reflect differences in the distribution of behavioural risk factors for cancer in these LGAs.

Table 35: Cancer incidence by local government area (LGA) 1996-1999.

Refer to Figure 77 on page 104 for an explanation of the contents of this table. This table also shows 99% confidence intervals for selected cancers.

		All cancers						Smoking-related[1]					
		Males			Females			Males			Females		
	Local Gov't Areas	N.[#]	SIR*	99% CI	N.[#]	SIR*	99% CI	N.[#]	SIR*	99% CI	N.[#]	SIR*	99% CI
Northern	Break O'Day	78	100	86 - 114	42	99	90 - 107	18.69	111	61 - 160	5.41	112	21 - 202
	Dorset	77	98	84 - 112	62	100	91 - 108	18.12	105	58 - 152	3.21	80	7 - 153
	Flinders	12	100	84 - 116	7	100	91 - 109	4.37	112	46 - 179	0.27	93	-15 - 201
	George Town	60	99	85 - 114	42	99	91 - 108	11.53	97	48 - 146	5.45	119	23 - 216
	Launceston	583	94	85 - 102	557	98	91 - 105	113.54	92	71 - 113	45.91	101	64 - 138
	Meander Valley	151	98	86 - 111	139	101	92 - 109	24.73	86	51 - 121	9.24	93	29 - 157
	North Midlands	111	98	84 - 111	97	100	92 - 109	28.23	113	68 - 157	8.89	112	33 - 190
	West Tamar	181	93	82 - 105	142	98	90 - 106	22.79	**67**	39 - 95	14.06	105	43 - 168
Southern	Brighton	71	102	87 - 116	67	100	92 - 109	20.03	127	71 - 182	4.73	103	16 - 190
	Central Highlands	29	100	84 - 116	16	100	91 - 108	9.71	120	57 - 182	1.80	107	-1 - 214
	Clarence	550	105	96 - 115	469	103	95 - 110	96.95	97	73 - 121	37.69	108	65 - 150
	Derwent Valley	108	104	90 - 119	58	98	90 - 107	29.43	133	81 - 185	7.27	115	29 - 200
	Glamorgan / Spring Bay	50	97	82 - 112	37	100	91 - 108	9.02	90	42 - 137	2.92	97	6 - 187
	Glenorchy	555	**111**	101 - 121	428	101	93 - 108	92.51	100	75 - 124	40.83	118	73 - 163
	Hobart	489	104	94 - 114	460	103	96 - 110	90.50	102	76 - 127	32.46	100	58 - 143
	Huon Valley	136	102	89 - 116	98	100	91 - 108	26.00	102	61 - 143	5.70	82	16 - 148
	Kingsborough	254	101	89 - 113	213	99	91 - 107	49.43	101	68 - 133	15.83	94	41 - 148
	Sorell	114	105	91 - 119	87	101	93 - 110	23.40	113	66 - 160	9.50	135	43 - 228
	South Midlands	55	99	84 - 114	37	100	91 - 108	11.36	100	50 - 150	2.36	90	3 - 177
	Tasman	30	101	85 - 116	12	99	90 - 108	8.26	113	52 - 174	0.80	89	-9 - 187
Mersey-Lyell	Burnie	185	100	88 - 113	171	101	93 - 109	33.76	95	60 - 130	12.40	97	37 - 158
	Central Coast	213	98	86 - 109	202	101	93 - 110	44.46	101	67 - 135	15.01	101	42 - 160
	Circular Head	72	99	85 - 114	66	101	92 - 110	20.60	121	68 - 173	4.63	102	16 - 189
	Devonport	229	95	83 - 106	207	98	90 - 106	46.11	94	63 - 125	11.24	69	24 - 113
	Kentish	43	97	82 - 112	32	99	91 - 108	7.27	88	40 - 136	4.14	115	15 - 214
	King Island	14	98	82 - 114	8	99	91 - 108	5.30	107	46 - 169	0.00	81	-16 - 178
	Latrobe	74	96	82 - 110	64	100	91 - 108	17.37	100	55 - 145	2.49	71	3 - 139
	Warratah / Wynyard	138	100	87 - 113	124	101	93 - 109	29.19	104	64 - 145	6.65	83	19 - 147
	West Coast	38	98	83 - 113	38	101	92 - 109	7.32	94	42 - 145	2.33	98	3 - 194

Smoothed SIRs highlighted in grey indicate that the incidence for cancer in the LGA is statistically significantly different than the incidence for cancer for Tasmania as a whole.

*: refers to smoothed SIRs

[#] : Number of observed cases of cancer diagnosed in Tasmania between 1996 and 1999.

[1] : Number of cases of smoking-related cancers were calculated by applying age- and sex-specific aetiological fractions to cancers in Tasmania between 1996 and 1999, that were identified as attributing to cancer morbidity and mortality (Ridolfo and Stevenson, 2001).

Table 35(cont): Cancer incidence by local government area (LGA) 1996-1999.

		Lung						Colorectal					
		Males			Females			Males			Females		
	Local Gov't Areas	N.#	SIR*	99% CI	N.#	SIR*	99% CI	N.#	SIR*	99% CI	N.#	SIR*	99% CI
Northern	Break O'Day	15	108	71 - 145	4	100	71 - 128	13	102	77 - 127	11	100	96 - 105
	Dorset	16	108	72 - 145	1	95	68 - 123	12	100	76 - 125	11	100	96 - 105
	Flinders	2	101	62 - 140	0	99	70 - 128	0	99	73 - 124	1	100	95 - 105
	George Town	9	101	65 - 138	6	103	74 - 132	4	96	72 - 120	3	100	95 - 104
	Launceston	82	96	74 - 119	46	102	79 - 126	80	97	78 - 115	82	100	95 - 104
	Meander Valley	19	96	65 - 128	7	97	70 - 124	17	97	73 - 120	21	100	96 - 105
	North Midlands	21	108	73 - 143	9	103	74 - 131	13	97	74 - 121	19	100	96 - 105
	West Tamar	12	76	50 - 103	14	102	75 - 130	23	96	73 - 118	18	100	95 - 104
Southern	Brighton	17	117	78 - 157	4	100	72 - 129	9	100	76 - 125	8	100	95 - 105
	Central Highlands	8	109	69 - 148	2	101	72 - 130	1	97	72 - 122	4	100	96 - 105
	Clarence	61	92	69 - 116	37	104	79 - 129	67	99	79 - 118	62	100	95 - 104
	Derwent Valley	21	115	78 - 153	8	103	75 - 132	15	102	77 - 127	6	100	95 - 104
	Glamorgan / Spring Bay	5	94	59 - 129	2	99	70 - 127	8	100	75 - 125	6	100	95 - 105
	Glenorchy	68	103	77 - 128	42	109	83 - 135	88	114	93 - 136	67	100	96 - 104
	Hobart	59	97	72 - 122	34	103	78 - 128	62	100	80 - 120	65	100	95 - 104
	Huon Valley	15	96	63 - 129	3	95	68 - 122	12	95	72 - 119	14	100	95 - 104
	Kingsborough	36	103	73 - 133	12	96	70 - 122	36	102	79 - 125	26	100	95 - 104
	Sorell	16	106	70 - 141	9	105	76 - 133	10	97	73 - 121	12	100	96 - 105
	South Midlands	5	94	59 - 130	2	99	70 - 127	7	99	74 - 124	5	100	95 - 104
	Tasman	5	102	64 - 141	0	98	69 - 127	2	98	73 - 123	0	100	95 - 104
Mersey-Lyell	Burnie	26	101	70 - 133	9	97	70 - 123	20	96	73 - 119	40	101	96 - 105
	Central Coast	24	91	62 - 120	15	101	74 - 128	41	108	85 - 132	34	100	96 - 105
	Circular Head	18	115	77 - 154	5	101	72 - 130	15	105	79 - 130	11	100	96 - 105
	Devonport	34	99	70 - 128	9	91	66 - 116	38	103	80 - 125	40	100	96 - 105
	Kentish	8	102	65 - 139	4	102	73 - 131	10	103	77 - 128	3	100	95 - 104
	King Island	3	101	62 - 139	0	99	70 - 128	1	98	73 - 124	1	100	95 - 104
	Latrobe	9	95	61 - 128	2	96	68 - 124	9	97	73 - 121	9	100	95 - 104
	Warratah / Wynyard	18	99	66 - 131	5	96	69 - 123	20	101	77 - 125	20	100	96 - 105
	West Coast	5	99	62 - 135	1	99	70 - 127	2	96	72 - 121	8	100	96 - 105

		Melanoma						Breast (Female)			Prostate		
		Males			Females			Females			Males		
	Local Gov't Areas	N.#	SIR*	99% CI	N.#	SIR*	99% CI	N.#	SIR*	99% CI	N.#	SIR*	99% CI
Northern	Break O'Day	1	81	32 - 129	4	99	74 - 124	9	98	80 - 116	16	97	71 - 122
	Dorset	8	108	53 - 164	9	103	78 - 128	17	101	83 - 119	19	98	73 - 123
	Flinders	0	95	36 - 155	0	99	74 - 125	2	100	81 - 119	3	100	72 - 128
	George Town	3	91	39 - 143	7	102	77 - 127	7	97	80 - 115	10	95	70 - 121
	Launceston	43	93	62 - 124	40	91	72 - 111	135	100	85 - 114	157	100	83 - 116
	Meander Valley	5	75	34 - 116	16	102	78 - 127	39	103	85 - 120	47	108	83 - 133
	North Midlands	3	77	33 - 121	9	100	75 - 124	22	99	82 - 117	29	101	76 - 125
	West Tamar	18	107	60 - 153	13	98	74 - 121	45	102	84 - 119	53	101	79 - 124
Southern	Brighton	4	90	39 - 140	11	103	78 - 128	15	99	81 - 117	18	105	78 - 132
	Central Highlands	1	94	37 - 150	2	100	75 - 125	1	98	80 - 116	6	99	72 - 126
	Clarence	44	111	74 - 148	48	105	83 - 127	130	107	92 - 123	147	111	92 - 130
	Derwent Valley	5	90	41 - 140	6	99	74 - 123	10	96	78 - 113	21	99	74 - 124
	Glamorgan / Spring Bay	9	123	61 - 185	2	99	74 - 123	7	99	81 - 117	14	99	73 - 125
	Glenorchy	39	109	72 - 147	30	94	73 - 115	100	100	85 - 115	128	104	86 - 123
	Hobart	45	119	80 - 158	49	107	84 - 129	115	106	90 - 121	114	101	82 - 119
	Huon Valley	8	93	45 - 140	10	100	76 - 124	21	98	80 - 115	40	109	83 - 134
	Kingsborough	30	128	80 - 176	26	103	80 - 127	61	102	85 - 119	50	94	73 - 115
	Sorell	13	121	64 - 178	7	99	75 - 124	18	100	82 - 117	30	107	81 - 133
	South Midlands	3	94	40 - 147	0	96	72 - 121	12	101	83 - 119	11	97	71 - 123
	Tasman	2	100	41 - 159	1	99	74 - 124	3	99	81 - 117	7	100	73 - 128
Mersey-Lyell	Burnie	17	109	61 - 157	16	100	77 - 124	26	94	77 - 110	55	109	85 - 133
	Central Coast	13	90	48 - 132	13	96	73 - 119	49	102	85 - 118	41	90	69 - 111
	Circular Head	3	87	37 - 138	6	100	75 - 125	19	102	84 - 120	8	91	66 - 115
	Devonport	13	84	45 - 124	23	102	78 - 125	50	98	82 - 114	54	94	73 - 115
	Kentish	6	109	50 - 167	2	98	73 - 123	11	101	82 - 119	9	97	71 - 123
	King Island	0	92	35 - 149	0	99	74 - 124	3	100	81 - 118	4	99	72 - 127
	Latrobe	4	89	39 - 139	12	105	80 - 131	17	100	82 - 118	16	95	70 - 119
	Warratah / Wynyard	12	105	55 - 156	14	103	78 - 127	23	98	81 - 115	20	88	66 - 111
	West Coast	3	95	41 - 150	4	100	75 - 125	6	99	81 - 117	11	102	75 - 129

Smoothed SIRs highlighted in grey indicate that the incidence for cancer in the LGA is statistically significantly different than the incidence for cancer for Tasmania as a whole.

*: refers to smoothed SIRs

#: Number of observed cases of cancer diagnosed in Tasmania between 1996 and 1999.

1: Number of cases of smoking-related cancers were calculated by applying age- and sex-specific aetiological fractions to cancers in Tasmania between 1996 and 1999, that were identified as attributing to cancer morbidity and mortality (Ridolfo and Stevenson, 2001).

CANCER INCIDENCE AND MORTALITY BY REMOTENESS 1993 - 1999

Introduction

This section of the report describes the distribution of cancer incidence and mortality in Tasmania from 1993 to 1999 by accessibility of the population to health services. A national report by the Australian Institute of Health and Welfare[34] in 1998 has shown that health tends to be poorer in people living in remote areas compared to those living in metropolitan areas. Factors that may explain this difference include geographic isolation, quality of transport networks, and lack of access to health care practitioners and health care services.

Australian Standard Geographical Classification (ASGC) Remote Areas (ARIA + index)

Until recently the Rural, Remote and Metropolitan Areas (RRMA) index was commonly used to compare the health of Australians living in remote areas with those living in metropolitan areas. RRMA classifications were limited in that the smallest defined geographic areas were Statistical Local Areas (SLAs) which are similar to Local Government Areas (LGAs), and the classification was based on straight-line distances to service centres.

The Accessibility/Remoteness Index of Areas+ (ARIA+)[35] tool has since become the standard measure of remoteness. ARIA+ index is based on 1996 Census data and measures remoteness using ARIA+ index values (between 0 to 15) in terms of access along road networks from a populated locality in Australia to the closest of five service centres that are classified by population size. The ARIA+ index classifies people into Australian Standard Geographical Classification (ASGC) Remote Areas. There are six ASGC Remote Area categories– major cities, inner regional areas, outer regional areas, remote areas, very remote areas and migratory[36]. In allocating an ASGC Remoteness Area category to an area of land, only the first five categories are applicable.

None of the localities in Tasmania were classified as major cities as none of Tasmania's centres have a population greater than 250,000, which is a requirement for a centre to be classified as a major city. In addition, the ARIA+ index weights islands as more remote than mainland Australia.

Methods

Persons with cancer in Tasmania were assigned to ASGC Remote Area categories based on the locality[37] in which they were living at the time they were first registered with a diagnosis of cancer. The Estimated Resident Population (ERP), by five-year age groups and sex for each collection district in Tasmania in 1996 was applied across 7 years, on the assumption that the population was mostly stable over the period from 1993 to 1999. The time period from 1993 to 1999 was chosen for this analysis in order to obtain sufficient numbers of cases in the remote and very remote area categories, and population denominators for each of the localities in Tasmania were only available for the 1996 Census year and this was the mid-point between 1993 and 1999. Due to the small numbers of cancer cases living in remote and very remote areas in Tasmania these two categories were combined into a single category of remote and very remote areas. The analytical methods used are explained in detail in the methods section of this report.

Associations between cancer incidence and mortality and remoteness were examined for combined cancer sites – all cancers (excluding NMSC), all leukaemias, alcohol and smoking-related cancers, and single cancer sites – bladder, breast (female), cervix, colorectal, lung, melanoma, non-Hodgkin's lymphoma, ovary, pancreas, prostate, stomach and thyroid.

Cancer incidence and mortality by ASGC Remoteness Area categories

The graphs in figures 76 to 79 show age standardised incidence and mortality rates and 95% confidence intervals for selected cancers in Tasmanian males and females by ASGC Remoteness Areas categories from 1993 to 1999. Tests of differences and linear trend were calculated, and were considered statistically significant when $p<0.01$. A p-value of $p<0.01$ was chosen because of the large number of comparisons by ASGC Remoteness Areas categories made in this report. Only cancers that had statistically

[34] Australian Institute of Health and Welfare 1998. Health in Rural and Remote Australia. AIHW Cat. No. PHE 6. Canberra: AIHW.
[35] a) ABS Views on Remoteness, Information Paper, Australian Bureau of Statistics, Cat. No. 1244.0, 2001, b) Outcomes of ABS Views on Remoteness Consultation, Australia, Information Paper, Australian Bureau of Statistics, Cat. No. 1244.0.00.001, 2001, and c) Measuring Remoteness: Accessibility/Remoteness Index of Australia (ARIA), Department of Health and Aged Care, Commonwealth of Australia, Occasional Papers: New Series No. 6, 1999.
[36] The sixth ASGC Remoteness Areas category of migratory areas are composed of off-shore, shipping & migratory CDs. In allocating an ASGC Remoteness Areas category to an area of land, only the first five categories are applicable.

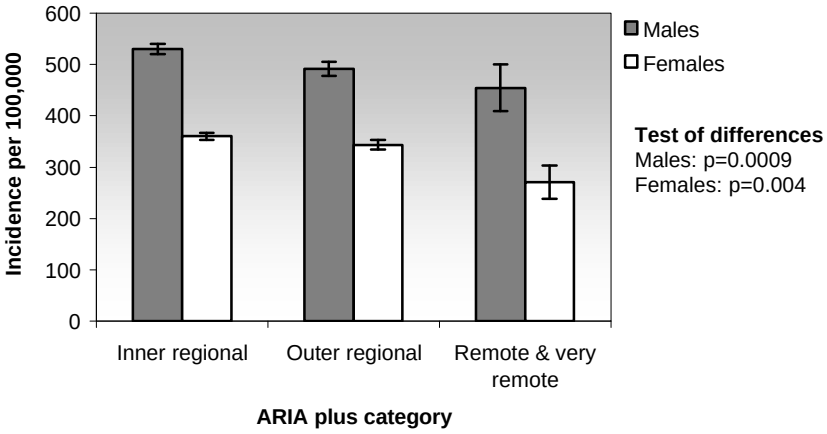
significant (p<0.01) results for tests of differences or linear trends are presented in this report. These comprise incidence rates by ASGC Remoteness Areas categories for all cancers in Tasmanian males and females, prostate cancer, and female breast cancer. Incidence rates for colorectal cancer (p=0.02) in males, and for lung cancer (0.01) and all leukaemias (p=0.02) in females by ASGC Remoteness Areas categories approached statistical significance (p<0.01) when tested for linear trend. Tests of differences and of linear trend failed to detect any statistically significant (p<0.01) differences for mortality rates by ASGC Remoteness Areas categories for any cancers. However, mortality rates for all cancers by ASGC Remoteness Areas categories are included in this report for completeness.

Incidence

All cancers

Age standardised incidence rates[38] for all cancers were highest for males and females living in inner regional areas of Tasmania and lowest for males and females living in remote and very remote areas. Incidence rates for males were 529.9 per 100,000 in inner regional areas, 491.3 per 100,000 in outer regional areas and 454.2 per 100,000 in remote and very remote areas. For females, incidence rates were 360.0 per 100,000 in inner regional areas, 343.1 per 100,000 in outer regional areas and 270.6 in remote and very remote areas. A test of differences of the incidence rates across ASGC Remoteness Areas was statistically significant for males and females for all cancers. A test of linear trend showed a statistically significant gradient for males (p=0.0002) and females (p=0.005) with incidence rates for all cancers highest in inner regional areas, lower in outer regional areas and lowest in remote and very remote areas.

Figure 78: Age standardised incidence rates for all cancers by ASGC Remoteness Areas categories for males and females 1993 –1999

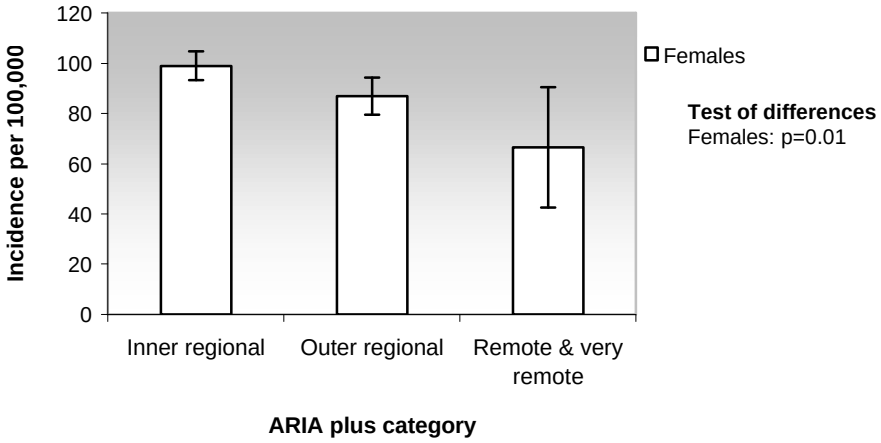


[37] National Localities Index, Australian Bureau of Statistics, Cat. No. 1252.0, 2001.
[38] Australian Standard Population 1991

Female breast cancer

Age standardised incidence rates for breast cancer were highest for females living in inner regional areas of Tasmania and lowest for females living in remote and very remote areas. Incidence rates for female breast cancer were 99.0 per 100,000 in inner regional areas, 86.9 per 100,000 in outer regional areas and 66.6 per 100,000 in remote and very remote areas. A test of differences of the incidence rates across ASGC Remoteness Areas was statistically significant for female breast cancer. A test of linear trend showed a statistically significant (p=0.003) gradient, with incidence rates positively associated with living in inner regional areas.

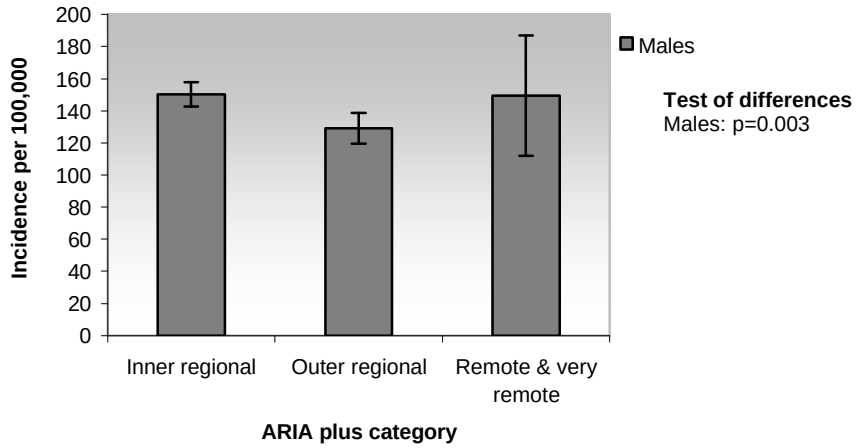
Figure 79: Age standardised incidence rates for female breast cancer by ASGC Remoteness Areas categories 1993-1999



Prostate cancer

Age standardised incidence rates for prostate cancer were highest for males living in inner regional areas of Tasmania and lowest for males living in outer regional areas. Incidence rates for prostate cancer were 150.3 per 100,000 in inner regional areas, 129.1 per 100,000 in outer regional areas and 149.4 per 100,000 in remote and very remote areas. A test of differences of the incidence rates across ASGC Remoteness Areas categories was statistically significant for this cancer.

Figure 80: Age standardised incidence rates for prostate cancer by ASGC Remoteness Areas categories for males 1993-1999

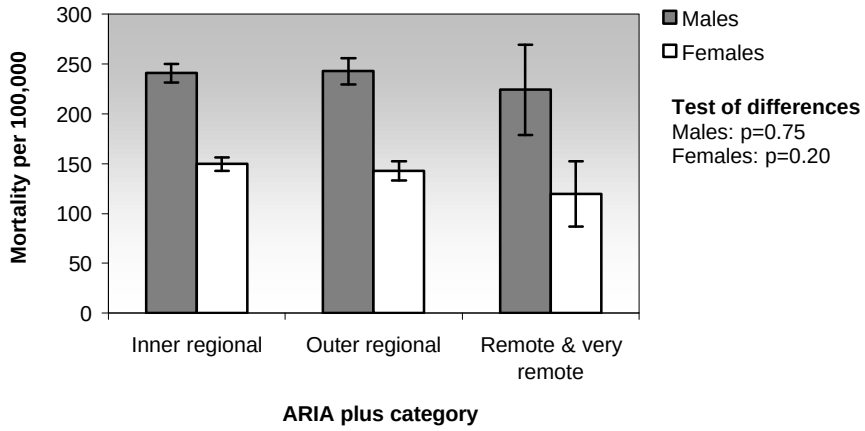


Mortality

All cancers

There was little variation in age standardised mortality rates[39] for all cancers for males and females in Tasmania by ASGC Remoteness Areas categories between 1993 and 1999. Mortality rates for males were 240.8 per 100,000 in inner regional areas, 242.9 per 100,000 in outer regional areas and 224.3 per 100,000 in remote and very remote areas. For females, mortality rates were 149.6 per 100,000 in inner regional areas, 142.7 per 100,000 in outer regional areas and 119.9 in remote and very remote areas. A test of differences of the mortality rates across ASGC Remoteness Areas categories was not statistically significant for either sex.

Figure 81: Age standardised mortality rates for all cancers by ASGC Remoteness Areas categories for males and females 1993 –1999



Summary

In Tasmania there were statistically significant (p<0.01) differences in incidence rates by ASGC Remoteness Areas categories for all cancers for males and females, and for prostate cancer in males. There were also statistically significant (p<0.01) linear trends in incidence rates for all cancers in males and females, and female breast cancer by ASGC Remoteness Areas categories, with incidence rates positively associated with living in inner regional areas. Higher cancer incidence rates in inner regional areas might reflect greater access to cancer screening and diagnostic services and/or differences in the distribution of risk factors for cancer. There was little difference in cancer mortality in remote and very remote areas compared to more accessible areas for males and females. Overall, this suggests an absence of inequality in access to treatment for cancer between those living in remote areas in Tasmania and those living in accessible areas.

[39] Australian Standard Population 1991

CANCER INCIDENCE AND MORTALITY BY ASGC REMOTENESS AREA CATEGORIES 1993 - 1999

Tables

The tables below show the numbers, age standardised incidence and mortality rates, standardised rate ratios (SRR) and 95% confidence intervals for Tasmanian males and females diagnosed with a cancer in the years from 1993 to 1999 in the three ASGC Remoteness Areas categories .
The inner regional area was the reference when reporting SRRs. A SRR above 1 in the outer regional and remote and very remote areas would indicate higher incidence or mortality in those areas than in the inner regional area, and a SSR below 1 in the outer regional and remote and very remote areas would indicate a lower incidence or mortality in those areas than in the inner regional area.

TABLE 36: ALL CANCER AGE STANDARDISED INCIDENCE RATES BY ASGC REMOTENESS AREA CATEGORIES IN TASMANIAN MALES AND FEMALES 1993 - 1999

	MALES					FEMALES				
ASGC REMOTENESS AREA CATEGORIES	NUMBER	AS RATE	95% CI	SRR	95% CI	NUMBER	AS RATE	95% CI	SRR	95% CI
INNER REGIONAL	5435	529.9	(515.8 - 544.1)	1		4538	360.0	(349.3 - 370.7)	1	
OUTER REGIONAL	2824	491.3	(473.0 - 509.7)	0.93	(0.89 - 0.97)	2146	343.1	(328.5 - 357.7)	0.95	(0.91 - 1.00)
REMOTE & VERY REMOTE	204	454.2	(390.4 - 517.9)	0.86	(0.75 - 0.98)	117	270.6	(221.2 - 320.1)	0.75	(0.64 - 0.88)
Test of differences		χ^2 = 13.97, df=2, p=0.0009					χ^2 = 11.07, df=2, p=0.004			

TABLE 37: FEMALE BREAST CANCER AGE STANDARDISED INCIDENCE RATES BY ASGC REMOTENESS AREA CATEGORIES IN TASMANIA 1993 - 1999

	FEMALES				
ASGC REMOTENESS AREA CATEGORIES	NUMBER	AS RATE	95% CI	SRR	95% CI
INNER REGIONAL	1188	99.0	(93.3 - 104.7)	1	
OUTER REGIONAL	544	86.9	(79.6 - 94.3)	0.88	(0.79 - 0.97)
REMOTE & VERY REMOTE	30	66.6	(42.7 - 90.6)	0.67	(0.50 - 0.91)
Test of differences		χ^2 = 9.09, df=2, p=0.01			

CANCER INCIDENCE AND MORTALITY BY ASGC REMOTENESS AREA CATEGORIES 1993 - 1999

TABLE 38: PROSTATE CANCER AGE STANDARDISED INCIDENCE RATES BY ASGC REMOTENESS AREA CATEGORIES IN TASMANIAN MALES 1993 - 1999

	MALES				
ASGC REMOTENESS AREA CATEGORIES	NUMBER	AS RATE	95% CI	SRR	95% CI
INNER REGIONAL	1539	150.3	(142.7 - 157.8)	1	
OUTER REGIONAL	721	129.1	(119.6 - 138.6)	0.86	(0.79 - 0.94)
REMOTE & VERY REMOTE	64	149.4	(112.0 - 186.8)	0.99	(0.77 - 1.28)
Test of differences		χ^2 = 11.80, df=2, p=0.003			

TABLE 39: ALL CANCER AGE STANDARDISED MORTALITY RATES BY ASGC REMOTENESS AREA CATEGORIES IN TASMANIAN MALES AND FEMALES 1993 - 1999

	MALES					FEMALES				
ASGC REMOTENESS AREA CATEGORIES	NUMBER	AS RATE	95% CI	SRR	95% CI	NUMBER	AS RATE	95% CI	SRR	95% CI
INNER REGIONAL	2458	240.8	(231.2 - 250.3)	1		2038	149.6	(142.9 - 156.3)	1	
OUTER REGIONAL	1351	242.9	(229.7 - 256.0)	1.01	(0.94 - 1.08)	905	142.7	(133.4 - 152.1)	0.95	(0.88 - 1.03)
REMOTE & VERY REMOTE	99	224.3	(179.0 - 269.7)	0.93	(0.76 - 1.14)	52	119.9	(87.0 - 152.7)	0.80	(0.62 - 1.03)
Test of differences		χ^2 = 0.57, df=2, p=0.75					χ^2 = 3.26, df=2, p=0.20			

CANCER INCIDENCE BY SOCIO-ECONOMIC STATUS 1996 - 1999

Introduction

This section of the report describes associations between cancer incidence and socio-economic status in Tasmania. Socio-economic status was determined by applying the index of relative socio-economic disadvantage (IRSD) to small (locality) areas of residence for persons diagnosed with cancer in the years 1996 to 1999. The IRSD index is one of five Socio-Economic Indexes for Areas (SEIFA)[40] developed by the Australian Bureau of Statistics. The five SEIFA indexes measure different aspects of social and economic conditions of Australians by geographic areas based on 1996 Australian Census data. The IRSD describes a person's position in society based on criteria such as low income, low educational level attainted, high unemployment and jobs in relatively unskilled occupations. The IRSD reflects the socio-economic well-being of an area rather than that of an individual, and is commonly used in health research to identify geographic areas of disadvantage.

Methods

Scores for the Index of relative socio-economic disadvantage were derived for small areas (locality of residence obtained from the National Localities Index[41]). IRSD scores were assigned to cancer cases notified to the Tasmanian Cancer Registry between 1996 and 1999 (N=8,682) based on where the person was living at the time they were first diagnosed with any cancer. People were classified into one of five categories of socio-economic disadvantage based on their index of relative socio-economic disadvantage (IRSD) score – low (<908.4), medium low (908.4 to 958.0), medium (958.1 to 1006.4), medium high (1006.5 to 1058.3), and high (>1058.3). The average IRSD score for Tasmania in 1996 was 974; which was lower than the national average of 1000[42]. The five IRSD categories by locality of residence were chosen such that approximately twenty percent of Tasmania's population fell into each category.

The Estimated Resident Population (ERP), by five-year age groups and sex for each locality in Tasmania in 1996 was applied across the 4 years, on the assumption that the population was mostly stable over that period. The years 1996 to 1999 were chosen for analysis by socio-economic status as the SIEFA index was derived from 1996 Census data. Past socio-economic indexes for 1986 and 1991 Censes published by the ABS were not derived in the same way and therefore not comparable over time.

In health research, socio-economic status indexes are usually applied to large areas such as Local Government Areas or postcode areas. The disadvantage of this approach is that there is considerable differences in the IRSD scores across the collection districts that make up these large areas, and the likelihood of residents being misclassified is greater. By assigning IRSD scores by locality of residence where socio-economic status is more likely to be similar, the proportion of residents who are misclassified should be smaller. Consequently, analysing cancer incidence by socio-economic status by small areas (locality of residence) should result in more accurate trends being obtained.

Associations between cancer incidence and socio-economic status were examined for combined cancer sites – all cancers (excluding NMSC), all leukaemias, alcohol and smoking-related cancers, and single cancer sites – bladder, breast (female), cervix, colorectal, lung, melanoma, non-Hodgkin's lymphoma, ovary, pancreas, prostate, stomach and thyroid.

Cancer incidence by socio-economic status

Age standardised incidence rates, standardised rate ratios (SRR), and tests of differences and linear trend were calculated for selected cancers by the five IRSD socio-economic status categories for males and females in Tasmania from 1996 to 1999. These tests were considered statistically significant at $p<0.01$ because of the large number of comparisons among IRSD categories made in this analysis.

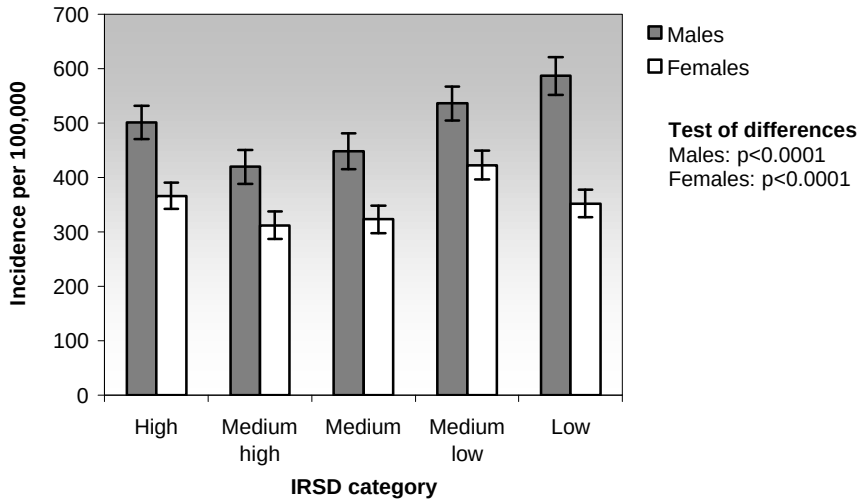
A test of differences was statistically significant for all cancers, colorectal cancer, lung cancer, melanoma, prostate cancer and smoking-related cancers for males. There was a statistically significant linear trend for lung cancer in males, with incidence rates negatively associated with socio-economic status. A linear trend was also seen for incidence rates for melanoma in males, with incidence rates positively associated with socio-economic status. A test of differences was statistically significant for all cancers, breast cancer, non-

[40] Socio-Economic Indexes for Areas 1996, Australian Bureau of Statistics, Cat. No. 2033.0.30.001, Commonwealth of Australia, 1998, & 1996 Census of Population and Housing, Socio-economic indexes for Areas, Australian Bureau of Statistics, cat. No. 2039.0, Commonwealth of Australia, 1998.
[41] National Localities Index, Australian Bureau of Statistics, Cat. No. 1252.0, Commonwealth of Australia, 2001.
[42] 1996 Census of Population and Housing: Socio-economic status indexes for areas. Information Paper, Australian Bureau of Statistics, Catalogue no. 2039.0, Commonwealth of Australia 1998.

Hodgkin's lymphoma and thyroid cancer for females. There was a statistically significant linear trend for smoking-related cancers in females, with incidence rates negatively associated with socio-economic status.

All cancers

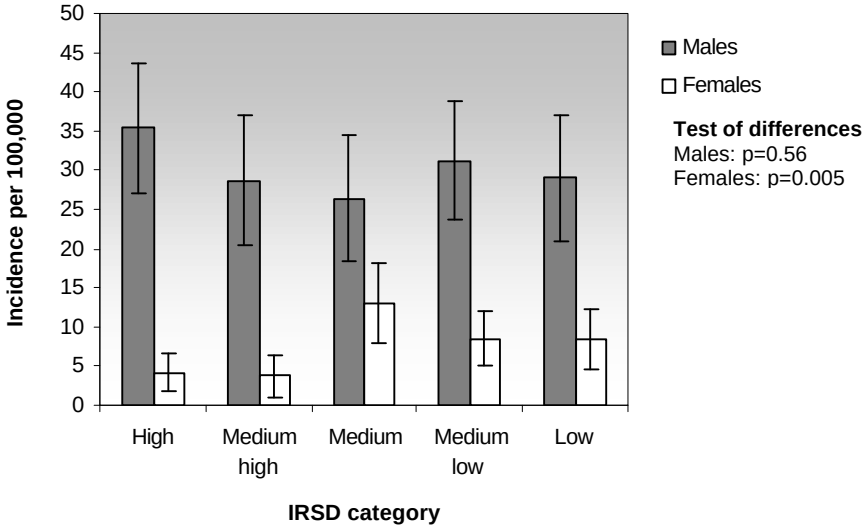
Figure 82: SES differences in all cancer incidence in Tasmania 1996 - 1999



Age standardised incidence rates for all cancers were highest for males living in low socio-economic localities (586.7 per 100,000) and were highest for females living in medium low socio-economic localities (422.8 per 100,000). Incidence rates were lowest for males and females living in medium high socio-economic localities (males: 419.5 per 100,000, females: 312.1 per 100,000). A test of differences of the incidence rates across the five IRSD categories was statistically significant for males and females.

Bladder cancer

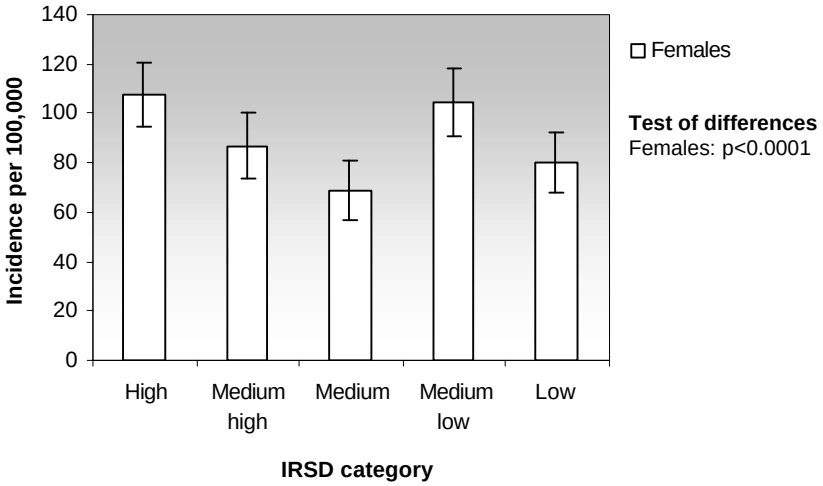
Figure 83: SES differences in bladder cancer incidence in Tasmania 1996 - 1999



Age standardised incidence rates for bladder cancers were highest for males living in high socio-economic status localities (35.4 per 100,000) and were highest for females living in medium socio-economic status localities (12.9 per 100,000). Incidence rates for this cancer were lowest for males living in medium socio-economic status localities (26.4 per 100,000) and were lowest for females living in medium high socio-economic status localities (3.7 per 100,000). A test of differences of the incidence rates across the five IRSD categories was statistically significant for bladder cancer for females, but not for males.

Breast cancer (females)

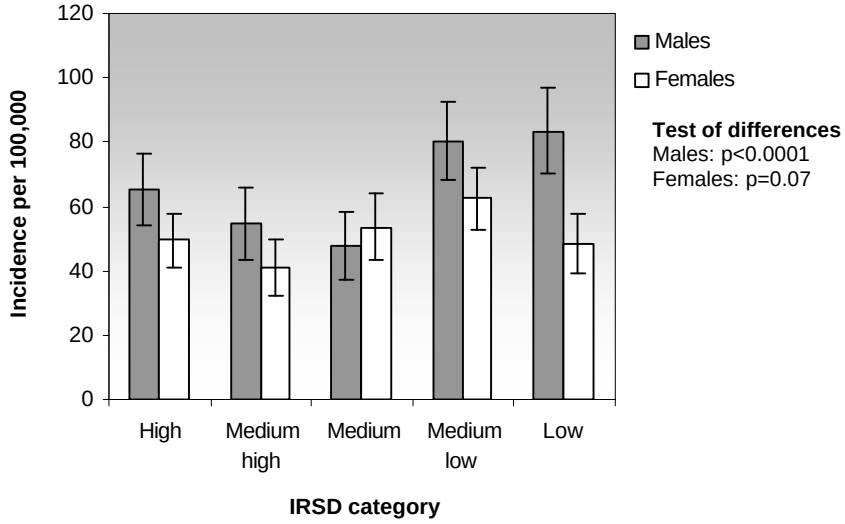
Figure 84: SES differences in female breast cancer incidence in Tasmania 1996 - 1999



Age standardised incidence rates for female breast cancer were highest for females living in high socio-economic status localities (107.8 per 100,000) and lowest for females living in medium socio-economic status localities (68.7 per 100,000). A test of differences of the incidence rates across the five IRSD categories was statistically significant for female breast cancer.

Colorectal cancer

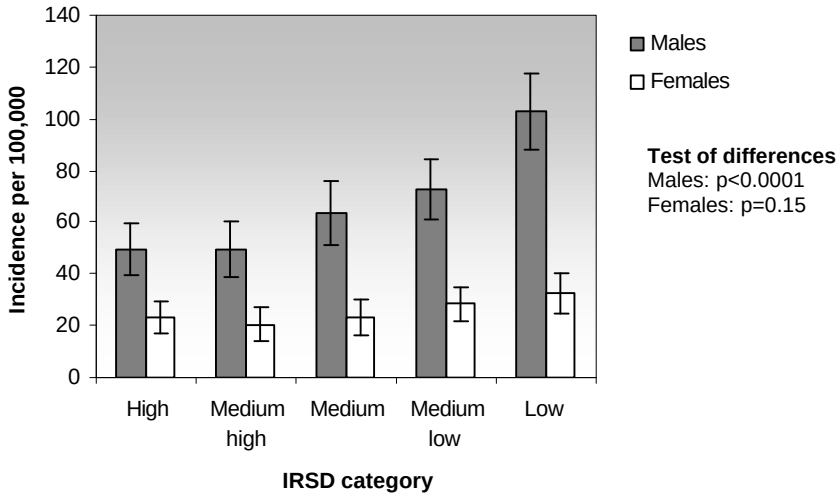
Figure 85: SES differences in colorectal cancer incidence in Tasmania 1996 - 1999



Age standardised incidence rates for colorectal cancer were highest for males living in low socio-economic status localities (83.6 per 100,000) and were highest for females living in medium low socio-economic status localities (62.5 per 100,000). Incidence rates for this cancer were lowest for males living in medium socio-economic status localities (47.9 per 100,000) and lowest for females living in medium high socio-economic status localities (41.2 per 100,000). There were statistically significant differences in incidence rates across the five IRSD categories for colorectal cancer for males, but not for females.

Lung cancer

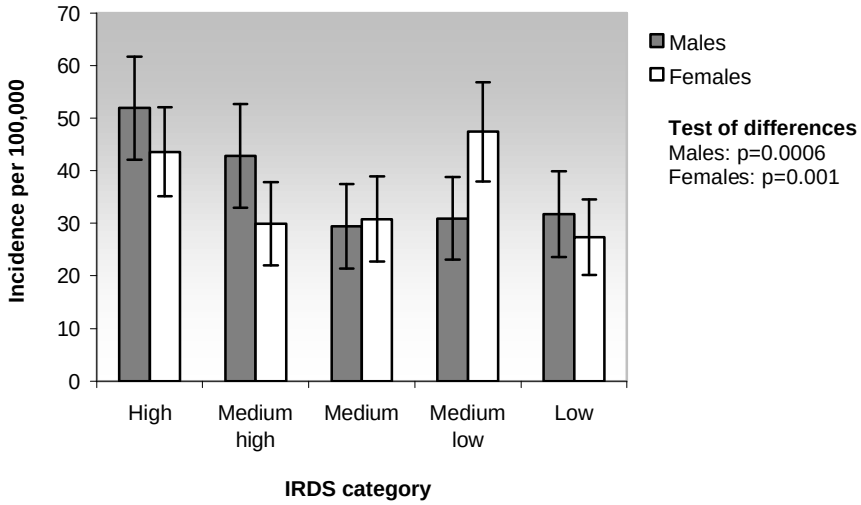
Figure 86: SES differences in lung cancer incidence in Tasmania 1996 - 1999



Age standardised incidence rates for lung cancer were highest for males and females living in low socio-economic localities (Males: 102.9 per 100,000, Females: 32.4 per 100,000). Incidence rates for this cancer were lowest for males living in high socio-economic status localities (males: 49.5 per 100,000) and lowest for females living in medium high socio-economic status localities (females: 20.4 per 100,000). There were statistically significant differences in incidence rates across the five IRSD categories for lung cancer for males, but not for females. A statistically significant linear trend, with lung cancer incidence rates negatively associated with socio-economic status, was evident for males (p<0.0001).

Melanoma of the skin

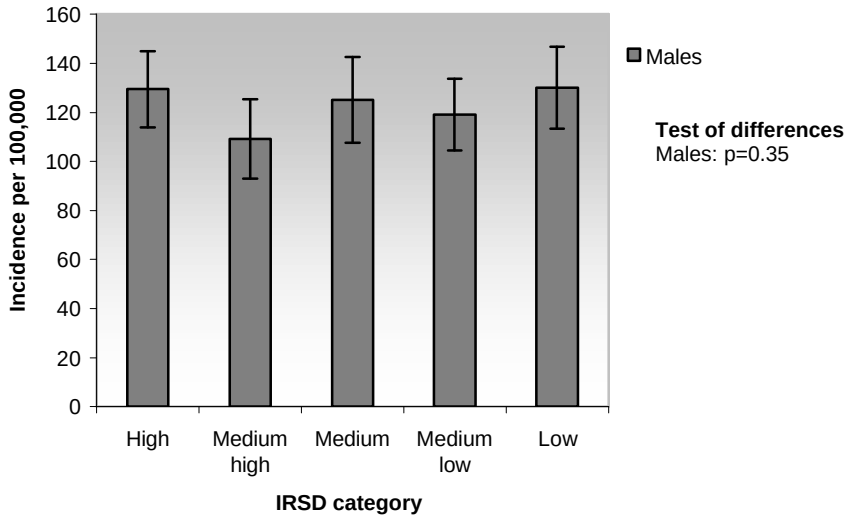
Figure 87: SES differences in melanoma incidence in Tasmania 1996 - 1999



Age standardised incidence rates for melanoma were highest for males living in high socio-economic status localities (51.9 per 100,000), and were highest for females living in medium low socio-economic status localities (47.4 per 100,000). Incidence rates were lowest for males living in medium socio-economic status localities (29.4 per 100,000), and were lowest for females living in low socio-economic status localities (27.4 per 100,000). A test of differences of the incidence rates across the five IRSD categories was statistically significant for melanoma for males and females. There was a statistically significant linear trend for males (p<0.0001), in which incidence rates were positively associated with socio-economic status.

Prostate cancer

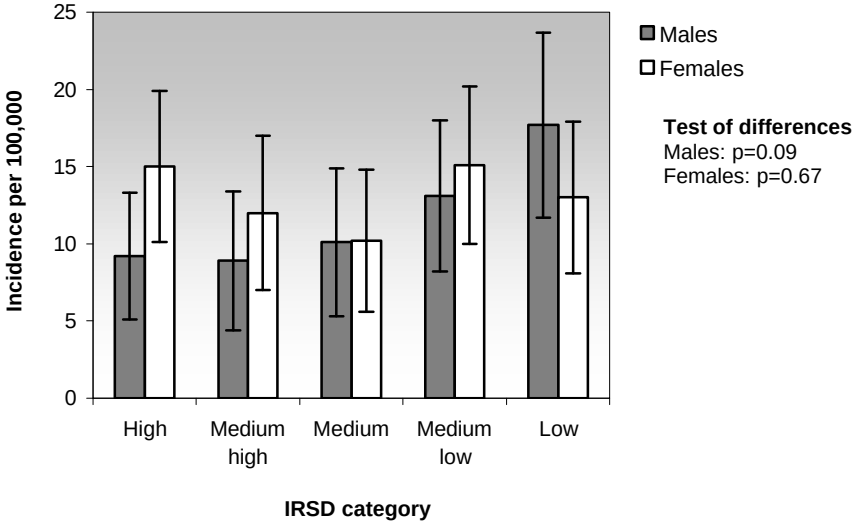
Figure 88: SES differences in prostate cancer incidence in Tasmania 1996 - 1999



Age standardised incidence rates for prostate cancer were highest in males living in low socio-economic status localities (130.1 per 100,000) and were lowest for males living in medium high socio-economic status localities (109.2 per 100,000). A test of differences of the incidence rates across the five IRSD categories for this cancer was not statistically significant.

Alcohol-related cancers

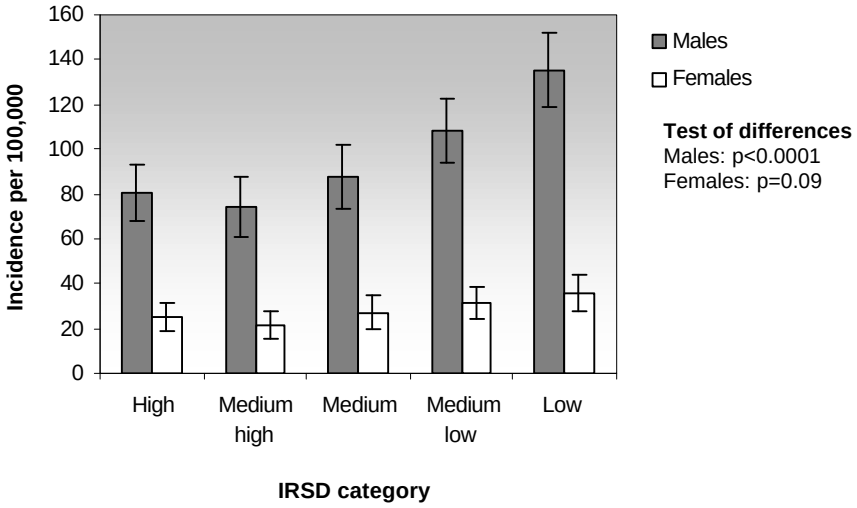
Figure 89: SES differences in alcohol-related cancer incidence in Tasmania 1996 - 1999



Age standardised incidence rates for alcohol-related cancers were highest for males living in low socio-economic status localities (17.7 per 100,000) and were highest for females living in medium low socio-economic status localities (15.1 per 100,000). Incidence rates for these cancers were lowest for males living in medium high socio-economic status localities (8.9 per 100,000) and were lowest for females living in medium socio-economic status localities (10.2 per 100,000). A test of differences of the incidence rates across the five IRSD categories was not statistically significant for males and females.

Smoking-related cancers

Figure 90: SES differences in smoking-related cancer incidence in Tasmania 1996 - 1999



Age standardised incidence rates for smoking-related cancers were highest for both males and females living in low socio-economic status localities (Males: 135.4 per 100,000, Females: 35.6 per 100,000). Incidence rates for these cancers were lowest for males and females living in medium high socio-economic status localities (Males: 74.2 per 100,000, Females: 21.3 per 100,000). A test of differences of the incidence rates across the five IRSD categories was statistically significant for males, but not for females. Statistically significant linear trends were seen for incidence rates of smoking-related cancers across socio-economic status categories for females (p0.0099) and male (p<0.0001), with incidence rates being negatively associated with socio-economic status.

Summary

Differences in cancer incidence by socio-economic status are likely to reflect differences in behavioural and environmental risk factors for cancer. Tasmanian males living in low socio-economic status localities are more frequently diagnosed with lung and smoking-related cancers, reflecting SES differences in tobacco use. Similarly, Tasmanian males living in low socio-economic status localities are more frequently diagnosed with alcohol-related cancers. Tasmanian males living in medium low and low socio-economic status localities have higher incidence rates for colorectal cancer, which may reflect SES differences in dietary patterns. Tasmanian females living in high socio-economic status localities have the highest incidence rates of breast cancer, though the difference was not statistically significant. This has been observed elsewhere in Australia and may reflect differences in fertility patterns, diet and alcohol intake. Males living in high socio-economic status-localities were more frequently diagnosed with melanoma of the skin

CANCER INCIDENCE BY SOCIO-ECONOMIC STATUS 1996 - 1999

Tables

The tables below show age standardised incidence rates and standardised rate ratios (SRR) for selected cancers by the five IRSD socio-economic status categories for males and females in Tasmania from 1996 to 1999. Tests of differences were considered statistically significant at p<0.01 because of the large number of comparisons among IRSD categories made in this analysis.

TABLE 40: SES DIFFERENCES IN ALL CANCER INCIDENCE IN TASMANIA 1996 - 1999

	MALES					FEMALES				
IRSD CATEGORY	NUMBER	AS RATE	95% CI	SRR	95% CI	NUMBER	AS RATE	95% CI	SRR	95% CI
HIGH	1,038	501.0	(470.3 - 531.7)	1	-	944	366.3	(342.4 - 390.2)	1	-
MEDIUM HIGH	694	419.5	(388.1 - 450.9)	0.84	(0.76 - 0.92)	623	312.1	(287.1 - 337.1)	0.85	(0.77 - 0.94)
MEDIUM	751	448.4	(415.9 - 481.0)	0.90	(0.81 - 0.98)	616	323.0	(297.3 - 348.7)	0.88	(0.80 - 0.98)
MEDIUM LOW	1,130	536.2	(504.9 - 567.6)	1.07	(0.98 - 1.16)	1,042	422.8	(396.2 - 449.4)	1.15	(1.05 - 1.26)
LOW	1,087	586.7	(551.5 - 621.9)	1.17	(1.07 - 1.28)	757	352.1	(326.9 - 377.4)	0.96	(0.87 - 1.06)
Test of differences	χ^2 =64.87, df=4, p<0.0001					χ^2 =38.80, df=4, p<0.0001				

TABLE 41: SES DIFFERENCES IN LUNG CANCER INCIDENCE IN TASMANIA 1996 - 1999

	MALES					FEMALES				
IRSD CATEGORY	NUMBER	AS RATE	95% CI	SRR	95% CI	NUMBER	AS RATE	95% CI	SRR	95% CI
HIGH	101	49.5	(39.8 - 59.3)	1	-	60	23.2	(17.2 - 29.2)	1	-
MEDIUM HIGH	81	49.7	(38.8 - 60.5)	1.00	(0.75 - 1.34)	42	20.4	(14.1 - 26.7)	0.88	(0.59 - 1.31)
MEDIUM	108	63.4	(51.3 - 75.5)	1.28	(0.97 - 1.69)	44	23.5	(16.5 - 30.5)	1.01	(0.68 - 1.50)
MEDIUM LOW	156	72.9	(61.4 - 84.3)	1.47	(1.15 - 1.89)	76	28.3	(21.8 - 34.8)	1.22	(0.86 - 1.72)
LOW	191	102.9	(88.2 - 117.6)	2.08	(1.63 - 2.64)	70	32.4	(24.8 - 40.0)	1.40	(0.98 - 1.99)
Test of differences	χ^2 = 52.02, df=4, p<0.0001					χ^2 = 6.74, df=4, p=0.15				

TABLE 42: SES DIFFERENCES IN COLORECTAL CANCER INCIDENCE IN TASMANIA 1996 - 1999

	MALES					FEMALES				
IRSD CATEGORY	NUMBER	AS RATE	95% CI	SRR	95% CI	NUMBER	AS RATE	95% CI	SRR	95% CI
HIGH	134	65.1	(54.0 - 76.2)	1	-	137	49.5	(41.0 - 58.1)	1	-
MEDIUM HIGH	92	54.6	(43.4 - 65.8)	0.84	(0.64 - 1.09)	88	41.2	(32.4 - 50.0)	0.83	(0.63 - 1.09)
MEDIUM	81	47.9	(37.3 - 58.5)	0.74	(0.56 - 0.97)	106	53.7	(43.4 - 64.0)	1.08	(0.84 - 1.41)
MEDIUM LOW	172	80.4	(68.3 - 92.4)	1.23	(0.98 - 1.55)	169	62.5	(52.8 - 72.2)	1.26	(1.00 - 1.59)
LOW	156	83.6	(70.4 - 96.9)	1.28	(1.02 - 1.62)	107	48.7	(39.4 - 58.0)	0.98	(0.76 - 1.27)
Test of differences	χ^2 = 27.04, df=4, p<0.0001					χ^2 = 8.64, df=4, p=0.07				

TABLE 43: SES DIFFERENCES IN FEMALE BREAST CANCER INCIDENCE IN TASMANIA 1996 - 1999

	FEMALES				
IRSD CATEGORY	NUMBER	AS RATE	95% CI	SRR	95% CI
HIGH	270	107.8	(94.7 - 120.9)	1	-
MEDIUM HIGH	165	86.6	(73.3 - 100.0)	0.80	(0.66 - 0.97)
MEDIUM	128	68.7	(56.8 - 80.7)	0.64	(0.52 - 0.78)
MEDIUM LOW	242	104.5	(91.0 - 118.0)	0.97	(0.81 - 1.16)
LOW	168	80.3	(68.1 - 92.5)	0.74	(0.61 - 0.90)
Test of differences	χ^2 = 23.61, df=4, p<0.0001				

TABLE 44: SES DIFFERENCES IN MELANOMA INCIDENCE IN TASMANIA 1996 - 1999

	MALES					FEMALES				
IRSD CATEGORY	NUMBER	AS RATE	95% CI	SRR	95% CI	NUMBER	AS RATE	95% CI	SRR	95% CI
HIGH	111	51.9	(42.1 - 61.6)	1	-	106	43.6	(35.2 - 52.0)	1	-
MEDIUM HIGH	73	42.8	(32.9 - 52.7)	0.83	(0.62 - 1.11)	57	29.9	(22.0 - 37.8)	0.69	(0.50 - 0.94)
MEDIUM	52	29.4	(21.3 - 37.4)	0.57	(0.41 - 0.78)	57	30.8	(22.7 - 38.9)	0.71	(0.52 - 0.97)
MEDIUM LOW	60	30.9	(23.0 - 38.7)	0.60	(0.44 - 0.81)	103	47.4	(38.0 - 56.9)	1.09	(0.82 - 1.44)
LOW	59	31.7	(23.6 - 39.9)	0.61	(0.45 - 0.83)	57	27.4	(20.2 - 34.6)	0.63	(0.46 - 0.86)
Test of differences	χ^2 = 19.53, df=4, p=0.0006					χ^2 = 17.72, df=4, p=0.001				

TABLE 45: SES DIFFERENCES IN BLADDER CANCER INCIDENCE IN TASMANIA 1996 - 1999

	MALES					FEMALES				
IRSD CATEGORY	NUMBER	AS RATE	95% CI	SRR	95% CI	NUMBER	AS RATE	95% CI	SRR	95% CI
HIGH	71	35.4	(27.1 - 43.6)	1	-	12	4.2	(1.8 - 6.7)	1	-
MEDIUM HIGH	46	28.6	(20.3 - 36.8)	0.81	(0.56 - 1.17)	7	3.7	(0.9 - 6.4)	0.86	(0.34 - 2.20)
MEDIUM	43	26.4	(18.4 - 34.4)	0.75	(0.51 - 1.09)	25	12.9	(7.8 - 18.0)	3.04	(1.46 - 6.30)
MEDIUM LOW	66	31.2	(23.6 - 38.7)	0.88	(0.63 - 1.23)	25	8.5	(5.1 - 12.0)	2.01	(1.01 - 4.02)
LOW	51	29.0	(20.9 - 37.0)	0.82	(0.57 - 1.17)	19	8.5	(4.7 - 12.3)	2.01	(0.95 - 4.23)
Test of differences	χ^2 = 2.99, df=4, p=0.56					χ^2 = 15.06, df=4, p=0.005				

TABLE 46: SES DIFFERENCES IN PROSTATE CANCER INCIDENCE IN TASMANIA 1996 - 1999

	MALES				
IRSD CATEGORY	NUMBER	AS RATE	95% CI	SRR	95% CI
HIGH	266	129.4	(113.8 - 145)	1	-
MEDIUM HIGH	176	109.2	(93.0 - 125.3)	0.84	(0.70 - 1.02)
MEDIUM	202	125.2	(107.7 - 142.7)	0.97	(0.80 - 1.16)
MEDIUM LOW	256	119.0	(104.3 - 133.6)	0.92	(0.77 - 1.09)
LOW	238	130.1	(113.4 - 146.8)	1.01	(0.84 - 1.20)
Test of differences	χ^2 = 4.47, df=4, p=0.35				

TABLE 47: SES DIFFERENCES IN SMOKING-RELATED CANCER INCIDENCE IN TASMANIA 1996 - 1999

	MALES					FEMALES				
IRSD CATEGORY	NUMBER	AS RATE	95% CI	SRR	95% CI	NUMBER	AS RATE	95% CI	SRR	95% CI
HIGH	165.4	80.3	(68.0 - 92.6)	1	-	63.3	24.9	(18.7 - 31.1)	1	-
MEDIUM HIGH	123.0	74.2	(61.1 - 87.4)	0.92	(0.73 - 1.17)	42.7	21.3	(14.8 - 27.9)	0.86	(0.58 - 1.27)
MEDIUM	149.4	87.3	(73.1 - 101.5)	1.09	(0.87 - 1.36)	50.9	27.2	(19.7 - 34.7)	1.09	(0.75 - 1.59)
MEDIUM LOW	229.7	108.3	(94.2 - 122.3)	1.35	(1.10 - 1.65)	80.1	31.5	(24.4 - 38.6)	1.27	(0.90 - 1.77)
LOW	252.5	135.4	(118.6 - 152.3)	1.69	(1.38 - 2.05)	76.3	35.6	(27.6 - 43.6)	1.43	(1.02 - 2.01)
Test of differences	χ^2 = 46.53, df=4, p<0.0001					χ^2 = 8.13, df=4, p=0.09				

TABLE 48: SES DIFFERENCES IN ALCOHOL-RELATED CANCER INCIDENCE IN TASMANIA 1996 - 1999

	MALES					FEMALES				
IRSD CATEGORY	NUMBER	AS RATE	95% CI	SRR	95% CI	NUMBER	AS RATE	95% CI	SRR	95% CI
HIGH	19.4	9.2	(5.1 - 13.4)	1	-	37.6	15.0	(10.1 - 19.9)	1	-
MEDIUM HIGH	15.4	8.9	(4.5 - 13.4)	0.97	(0.49 - 1.90)	22.9	12.0	(7.0 - 17.0)	0.80	(0.48 - 1.34)
MEDIUM	17.3	10.1	(5.3 - 14.9)	1.09	(0.57 - 2.11)	19.3	10.2	(5.6 - 14.7)	0.68	(0.39 - 1.16)
MEDIUM LOW	27.9	13.1	(8.2 - 18.0)	1.42	(0.80 - 2.54)	35.3	15.1	(10.0 - 20.2)	1.00	(0.63 - 1.61)
LOW	34.0	17.7	(11.7 - 23.7)	1.92	(1.10 - 3.36)	27.4	13.0	(8.1 - 17.9)	0.87	(0.53 - 1.42)
Test of differences	χ^2 = 7.95, df=4, p=0.09					χ^2 = 2.39, df=4, p=0.67				