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## Environmental Health Indicators for New Zealand

### Indicator: Melanoma incidence per 100,000 population

#### Current national levels and trends

From 1995 to 2009, the overall age-standardised melanoma rate has decreased by 4.6%, from 39.8 registered cases per 100,000 population to 38.0 (Figure 1). Over the mid to late 1990s there was a general downward trend in rates of melanoma. Rates then increased, peaking in 2008 at levels similar to those observed at the start of the recorded period. In 2009, 2211 people were diagnosed with melanoma, a slight decrease from the 2257 people who were diagnosed in 2008 (Appendix 1).

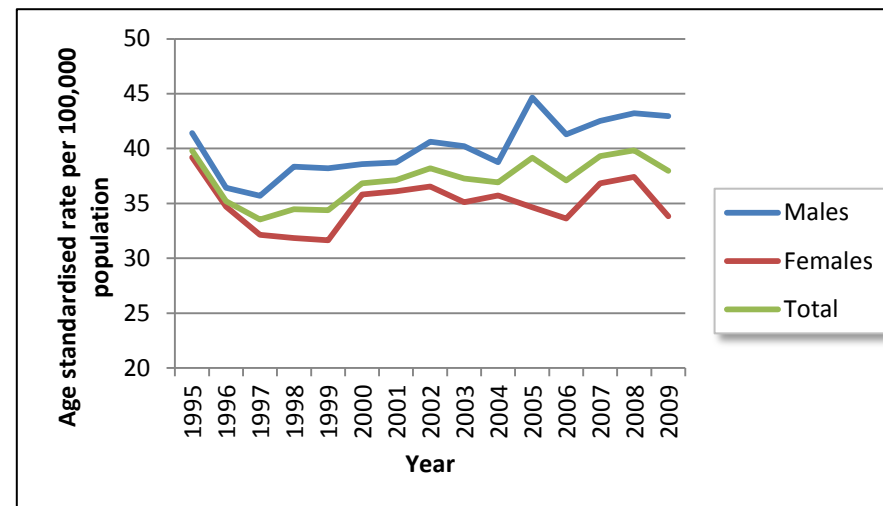


Figure 1: Age-standardised melanoma incidence rates by sex, 1995-2009

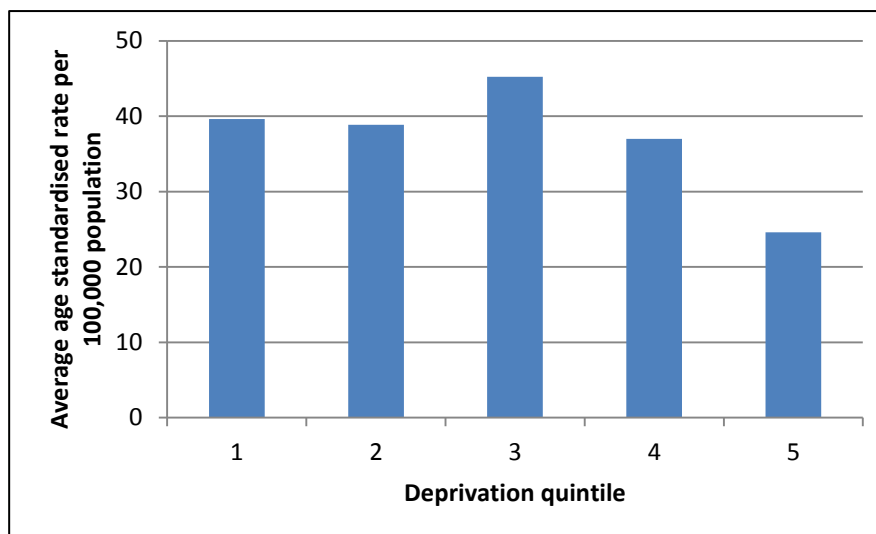


Figure 2: Age-standardised melanoma incidence rates by deprivation quintiles, 2009

#### Socioeconomic differences

Based on the place of residence at diagnosis (data not available for one case), it is evident that disparities exist in the incidence of melanoma by socioeconomic status, as measured by the New Zealand Deprivation Index 2006 (NZDep2006)<sup>1</sup>. There was a gradual increase in the number of melanoma cases diagnosed in 2009 for those who lived in the most socioeconomically deprived areas (452 cases – quintile 1) through to a peak in those living in moderately deprived areas (524 cases – quintile 3) followed by a decrease for those living in the most deprived areas which had the lowest number of cases (290 cases – quintile 5) (Figure 2).



### Age and sex differences

Males and females show a similar age distribution pattern with the lowest rates among youth and the highest rates among the elderly (Figure 3). The distribution of age-specific incidence rates show increases in the incidences of melanoma with increasing age. Up until the age of 54 years, females have higher rates, beyond which males have higher rates. The highest rate for females was 173.7 per 100,000 and for males was 311.9 occurring for both in both the 75+ age group. During 2009, ages of males at diagnosis ranged from 10 to 99 years and from 18 to 100 years for females, with a median of 65 years for males and 63 years for females. The overall decline in the total age-standardised incidence rate is dominated by the reduction in female incidence. As can be seen in Figure 1, males have had a higher melanoma incidence rate than females over time, but the gap between them has fluctuated. The female to male ratio has increased from approximately 1:1.1 in 1995 to 1:1.3 in 2009.

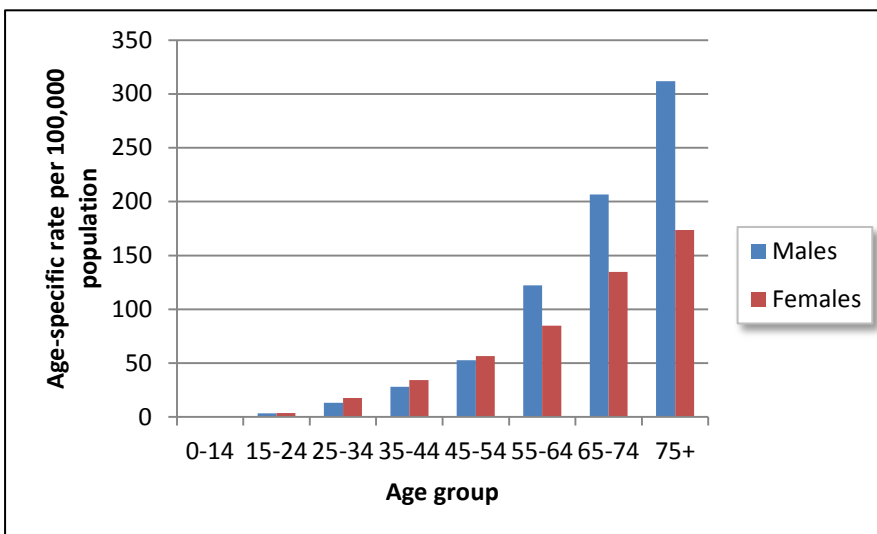


Figure 3: Age-specific melanoma incidence rates by sex, 2009

### International comparison

Currently, Australia and New Zealand have the highest incidence of melanoma in the world. Using 2008 data, Australia and New Zealand combined have an age-standardised incidence rate of 36.6 per 100,000 followed by Northern America with 13.9 per 100,000<sup>2</sup>. The global disparities in melanoma incidence of Australia and New Zealand compared with other regions has persisted since 2002 when the first global incidence estimates became available<sup>3</sup>.

### Geographic differences

Figure 4 (over page) illustrates that age-standardised rates of melanoma incidence during 2009 vary across the country. Rates calculated at the territorial authority level range from 0 per 100,000 in the Chatham Islands Territory to 67.2 per 100,000 (n=26 cases) in South Taranaki District, compared to the national incidence rate of 38.0 per 100,000. The map demonstrates that rates of melanoma tend to be highest in the central North Island and upper and eastern parts of the South Island.

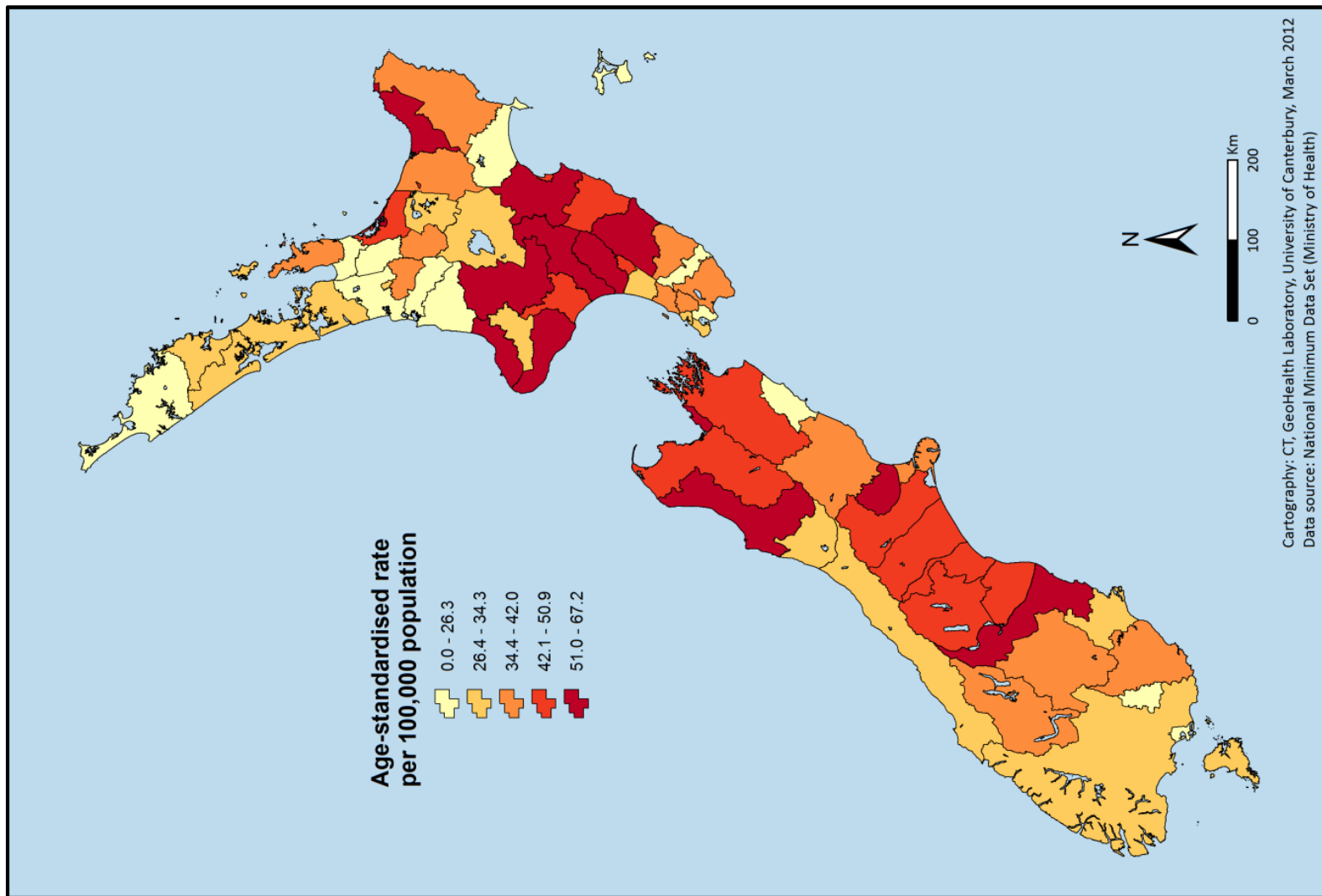


Figure 4: Age-standardised melanoma incidence rates by territorial authority, 2009



## Notes

- Case inclusion and exclusion criteria:
  - *inclusion* – only one registration per person to avoid including patients with metastatic melanoma
  - *exclusion* – incorrect or absent data, benign naevi, and melanoma *in situ*
- Data source: New Zealand Cancer Registry, Ministry of Health
- The 2009 figures are provisional
- Rates are calculated using population estimates<sup>4, 5</sup>
- Rates are age standardised using the WHO standard population<sup>6</sup>

## References

1. Salmond C, Crampton P, Atkinson J. 2007. NZDep2006 Index of Deprivation. Wellington: Department of Public Health, University of Otago.
2. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. 2008. GLOBOCAN 2008 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 10. Available from: <http://globocan.iarc.fr> [cited 13 September 2011].
3. Parkin D, Bray F, Ferlay J, Pisani P. Global Cancer Statistics, 2002. A Cancer Journal for Clinicians. 2005; 55(2): 74-108.
4. Statistics New Zealand. Estimated Subnational Population (TA, AU) by Age and Sex at 30 June 2006–10 Available from: [http://www.stats.govt.nz/tools\\_and\\_services/tools/TableBuilder/intercensal-population-estimates-tables.aspx](http://www.stats.govt.nz/tools_and_services/tools/TableBuilder/intercensal-population-estimates-tables.aspx) [cited 15 September 2011].
5. Statistics New Zealand. Personal communication: Estimated Resident Population by Age and Sex (1991+) (Annual-Jun). Received 8 September 2011
6. Ahmad OB, Boschi-Pinto C, Lopez AD, Murray CJL, Lozano R, Inoue M. 2001. Age standardization of rates: A new WHO standard. GPE Discussion Paper Series: No.31. World Health Organization.

### Appendix 1: Cases and age-standardised melanoma incidence rates by sex, 1995-2009

	Females		Males		All	
	Number	Rate	Number	Rate	Number	Rate
1995	832	39.2	815	41.4	1647	39.8
1996	771	34.7	735	36.4	1506	35.2
1997	738	32.1	743	35.7	1481	33.5
1998	748	31.9	819	38.3	1567	34.5
1999	745	31.6	823	38.2	1568	34.4
2000	856	35.8	848	38.6	1704	36.8
2001	885	36.1	864	38.7	1749	37.1
2002	889	36.5	930	40.6	1829	38.2
2003	889	35.1	953	40.2	1842	37.3
2004	941	35.7	946	38.8	1887	36.9
2005	925	34.6	1119	44.6	2044	39.2
2006	940	33.6	1064	41.3	2004	37.1
2007	1053	36.8	1126	42.5	2179	39.3
2008	1076	37.4	1181	43.2	2257	39.8
2009	1014	33.8	1197	42.9	2211	38.0