

# Cancer Incidence in Katherine Health District: 1991–2015

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## Summary

This report is the third in a series of reports on cancer incidence in Katherine Health District and supersedes the previous reports. The two earlier reports included data for the period 1991 to 2014—this report includes 2015 data for Katherine Health District and the NT, however national data is not yet available for 2015.

The second report in the series included the age-standardised incidence rate for all cancers combined in Katherine Health District, for the period 1991 to 2014 (437.0 per 100,000 population). This third report includes the age-standardised incidence rate for all cancers combined in Katherine Health District for the period 1991 to 2015 (439.6 per 100,000 population). This small increase is consistent with increasing cancer rates in the NT, and nationally.

For the period 1991 to 2015, the age-standardised incidence rate for all cancers combined in Katherine Health District was lower compared with the rest of the Top End (471.5) and the rest of the NT (459.5), however the differences in rates are not statistically significant. Incidence of melanoma of the skin was significantly lower in Katherine Health District, while incidence of colorectal and testicular cancers was similar in all three regions.

Whilst the figures presented in this report differ slightly from those in the two earlier reports, the analysis continues to show no evidence of higher cancer incidence in Katherine Health District.

## Method

### Data sources

- NT cancer incidence data was sourced from the Northern Territory Cancer Registry. NT cancer incidence data is available up to 31 December 2015.
- National cancer incidence data was sourced from the Australian Cancer Database, Australian Institute of Health and Welfare. National cancer incidence data is available up to 31 December 2014.
- Estimated resident population figures were sourced from the Australian Bureau of Statistics.

### Measure

Age-standardised incidence rates for all cancers combined, melanoma of the skin, colorectal cancer and testicular cancer. Rates are for the period 1991 to 2015 in the following regions (see attached map):

- Katherine Health District
- The rest of the Top End (includes Darwin Urban, Darwin Rural and East Arnhem)
- The rest of the NT (includes Darwin Urban, Darwin Rural, East Arnhem, Barkly, Alice Springs Urban and Alice Springs Rural)

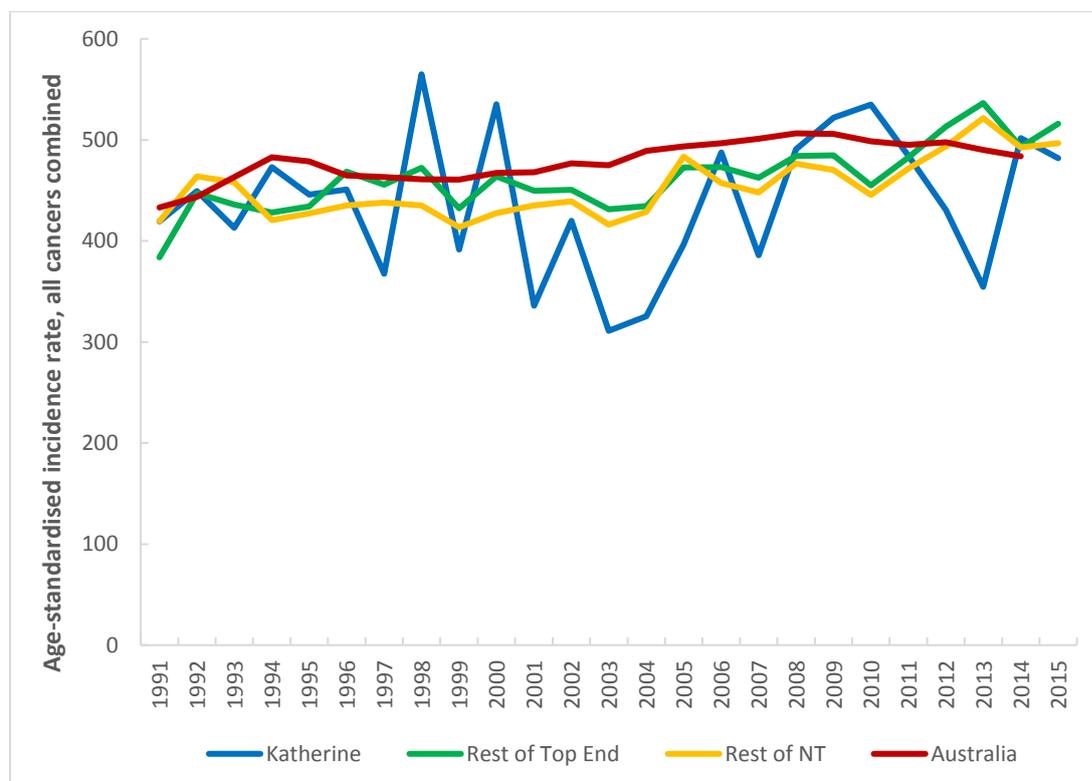
Age-standardised incidence rates were calculated for all cancers combined for Australia for the period 1991 to 2014.

## Results

Figure 1 presents age-standardised incidence rates for all cancers combined for the period 1991 to 2015. Age-standardisation allows populations to be compared when the age profiles of the populations are different. For example, the age profile of the NT population differs from that of the national population, as the NT population is generally younger than the total Australian population. The risk of cancer increases with age, therefore it would be expected that the NT population has lower cancer rates than the total Australian population. The age-standardised incidence rates show what the incidence of cancer would be *if the age profiles of the NT population and the total Australian population were the same*.

Rates are presented for the Katherine Health District, the rest of the Top End, the rest of the NT and Australia, based on the place of usual residence at the time of diagnosis.

**Figure 1. Age-standardised (a) incidence rate per 100,000 population, by region (b) — all cancers combined 1991–2015 (c)**



- (a) Age-standardised to the 2001 Australian Estimated Resident Population.
- (b) See attached map.
- (c) Australian cancer incidence data available up to 31 December 2014.

Between 1991 and 2015, the age-standardised incidence rate for all cancers combined in Katherine Health District was generally consistent with the incidence rate for the rest of the Top End, the rest of the NT and the national incidence rate. The relatively large fluctuation in the incidence rate in Katherine Health District, compared with the other regions, is due to the small population in Katherine Health District—a small increase or decrease in the number of cancer cases in a small population results in a relatively large change in the incidence rate, compared with the change that would be seen in a large population.

Considering the difference in population size and the effect this has on the stability of the incidence rates over time, there appears no evidence of higher incidence of all cancers combined in Katherine Health District compared with the rest of the Top End, the rest of NT, and compared with Australia.

Table 1 presents age-standardised cancer incidence rates for all cancers combined and site-specific cancers, for Katherine Health District, the rest of the Top End and the rest of the NT. For the period 1991 to 2015, the age-standardised incidence rates for all cancers combined, melanoma of the skin and colorectal cancer were lower in Katherine Health District, compared with the rest of the Top End and the rest of the NT. However, the difference in rates was only statistically significant for melanoma of the skin.

While incidence of testicular cancer was slightly higher in Katherine Health District, the difference is not statistically significant. The incidence rate for testicular cancer in Katherine Health District should be interpreted with caution, as the number of cases of testicular cancer in Katherine Health District over the 25-year period was just 12, compared with 100 in the rest of the Top End, and 121 in the rest of the NT.

**Table 1. Age-standardised (a) incidence rates per 100,000 population (95% confidence intervals in parentheses), by region (b) and cancer site — 1991-2015**

	<b>Katherine Health</b>		
	<b>District</b>	<b>Rest of Top End</b>	<b>Rest of NT</b>
<b>All cancers combined</b>	439.6 (409.5-469.7)	471.5 (460.1-482.8)	459.5 (449.8-469.2)
<b>Melanoma (skin)</b>	27.9 (20.7-35.1)	42.2 (39.0-45.3)	38.8 (36.2-41.5)
<b>Colorectal</b>	47.2 (37.2-57.2)	56.2 (52.0-60.3)	52.8 (49.3-56.2)
<b>Testicular (c)</b>	5.0 (2.1-7.9)	4.8 (3.8-5.7)	4.5 (3.7-5.3)

(a) Age-standardised to the 2001 Australian Estimated Resident Population.

(b) See attached map.

(c) Testicular cancer incidence rate based on male population.

## Discussion

This analysis suggests there is no evidence to indicate higher incidence of cancers in Katherine Health District compared with the rest of the Top End, the rest of the NT and the national rates.

Limitations: Due to problems with geographic classifications, Katherine Township could not be clearly defined and distinguished from the wider Katherine Health District in this analysis. The residential information is not accurate enough for detailed geographic analysis, and any attempt to restrict the analysis to Katherine township would result in including and excluding some cases in error. Additionally, the small population in Katherine Health District reduces the statistical reliability of the estimates for this region.

The NT Cancer Registry and the Australian Cancer Database record information on place of usual residence at the time of diagnosis. It is not possible to determine length of residency or place of previous residence using these datasets. A person diagnosed with cancer while living in the Katherine Health District may have lived there for only a short time. Alternatively, a person diagnosed with cancer elsewhere in the NT or Australia, may have lived in the Katherine Health District before the date of diagnosis.

Finally, the figures presented in this report differ from those presented in two earlier reports, the first of which focussed on cancer incidence rates in Katherine Health District compared with the rest of the NT for the period 1991 to 2014, and presented crude incidence rates (not age-standardised). The second report focussed on a comparison between Katherine Health District and the national rates for the period 1991 to 2014, and included age-standardised incidence rates. This third report contains the latest available data (2015 for NT and 2014 for Australia) and includes age-standardised incidence rates, which are the most suitable method for comparing cancer incidence between two populations. This third report supersedes the two previous reports.