Cancer rates in Williamtown NSW

Introduction

Cancer is a term describing a diverse group of over a hundred diseases, defined by abnormal multiplication of body cells. Each cancer type has specific risk factors, resulting from a complex interaction of genetic, environmental, lifestyle and individual factors. The chance of developing cancer increases with age.

NSW Health responds to several enquiries about suspected cancer clusters each year. This is understandable as cancer occurs commonly, and has significant social and economic impacts on individuals, their families and the community. Cancer clusters are often suspected following a perceived increase in a single type of cancer in one geographical location. Internationally and nationally, however, almost all suspected clusters are found to have occurred by chance, with no identifiable environmental cause. A formal cancer cluster investigation aims to determine: a) whether the observed cancer occurrence is above what would be expected for a given area; b) the likelihood that the observed increase could be due to random chance alone; and c) whether there could be any possible links with exposure to environmental or occupational hazards.

The New South Wales Cancer Registry maintains records of people with cancer in NSW. Notification of new cancer cases and cancer deaths is required under the Public Health Act 2010. Data are received from pathology laboratories, hospitals, radiotherapy and medical oncology departments, aged care facilities and the Registry of Births, Deaths and Marriages.

Background

There has been concern expressed by local Newcastle media and residents of the affected area about a possible cancer cluster in Williamtown, linked to the contamination of ground and surface water from per and polyfluoroalkyl substances (PFAS) in aqueous film-forming foam (AFFF) used by the Federal Department of Defence from ~1950-2005. In a Newcastle Herald article a cluster of 24 people diagnosed with a range of different cancers (7 breast, 4 bowel, 2 stomach, 3 haematological, 2 prostate, 1 melanoma, 1 lung, 1 pancreatic, 1 testicular, 1 liver, 1 head and neck) in the past 15 years, who had all lived or spent significant amounts of time on properties along a four-kilometre stretch of road heavily affected by the contamination, was described. Perfluorooctanoic acid (PFOA) is currently classified by the International Agency on Cancer Research as possibly carcinogenic to humans (Group 2B). Perfluorooctane sulfonate (PFOS), the primary component of the implicated AFFF, is as yet unclassified by IARC.

Method

Initial review of cancer counts and age-standardised cancer incidence rates from NSW Cancer Registry data for the ten years 2005-2014 for Williamtown as compared with other suburbs in the surrounding area. This review was performed for all cancers combined, testicular cancer, kidney cancer, colorectal cancer, breast cancer, prostate cancer and melanoma.

Findings

The total number of newly-diagnosed cancers in Williamtown residents was 74 in 2014, compared with 54 cases in 2005, consistent with population growth over time. The population incidence rate (number of new cancers diagnosed for every 100,000 people) was 512 per 100,000 (2014) compared

with 498 per 100,000 (2005). The cancer incidence rate for the 10-year period of 532 per 100,000 people in Williamtown was consistent with rates observed in the surrounding suburbs and with the general Australian population rate of 483 per 100,000 (562 for males and 416 for females) (AIHW 2013). There was no evidence, either at the combined cancer, or the specific cancer level, to indicate an elevated incidence of cancer in the Williamtown SA2 population (see Appendix 1).

Limitations

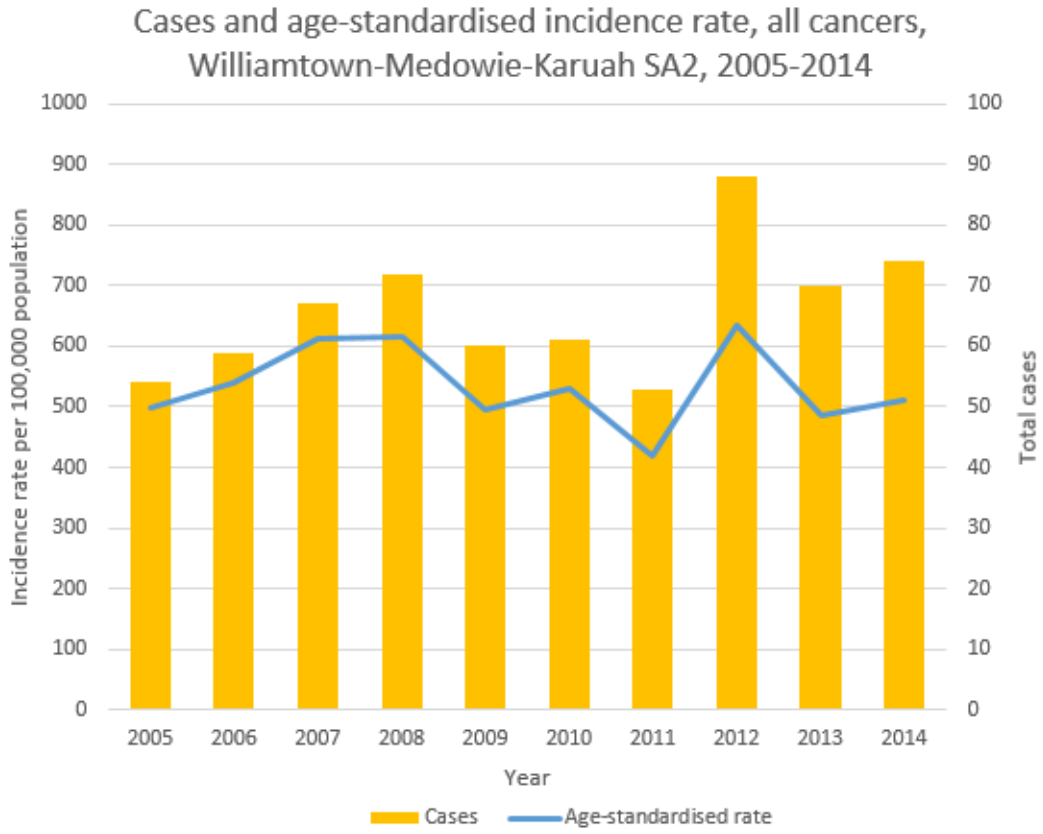
This review examined only registered cases with the NSW Cancer Institute. As classification and verification of cancer cases takes some time, the Registry data is only current to end-2014. However with long-term environmental exposures, if there were a causal association, a "spike" in cases would not be expected, but rather a steady increase over time. Cases are coded on the basis of residence at time of diagnosis, therefore location of diagnosis may not reflect the location of environmental exposure. For example, this data would include cases who had only recently moved to the area prior to diagnosis, and exclude cases who had formerly resided in the area but moved away prior to cancer diagnosis. The review looked at population-based rates at the level of Statistical Area 2 (approx. 10,000 people). To examine smaller groups than this would make the data less interpretable as the variation from year to year would be much greater. The border of Williamtown SA2 does not completely align with the Williamtown Investigation Area – Fullerton Cove falls into the Stockton-Fullerton Cove SA2. This review did not take into account lifestyle, genetic or individual factors that may be associated with cancer.

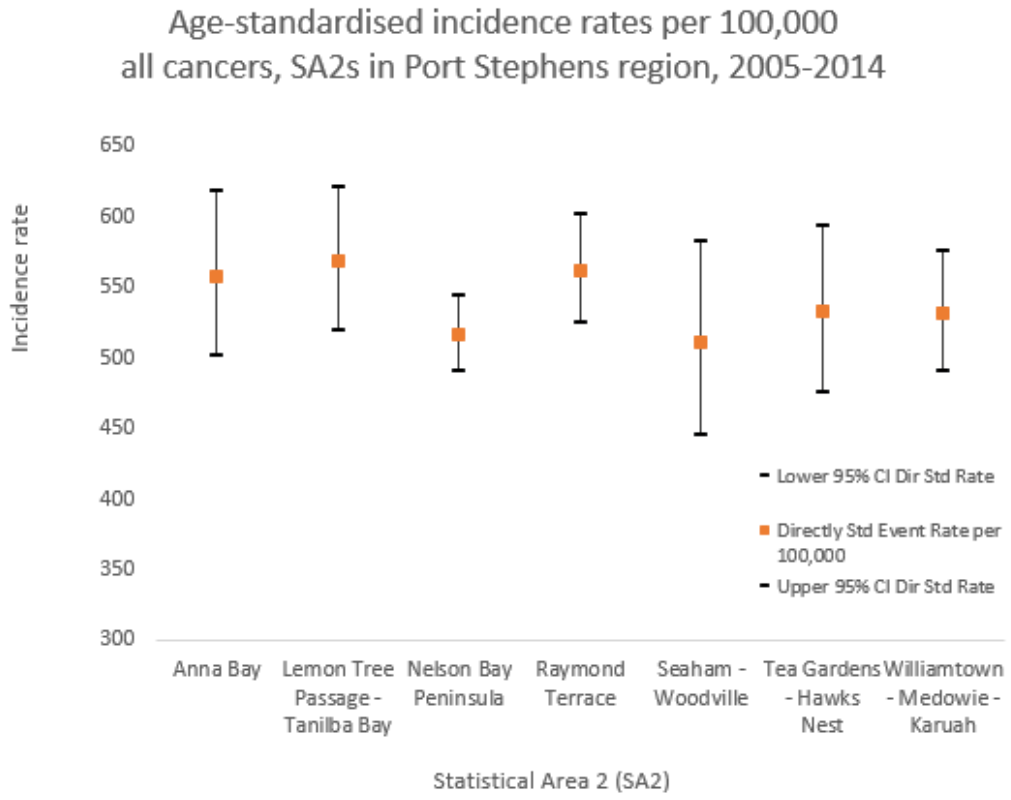
Conclusion

This limited initial assessment found there were no increased cancer signals for the Williamtown population compared with the surrounding areas in the period 2005-2014 for all cancers, testicular or renal cancers, or for cancers of the breast, bowel, colorectal, prostate or melanoma. A more comprehensive investigation examining smaller units of geographical analysis, individual patient data and environmental data is expected to take time, requiring community consultation, the development of a formal study protocol, ethical approval, and the recruitment of appropriate personnel, participants and resources. This detailed investigation is expected to form a component of the Federally-funded epidemiological study led by the Australian National University.

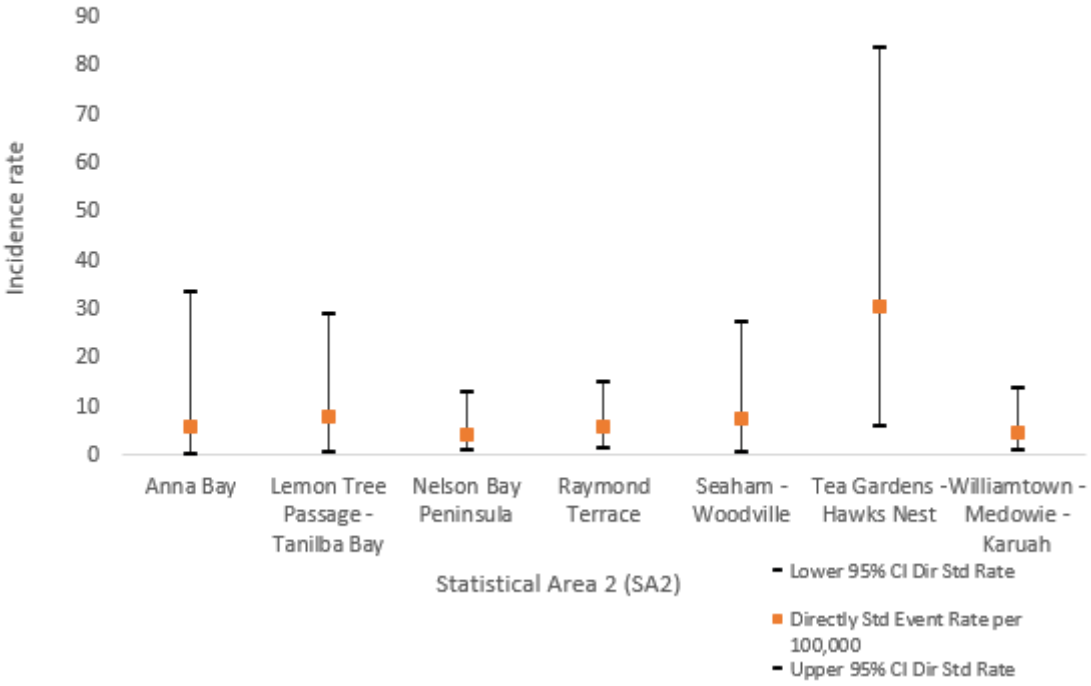
Appendix 1. Cancer data for Williamtown-Medowie-Karuah compared with surrounding SA2s

Data source: Cancer Institute NSW, extracted 20 November 2017

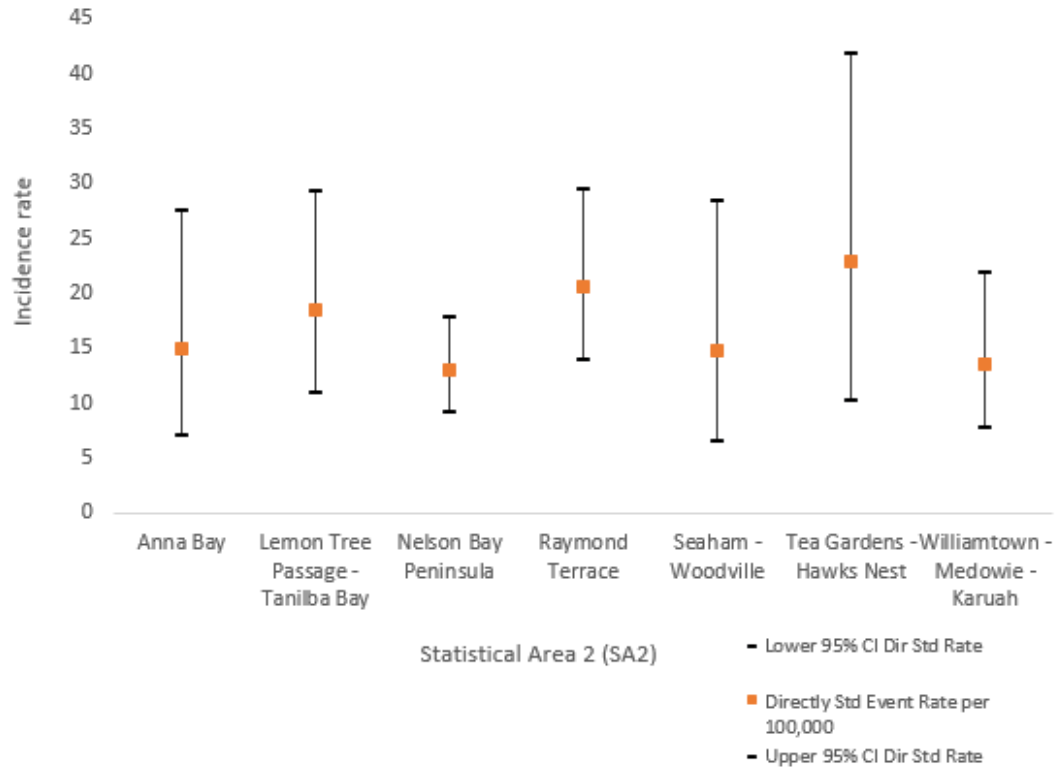




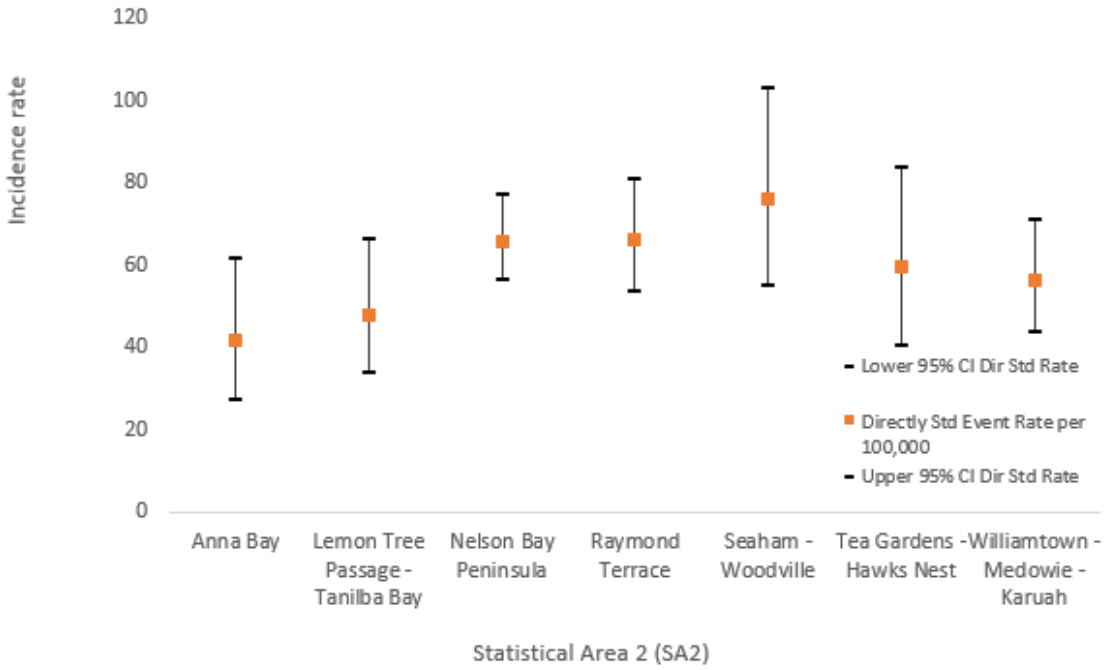
Age-standardised testicular cancer incidence rates per 100,000
SA2s in Port Stephens region, 2005-2014



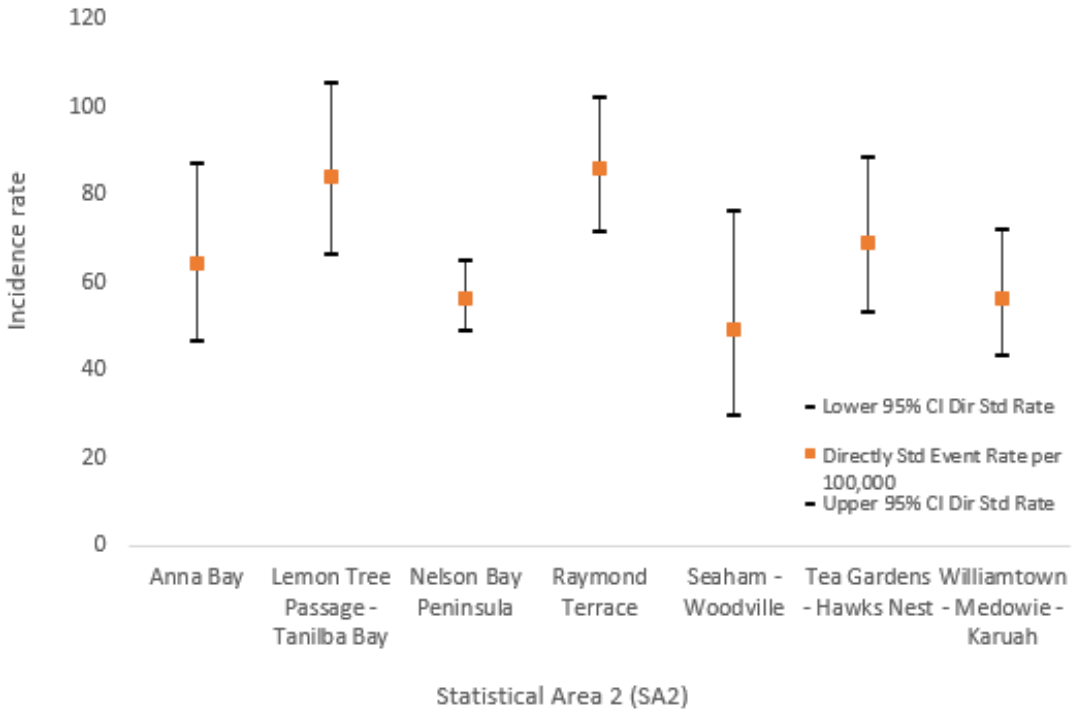
Age-standardised kidney cancer incidence rates per 100,000
SA2s in Port Stephens region, 2005-2014

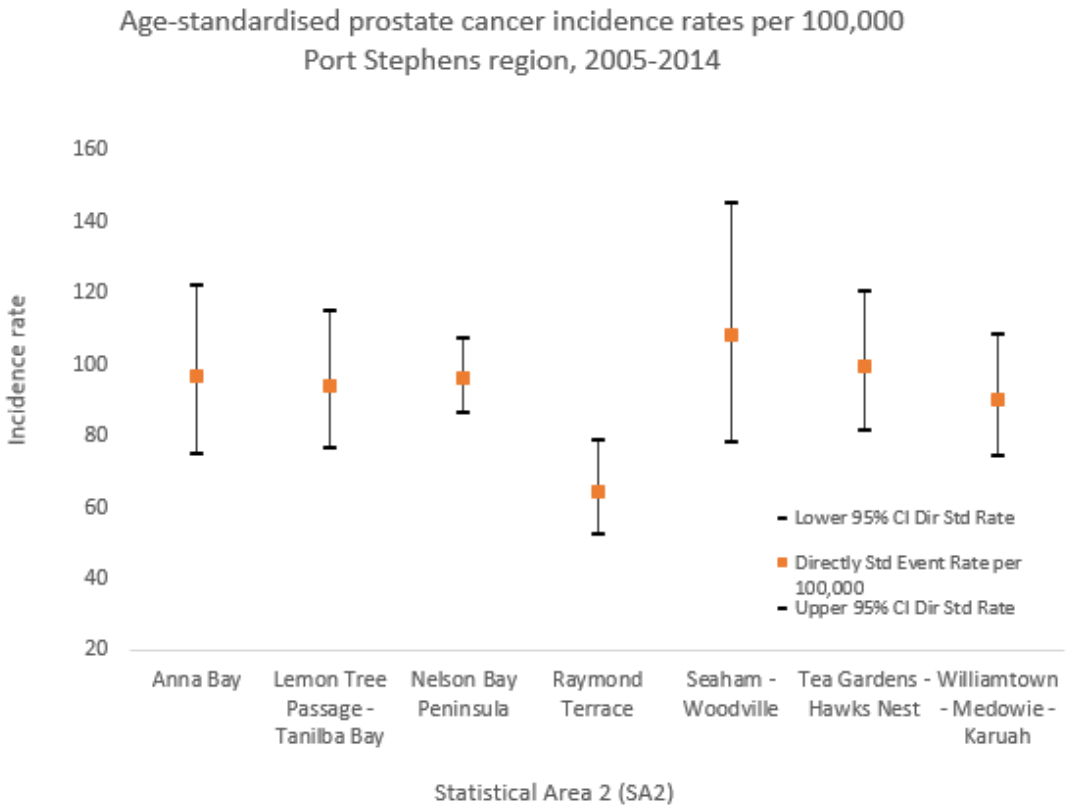


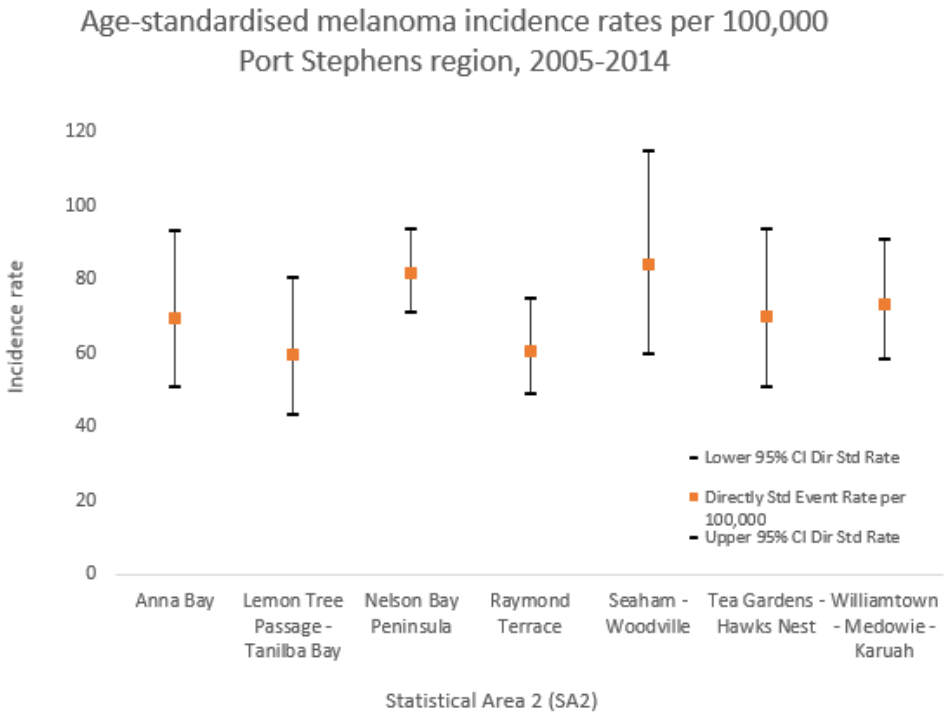
Age-standardised breast cancer incidence rates per 100,000
Port Stephens region, 2005-2014



Age-standardised colorectal cancer incidence rates per 100,000
Port Stephens region, 2005-2014







Note: 95% CI = 95% Confidence Interval. The 95% confidence interval is a statistical concept. It is a range of values within which the true rate of cancer in the population is expected to fall, based on the amount of data used to calculate the rate. The width of the 95% confidence interval gives an idea of how reliable the calculated rates are. A very wide confidence interval (longer bars) indicates that the calculated rate is based on a very small number of reported cancers, so it is a less precise measure of the true rate in the population.