Australia's Cancer Landscape: National Trends and Global Context

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Abstract

A clearer picture of cancer in Australia emerges when national patterns are examined over time and placed in a global frame. This project focuses on Australia's overall and site-specific cancer patterns over time, age, sex, and region. It analyzes how incidence, mortality, and survival have evolved, how risk increases with aging, and how outcomes vary across states and territories. The analysis is then extended globally to highlight international disparities in cancer diagnosis and treatment.

1. Dataset

This project uses two primary data sources. The Australian Institute of Health and Welfare (AIHW) [1] provides the bulk of national statistics regarding incidence, mortality, and survival rates, categorized by age group, sex, and states/territories. These datasets offer long-term trends and demographic breakdowns, making them suitable for identifying improvements in treatments. Additionally, socioeconomic variation is examined using the Socio-Economic Indexes for Areas (SEIFA) from the Australian Bureau of Statistics (ABS) [2], which links cancer outcomes to geographic disadvantages.

For the international context, data from the International Agency for Research on Cancer (IARC) [3] are used to compare Australia's cancer trends against other nations.

2. Methodology

All incidence and mortality measures are compared in the age-standardised rate (ASR), which removes the effect of age from a population. Because cancer risk is highly correlated with age, without standardisation, the older population appears to have a higher cancer burden even if the underlying risk is similar.

3. Key Insights

The results show several notable patterns:

- Incidence continues to rise, but the **ASR appears to plateau since 2010** (Figures 1 & 2), suggesting the influence of improved screening and earlier detection rather than worsening risks.
- The **Northern Territory records the highest mortality** shaped by remoteness and limited service access (Figure 3).
- Despite a high incidence, **Australia registers comparatively low mortality**, reflecting effective diagnostic systems and high-quality treatments (Figure 4).

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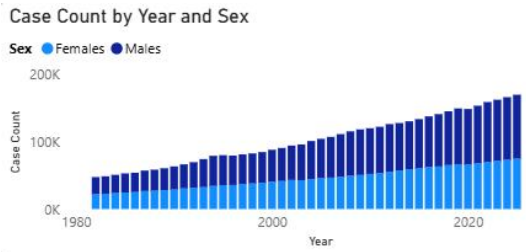

Figure 1. Incidence count across years.

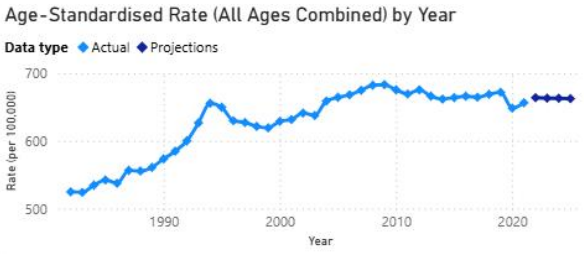

Figure 2. Recorded age-standardised incidence and projections from 2022 to 2025.

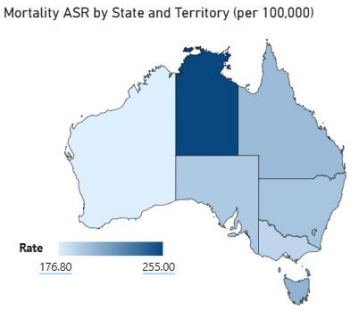

Figure 3. Age-standardised mortality by state and territory.

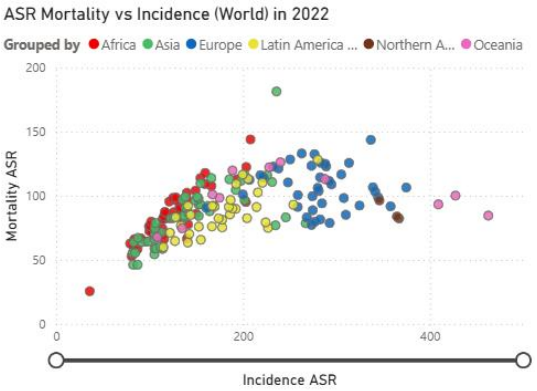

Figure 4. Mortality against incidence across different nations.

4. References:

[1] Australian Institute of Health and Welfare. (2025). *Cancer data in Australia*.

[2] Australian Bureau of Statistics. (2021). *Socio-Economic Indexes for Areas*.

[3] International Agency for Research on Cancer (IARC)