

# An Atlas of Cancer in South Australia

Produced for Cancer Council SA

Public Health Information Development Unit

The University of Adelaide

November 2012



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- Kristin Brombal produced the maps and charts in Section 2 and the correlation analysis in Section 4;
- John Glover wrote the commentary in Sections 2 and 4;
- Sarah McDonald provided advice on mapping; and
- Bianca Barbaro edited the draft report.

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## Section 1

### Context and purpose

#### **In this section ...**

- Introduction
- Background to the development of the atlas
- Purpose, scope and structure of the atlas

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## Introduction

South Australia's cancer survival rates are high by world standards – and the quality of treatment is very good. However, there are inequalities in cancer survival among people living in rural, regional and remote areas of South Australia. Many factors are associated with cancer risk and poorer survival in rural areas, including:

- varied levels of exposures to a wider range of risk factors;
- greater levels of socioeconomic disadvantage;
- limited access to specialist cancer treatment services;
- lack of coordinated care by health practitioners;
- delays in diagnosis, treatment or care processes; and
- greater proportion of Aboriginal peoples who are often diagnosed at more advanced stages and who may receive poorer treatment.<sup>1,2</sup>

Treatment for cancer is usually complex, involving different disciplines and therapies, which can make it more difficult for rural South Australians to access the full range of care they require, within their local community. In rural areas, where hospitals and practitioners do not have ready access to professional cancer networks, the challenges of providing quality, evidence-based cancer care can be significant.

There remain opportunities to produce better outcomes and quality of life for people with cancer living in non-metropolitan areas of the State, by improving the organisation and delivery of cancer control activities – across the spectrum of care, including opportunities to better engage communities and primary care providers.

In partnership with CCSA, the Public Health Information Development Unit (PHIDU), located at The University of Adelaide, has produced this atlas to highlight geographic and other inequalities, which relate to cancer in Metropolitan Adelaide and non-metropolitan areas of South Australia. Staff of the Epidemiology Branch of the South Australian Department of Health, which houses the South Australian Cancer Registry, provided data on cancer survival and staging; their analysis is presented in Section 3.

## Purpose, scope and structure of the atlas

A better understanding of the patterns of cancer suffered by people living in rural and remote areas of South Australia can assist health planners, cancer screening services, health practitioners and other care providers, and the community, to assess current needs for a range of services and any relative health differences, or inequalities, which need to be addressed.

This atlas describes inequalities in the prevalence of some risk factors for cancer, participation and outcomes of screening for certain cancers, cancer incidence, and five-year relative survival according to small geographical areas (Statistical Local Areas or SLAs), as well as variations across area-based categories of remoteness and in socioeconomic status (SES) in South Australia (Section 2). Data on cancer survival and staging at a regional level, as well as additional data on cancer incidence for cancers too small for detailed geographic analysis are provided in Section 3. Each of these sections concludes with a summary and discussion of the main findings.

The structure of the atlas follows.

### **Analysis of data to indicate geographic and other relevant inequalities which relate to selected cancer outcomes**

Many datasets are coded by SLA, which allows for mapping, as well as for allocation of cases to the Australian Bureau of Statistics' (ABS) Remoteness classification and groups of areas based on similar levels of socioeconomic disadvantage of their populations (that is, by socioeconomic status (SES)). The maps and graphs are included in this section, as a correlation analysis of all variables for which SLA data are available, separately for Metropolitan Adelaide and non-metropolitan areas.

The atlas covers the following areas of interest to CCSA:

- risk factors (smoking, risky alcohol consumption, high Body Mass Index (BMI), physical inactivity, poor diet);
- prevention activities (sunscreen protective behaviours);
- screening activities (for breast cancers, participation; and for cervical cancers, participation and outcomes);
- incidence (all cancers, lung, breast, colorectal, prostate, melanomas of the skin);
- deaths (all cancers, breast cancer, colorectal cancer, lung cancer); and
- cancer prevention, survival and staging (selected cancers).

### **Risk factors**

PHIDU holds data on a number of risk factors, which are relevant to cancer: smoking, risky alcohol consumption, high Body Mass Index (BMI), physical inactivity and diet (daily fruit consumption). Estimates at the SLA level were produced by modelling national data to produce synthetic predictions of prevalence; these are presented by geographic area, remoteness and SES.

### **Cancer prevention**

Data for sunscreen protection behaviours (hat, shade, sunglasses, clothing and sunscreen) to assess sun protection behaviour, as well as respondents' reports of getting burnt in the previous summer were supplied by CCSA. Data for other such measures, such as Hepatitis B and Human Papillomavirus (HPV) vaccinations, were not available.

### **Cancer screening**

Data are analysed for:

- breast screening participation for the two-year periods 2001-2002 and 2009-2010; and
- cervical cancer screening participation and outcomes for 2001-2002 and 2008-2009.

### **Cancer incidence and deaths**

Cancer incidence data at the Statistical Local Area (SLA) level for South Australia for the periods 1992-1995, 1998-2002 and 2003-2008 cover 'all cancers' and 'selected cancers' (those with sufficiently large numbers for analysis at the SLA level). Data for these years are also held for deaths by cause and SLA.

### **Additional information, including stage and survival information**

Complementary analyses by remoteness and Region using the last ten years of complete data available from the SA Cancer Registry have been undertaken by staff of SA Health for:

- Lip cancer incidence;
- Cervical cancer incidence;
- Breast cancer stage (in situ/invasive) and diameters for invasive breast cancer, by age;
- Melanoma stage (in situ/invasive) and Breslow thickness for invasive melanomas, by age;
- Five and ten year survival for leading cancers, including breast, cervical, colorectal, prostate (note: care needed in interpretation), skin (melanoma), and lung cancer, and for all cancers collectively (relative survival or disease-specific survival); and
- Case fatality, using Cox models, with remoteness as a predictor (inferred from hazard ratios) for invasive breast cancer and invasive melanoma respectively, adjusting for age, sex, and staging variables (i.e., diameter for breast and thickness for melanoma).

The rates of incidence and survival of Aboriginal peoples are likely to impact on the results, but are not able to be well-identified, other than by geographic area, given the relatively poor Indigenous identification in most data sets.