# 1 Introduction

The aim of this report is to provide information on the health system costs associated with cancer prevention and treatment in Australia in 1993–94, and to review opportunities for improving the usefulness and reliability of cancer costing.

## Usefulness of disease cost information

This paper has been prepared to assist those involved with planning and formulating health policy, including policies for health service interventions and health research. Governments, health authorities, university research departments and a range of other bodies often seek reliable information on the burden of disease - its nature, extent, impact, and distribution in the population. The uses to which burden of disease measures can be put vary widely, and range from assessing public health significance and monitoring trends through time, to examining the performance of the health care system and its various components, planning health service provision, measuring the potential for health status gains and/or cost offsets, and as an input into economic evaluations and in priority setting.

Apart from the direct burden of disease in terms of loss of health and wellbeing, the existence of disease has important implications for resource utilisation. Health expenditure information provides one framework in which various aspects of the health care system can be described and assessed. Questions like: 'Can we afford the current health care expenditure levels?', 'How much do we spend on cancer relative to other diseases?', Where is the money coming from, where is it being spent, and on whom is it impacting?', can only be discussed sensibly by reference to reliable health expenditure information. Without such information, the tools for describing and analysing the conduct, structure and performance of the health care system would be severely constrained, just as it would be difficult to monitor and assess developments in the broader economy without data on GDP, new vehicle purchases, housing construction, the CPI, or average weekly earnings, for example. This report focuses on health system expenditure data (in part because reliable health system cost information is hard to find on a disease-specific basis). It is important not to lose sight of the central role of community welfare in economic thinking, despite the greater challenges posed by its measurement.

By measuring the impact of cancer (and other diseases) in cost terms, this report presents yet another picture of the way in which disease affects the community. Over and above its morbidity and mortality impacts, disease has important second-order effects on income and production patterns throughout the economy, as well as on resource utilisation within the health care system itself. Disease costing studies can be useful in describing the relationship between disease incidence and prevalence and the consequent structure and utilisation of health services.

Being able to examine how health resources are funded and allocated among different users, different health services and different diseases can be useful in considering a variety of equity, access and utilisation issues. A key issue here for

those in the health promotion field, for example, is the use of limited resources in the diagnosis, treatment and management of preventable illness. Planners may wish to have this information to identify what potential changes in service utilisation may follow the achievement of our national goals and targets, or to develop broad order estimates of the potential health care cost offsets to the cost of the prevention activities.

## Direct and indirect costs of disease

Economists make a distinction in disease cost studies between the direct costs of providing health care services and the indirect costs, which focus on lost production due to sickness and premature death but can include as well costs impacting outside the health care sector (such as police and court costs associated with drug abuse, for example). Direct costs thus include all those expenditures on diagnosing, treating and caring for the sick. Indirect costs and intangibles (such as pain and suffering) are not included in the cost estimates presented here, as their meaning is often imprecise and the methodologies for their measurement at the population level are either contentious and/or at an early stage of development.

While the direct costs of disease that are presented here have a clear meaning and usefulness, they do not provide a comprehensive 'costing' in the absence of these indirect costs and intangibles (which, when measurement is attempted, can often yield estimates so large in size that they swamp direct costs). By including information in this report on incidence of new cancer cases and numbers of deaths, aspects of this issue are addressed, but in health status terms rather than in dollars.

## Use and interpretation of direct costs of cancer

While direct cost estimates can certainly be useful to planners and researchers for the variety of purposes mentioned above, they too need to be carefully interpreted. Disease costing analysis, like any analytical tool, can be misused. It is important that the uses and limitations of such data be clearly understood. From an economic perspective, the most important points to note are:

- existing expenditure on a disease, no matter how large, is not sufficient in itself to justify further expenditure. Economic guidance on the issue of resource allocation should only be offered using evaluation techniques that combine both costs and outcomes and involve a comparison of alternatives, i.e. the marginal costs and marginal outcomes associated with the specific interventions employed to reduce the disease burden;
- care should be taken in interpreting direct costs associated with disease treatment as an estimate of the savings that would directly result from prevention of disease. The 'cost' may be partly in the form of a fixed asset (a hospital, a medical specialist or a nurse). However, these assets may often be usable elsewhere in the health sector and may thus be seen as 'opportunity costs' associated with the disease under consideration (see Mathers et al. 1998b); and
- although the expenditure estimates reported here provide a broad picture of the health system resources usage classified by age, sex and cancer site, they should be interpreted with caution for specific cancers because the methodology is a

> comprehensive national accounts approach, which, while yielding consistency, good coverage and totals that add up to known expenditures, is not as sensitive or accurate for any specific cancer as a detailed analysis of actual costs incurred by patients with that disease.

Used sensibly and carefully, disease cost estimates (and burden of disease information in general) can also have a role that goes beyond simple description, monitoring and performance assessment. Such information can also be a useful input in the priority-setting process. A discussion paper released by the University of York Centre for Health Economics noted, for example, that:

> Ideally, as part of the exercise of ranking health priorities, it would also be useful to compile information on morbidity, costs and other indicators of the burden of illness. As well as providing the information that would be needed to build improved indicators, the robustness of ranking priorities of life years lost could be tested. Unfortunately, there have not been many studies of the costs of illness for different diseases as undertaken in the United States and other countries (Godfrey et al. 1989, p20).

The Australian Institute of Health and Welfare (AIHW) started its disease costing analysis in 1992 as part of a broader approach to evaluation. The economic evaluation and priority-setting aspects of this work are now being pursued at the Health Economics Unit (HEU) of the Centre for Health Program Evaluation in Melbourne, while the AIHW is focusing on the disease costs and impact aspects. The underlying rationale of the HEU's approach is that priorities for illness prevention and health promotion should be guided by information that includes the public health significance of health problems (using a range of indicators such as mortality, morbidity and costs of illness), but also goes on to consider the theoretical preventability (efficacy) and practical preventability (effectiveness) of the health problems, and the relative cost-effectiveness (efficiency) of individual measures aimed at achieving the potential reductions in the disease burden.

Disease costing is not yet able to provide a comprehensive assessment of the impact of disease on the welfare of society. This would require a measure for the impact of anxiety, pain and suffering, for which satisfactory dollar measures have yet to be developed. Direct health system costs can, nevertheless, be useful indicators of the economic burden which individual diseases place on a society and can help identify and analyse how health resources are allocated among different types of costs, services and diseases.