Development of national public health indicators

Discussion paper

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Development of national public health indicators

Discussion paper

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Introduction

This discussion paper sets out the development, so far, in the process to formulate and adopt measures that will indicate the level of achievement in public health in Australia. In doing so, the paper seeks views and input from the public health community to assist in the further development of an agreed set of national public health indicators.

Australia currently lacks an agreed set of public health indicators. The purpose of the National Public Health Indicators Project is to provide a set of summary surveillance and monitoring indicators to report on Australia's public health via key health domains with a national focus. Indicators provide a method of describing the public health problems that affect a population. Practitioners can evaluate and promote the public health contribution, using indicators, within the social/political debate for resources, by articulating issues in a comparable way.

This project also allows a comparison of national indicators of public health performance with corresponding indicators from elsewhere (Frommer 1997). These methods will allow the monitoring of established health issues as well as providing a surveillance method for the emerging factors that will impinge on public health (Breslow 1998).

Common themes from these national indicator sets may also assist and influence indicator development and selection in State/Territory jurisdictions. The AIHW views the acceptance and ownership of these indicators by the public health community as vital because they provide basic accountability of the various sectors (AIHW & NPHIWG 1999).

The ability to report on the nation's public health relies on available public health information. However, indicator development should not be constrained by the data currently available. The development of an indicator set, using an agreed conceptual framework, will inevitably highlight gaps and deficiencies in the organisation and availability of public health data. The National Public Health Information Development Plan aims to support the improvement, quality and coverage of public health information that will enable the monitoring and surveillance capacity of a set of public health indicators (AIHW & NPHIWG 1999).

The development of an agreed set of national public health indicators, through a consultative process, has been identified as a high priority in the National Public Health Information Development Plan. Both the National Public Health Partnership and the Australian Health Ministers' Advisory Council have endorsed this recommendation. The National Public Health Information Working Group, which has responsibility for implementing the plan, has agreed that the development of indicators should proceed as a matter of urgency.

Support for this project has come from the National Public Health Partnership, which has an established coordination role for Australia's national public health programs. The Department of Health and Aged Care has provided funding for the project. Comments on this discussion paper should be forwarded to Gerard Fitzsimmons at the Australian Institute of Health and Welfare by post or email gerard.fitzsimmons@aihw.gov.au by 1 March 2000.

Key terms used in this paper

Domain

A domain is an area of policy focus and public health activity in the health sector that enables a clustering of meaningful analysis, actions and discussion under its heading. A domain may be focused on either a determinant of health or a priority health outcome.

Determinant of health

A determinant of health is a factor that has been identified as having either a positive or harmful effect on health. Determinants are categorised as either structural (poverty or unemployment) or specific (tobacco use or physical activity).

Priority health outcome

The indicator framework focuses primarily on determinants as the basis for public health action. However, for those diseases with no identifiable determinants, the focus is on priority health outcomes. The priority health outcomes category allows analysts to apply the domain classification to the disease and its organised public health action.

Public health indicator

A public health indicator is a summary statistic which is directly related to and which facilitates concise, comprehensive and balanced judgements about the condition of a major aspect of health, a determinant of health, or progress towards a healthier society (Mathers & Schofield 1997).

Conceptual basis of public health indicators

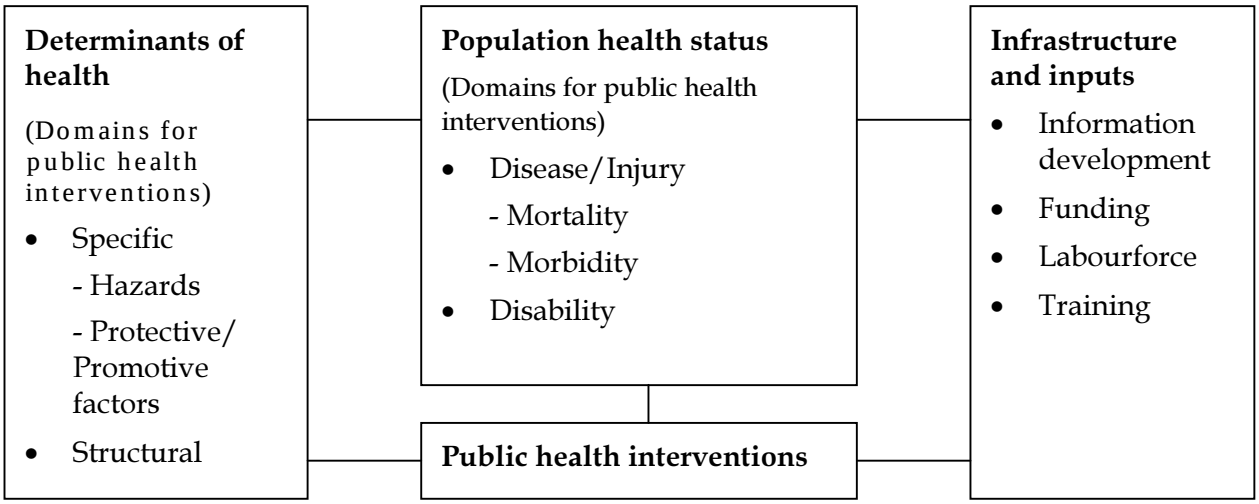
Public health action occurs across many domains simultaneously, requiring our embrace and understanding of the many efforts. The outcome of this effort is either the reduction of risk or the increase in benefit associated with the public health action (NPHP 1999). However, public health action should not happen without information to guide the process. Public health action requires an analysis of the measurable/estimated risk or benefit associated with that action. Indicators aim to communicate information and draw our attention to public health problems and their program successes. Without the information there is no evidence to support the implementation of a strategy and monitor its progress.

What are public health indicators?

A public health indicator presents a population health view that is relevant to public health action, rather than individual service delivery. For example, the best public health indicator for describing the effect of mammography screening for breast cancer will be the reduction in breast cancer mortality rather than some other indicator of service delivery like the number of women using mammography screening services.

The indicator framework

Mathers and Fogarty (1996) proposed a comprehensive conceptual framework for public health information. This framework provided the basis for the information framework adopted in the National Public Health Information Development Plan. The major dimensions of the framework presented in Figure 1 can also be used to describe categories of public health information, which include inputs and infrastructure, population health status, determinants of health, and public health interventions (AIHW & NPHIWG 1999). This framework should allow flexibility to deal with the varying issues and interventions that might be incorporated within a public health strategy. The framework has been modified and simplified to align it with the conceptual approach to a national public health planning and practice framework developed by Penman and Frommer (NPHP 1998). Their view of public health is characterised in terms of the identification, analysis and management of determinants of health.



Source: AIHW & NPHIWG (1999)

Figure 1: Conceptual framework for public health information (adapted from Mathers and Fogarty 1996 and AIHW & NPHIWG 1999)

Health domain

A domain, as an area of public health activity, may be defined in terms of a determinant or health condition. Smoking is a determinant-defined domain, and monitoring of this domain would focus on the illnesses, consequences, attitudes, behaviours and smoking related diseases.

Domains are grouped into three categories (Mathers 1998)

Established domains are those where there is evidenced-based public health action occurring. These domains will be areas identified as national strategies or priorities for public health action under the National Public Health Partnership. Established domains will either have identified risk factors subject to risk management or early detection programs in place or agreed to be implemented.

Emerging domains are those which are emerging as potential targets for public health action, but where either modifiable risk factors or protective factors have not yet been identified, or effective public health interventions have not been developed or implemented. Such domains may be new problems e.g. environmental allergens, or re-emerging problems e.g. tuberculosis. Emerging domains are characterised by the absence of nationally significant public health programs. The Tobacco-related disease scenarios from the 1940's, where lung cancer was so infrequent and unrecognised as an emerging problem, provides justification for a set of emerging health indicators so as to identify the newly arising factors that impinge on peoples health (Breslow 1998).

General surveillance domains include aggregate measures of health status and well being, general information on disease and disability trends, and important demographic trends. These domains summarise trends and components of population health not covered by the established and emerging domains. They provide a general surveillance component to the national public health indicators.

Purpose of public health information

The purposes of public health information are presented in Table 1. Domain types are grouped by whether the national public health indicators are for the purpose of surveillance or monitoring. *Monitoring* refers to the routine analysis of 'current priority strategies for public health' aimed at detecting changes in health and the environment that might allow intervention and also provide 'relevant long-term indicators of progress'. *Surveillance* implies an 'early warning system' of public health issues that have not been addressed by public health activities, in order to stimulate a response (Mathers 1998). A number of views exist regarding the definition and relationship between surveillance and monitoring including monitoring as one subset of the all-encompassing surveillance principle. However, AIHW currently supports the definition view discussed above from the development work associated with public health information (Mathers and Fogarty 1996).

Table 1: Purposes for public health information and indicators

	National public health indicators	
Domain type	**Monitoring**	**Surveillance**
Established	✓	
Emerging		✓
General		✓

Source: Mathers 1998.

Categories of indicators within each domain

Each domain may contain indicators of health status, impact, risk factors, interventions, outcome or equity, depending on the quality of the indicator and whether it is an established, emerging or general domain. A selection of indicators should aim to demonstrate in a concise way, the effect of the public health action. The categories of indicators presented below are summarised from previous papers presented to National Public Health Information Working Group (Mathers and Schofield 1997, Mathers 1998). Use of these categories enables flexibility to deal with the varying issues and interventions that might be incorporated within a public health strategy.

Health status is a measure of occurrence (incidence, prevalence, and mortality) for disease or injury within a given domain.

Impact reflects the loss of health associated with a disease or injury, health system or economic costs.

Risk factors (determinants) refer to an individual's exposure to a genetic feature (high blood pressure or cholesterol) or modifiable behaviour that can be either a negative or protective factor associated with the disease or injury.

Interventions are public health programs or other resources allocated to an activity that modifies/prevents the disease or injury. These aim to present a measure of the success of the intervention and, where appropriate, the reported harms associated with the intervention. For example, the child vaccine preventable disease domain reports uptake rates for the various vaccines and also notified adverse outcomes of a vaccination. This category may also include a measure of health literacy or attitudes as applied to the various domains.

Gain or outcome measures estimate the gain in health associated with a particular public health issue. If evidence is available to attribute health gain to public health activity, then outcome measures may also be feasible. These may include generic 'quality-of-life' measures that would allow comparison across domains. Health gain and health status is currently directly related because often the best measure of gain can be implied through change in health status. In addition, measures of functioning and wellbeing may also be included under this category. This recognises the gradual shift from measuring the morbidity/mortality associated with medical care to the assessment of a person's functioning, ability to perform tasks of daily living, wellbeing, and evaluation of their own general health (Stewart & Ware 1992).

Equity refers to indicators of socioeconomic and other differentials (unemployment, cultural background) in health status, impact, risk factor or intervention as relevant to the public health domain.

Table 2 combines the purposes of public health information from Table 1 with the categories of indicators outlined above. The Established domain incorporates each of the indicator categories available while the Emerging domain requires health status, impact, determinants and equity. General surveillance domains require surveillance of health status, impact, and equity.

Table 2: National public health indicator categories by domain

Domain type	Monitoring	Surveillance
Established	Health status	
	Impact	
	Risk factors (Determinants)	
	Interventions	
	Health Gain/Outcome	
	Equity indicators	
Emerging		Health status
		Impact
		Determinants
		Equity indicators
General		Health status (summary)
		Impact
		Equity

Source: Mathers 1998.

Development

Indicator definitions and constructs

The first step needs to be a clear definition of the purpose of the indicator. Indicators need to be developed to meet a specific purpose in a defined context. For example, indicating changes in a populations health status at a national level. The following criteria have been used to guide the definition and development of public health indicators and should be:

- either national in scope, or applicable to regional or population issues of national significance;
- as aggregated as possible, ie. summarise as much as is consistent with the level of surveillance or monitoring required;
- 'normative'—subject to the interpretation that, if the indicator changes in the 'right' direction, while other things remain equal, people will be 'better off';
- able to show evidence of a clear link between the indicator and improvements in outcome;
- reliable and valid—its values must be meaningful in relation to public health;
- scientifically credible and ethical;
- consistent and comparable with indicators used in other jurisdictions, as far as possible;
- easy to understand;
- described in a standard manner;
- able to provide an explicit operational definition in terms of measurable constructs;
- capable of being monitored to provide statistically verifiable time series, and preferably applied to a broad range of age groups and populations;
- responsive to measurable change; and
- able to be monitored with relative ease at suitable intervals.

Indicator development

The process of domain and indicator selection has been developed from a literature review and consultation with public health experts. The development of the proposed indicators will include discussion on:

- definitions;
- development issues;
- availability of good quality data;
- consultative processes;
- presentation of data;
- interpretation of the indicator;
- limitations;
- method of calculation including statistical methods;
- further references; and
- more information or web sites to allow users to seek further information.

However, further refinement is likely as policies undergo development and change. To be useful measures of public health development, indicators should have a robust structure that provide

medium to long term trends but be responsive to the public health policy environment within which they operate. Other ongoing indicator development issues will include the validation, definition, evidence of cause/effect between the indicator and the health issue, exposure to risk in relation to safety measures, and changes to analytic methods. Thus the development process must produce indicators that reflect the effect of public health action but are insulated against change or influence from unrelated events. Where change will be so small that monitoring trends becomes difficult, consideration should be given as to whether the rate at which change can be expected to occur makes the indicator relevant for reporting.

The literature review of indicators demonstrated the wide variety of potential analyses. Some 25 sets of indicators were included in our review and these formed the basis of a first draft set of National Public Health Indicators. The conceptual framework for National Public Health Indicators aims to provide a consistent structure for their presentation to promote the purpose of monitoring and surveillance of Australia's public health. Presentation of a first draft set of indicators was completed using the conceptual framework and with the intention of giving some guidance to potential contributors in terms of:

- showing the possible indicators for inclusion in a public health domain;
- encouraging possible changes related to the indicators suggested for inclusion;
- advising on the availability and possible sources of data; and
- recommending methods of analysis that support the reporting plan.

Consultations with the chairs of National Public Health Strategies and Chief Health Officers of State and Territory health departments commenced during late 1998 and early 1999 respectively. The consultations showed important differences in the types of indicators that were acceptable. Responses did not reflect acceptance of the need for a common framework of information on health status, impact, determinants of health, intervention, outcome, and equity measures. This led to a set of indicators that were inconsistent, as they were not structured around a common framework with the consequence of poor integration between the public health domains.

A more compelling problem is the lack of a common understanding of an overall public health framework. This should be solved by the adoption of the National Public Health Partnership (NPHP*) A Planning and Practice Framework for Public Health* that can:

- promote a common language for planning and practice;
- provide a systematic approach; and
- integrate action by recognising commonalities (NPHP 1999).

Data development

The National Health Data Dictionary provides an established core set of uniform definitions relating to a range of components likely to be included in national public health indicators (AIHW 1999). Definitional references for components of the indicators will be referred to in the guide to indicators. While the development of indicators should not be dependant on the availability of data, there is a need to ensure that data gaps are identified at an early stage to allow a planned process of data development to occur. A number of data gaps relevant to the development of health information have been identified in the National Public Health Information Development Plan and include:

- need to develop a national work program to improve the overall coverage of public health survey data and establish national minimum data sets for priority areas;
- lack of regular national risk factor surveys including biomedical and physical measures;
- little ongoing surveillance of risk factors (determinants of health);

- lack of development of the intersectoral data needed for public health
- little data on impact of health promotive environments;
- lack of generic measures of wellbeing, functional ability and quality-of-life;
- inadequate specification of socioeconomic status, indigenous status, and geographic identification of respondents in surveys; and
- need for summary statistics that are directly related to major aspects of health status and determinants.

Other data issues include the problem that many current measures of morbidity rely on measures of services delivered, making it difficult to derive population-based measures of incidence and prevalence. It is also important that the data development needed for indicators be carried out through existing processes to reduce the burden on data developers and respondents.

National information development

The National Public Health Information Working Group (NPHIWG) should remain the key national body for advice on the process of the selection, format, analysis of all work related to the development and presentation of the National Public Health Indicators report. This discussion paper will lead to the first National Public Health Indicators report and warrants a broad distribution and discussion.

Deciding on specifications

The National Public Health Information Working Group would be assisted in its development role by the establishment of an indicator and data assessment group. The role of this group would be to review the record of consultation for the national public health indicator report and to provide recommendations on:

- specifications for each indicator and domain including resolution of conflicting opinions regarding indicator selection;
- data development requirements when a lack of information is identified;
- methods of analysis
- populations to be used in analysis, including which Australian standard population 1991 or 1996 should be used when standardising;
- year of registration or year of death as the base for analysis;
- inclusion of and method for significance testing; and
- inclusion of and method for calculating confidence limits.

Outline of the national public health indicators report

The structure of the first report

It is proposed that the first report will describe the framework used to construct the set of public health indicators for Australia including the data development and definitions while also presenting, using the framework, a limited number of domains as case studies. The report and the indicators will provide a basis for discussion on the further development of the set of national public health indicators, including their definition and standards.

Proposed indicators within each domain will be defined and a summary of related issues discussed using, as a guide, a model published by the Canadian Institute for Health Information (WGCHIS et al. 1997). All domains will be presented by describing the process of indicator development with a definition, the consultative processes, and a pointer for further information. A list of domains is included in Appendix 2. In addition, several domains will be presented as case studies to aid the development of a reporting model. The model will include discussion on indicator development, definitions, data availability, consultative processes utilised, presentation styles, interpretations, limitations, method of calculation, references, and web sites for further information.

Overall health of the Australian population

General surveillance indicators are part of the 'early warning' system to detect new emerging problems. It is reported that there will be a significant environmental health problem in the next century that no one in the twentieth century will have considered or predicted (Gochfield & Goldstein 1999). General surveillance indicators aim to provide Australia with a method of detecting the ill effects of these emerging problems as they arise. The general surveillance domains may include indicators of life expectancy, health expectancies, patterns of morbidity and mortality etc. The surveillance indicators are important and require vigilance because the danger for public health remains that we become so engrossed in present problems that we fail to recognise emerging hazards (Breslow 1998).

Structural determinants of health

Social and environmental factors form the base of the health of an individual and a population. These external factors are characterised as structural determinants of health and can have either a positive or negative effect (NPHP 1999). Examples include environmental sustainability, family, school, community, and economic conditions such as a recession. The public health community's understanding of these influences is emerging as the evidence from the research develops. Indicators for consideration will include population structure, socioeconomic disadvantage, unemployment and education.

Specific determinants of health (organised by domain)

Specific determinants are characterised by events more closely related to the individual (NPHP 1999). This section is fundamental to a report describing the representative public health programs and includes presentation of determinants such as physical activity, overweight and obesity, diet and nutrition, high blood cholesterol and hypertension, tobacco smoking, alcohol use, illicit drug use, etc. The report will be organised by identified 'domains', defined in terms of the focus of national public health activity. Where such activity is directed towards a specific determinant of health such as a risk factor, then the domain is defined in terms of the risk factor (e.g. tobacco

control, overweight and obesity, physical inactivity). Organisation of this section, for clarity of presentation, isolates individual determinants by how they cause illness rather than to present a simplistic model of causation. Part of the task will be to achieve a discussion that recognises the multi-factorial nature of disease causation. Appendix 1 presents tobacco as an example of how the framework is used to present a domain.

Priority health outcomes (organised by domain)

Some public health action cannot be organised by identified determinants of health. Several public health programs target the prevention of a disease or injury by influencing stages of the illness such as through population screening for early detection and immunisation to prevent infection. These domains are characterised by the focus of public health action on the disease (e.g. breast cancer, measles). This section is also fundamental to a report describing national public health programs and would include domains not previously covered under specific determinants of health domain headings would include vaccine-preventable diseases, HIV/AIDS, some cancers, diabetes, mental health including suicide, cardiovascular disease, asthma, dental health and some injury.

Issues

Purposes

The purpose for which indicators are being developed will affect the nature of the indicator. Indicators need to be structured to meet the specific purposes, which should be defined as a first step. There are few indicators that can validly meet all the needs including performance indicators, benchmarks, health status measures, surveillance, and monitoring.

Consultation

Consultation on this project has seen major stakeholders holding different views of the role and type of indicators being developed. To some extent this disparity has arisen from different understandings of the purpose of the project. A number of stakeholders have seen the development of indicators as a means of evaluating national program by jurisdictions or by components. While public health indicators will provide evidence of population health trends, they are not intended for use as a means of measuring performance or as performance benchmarks. One objective of this discussion paper is to bring to people's notice the national and summary nature of these public health indicators and draw together the disparate views.

Strategy to progress the public health indicator project

The strategy aims to produce an initial report that describes the framework of a national public health indicators document for Australia, which includes the data development and definitions for the indicators and using several domain as case studies. The development and definitions aspect of the report capitalises on existing work of both the project team and the expert advice from leaders in the various subject domains via the chairs of national public health strategies. The National Public Health Information Working Group recommended this strategy at the workshop in June 1999.

Establishing a National Public Health Indicator Technical Advisory Group

The establishment of this group is seen as a critical element in the development of the technical aspects of the set of indicators. A technical advisory group would draw on jurisdictional and national public health strategy representation with expertise in indicator development and data development. Coordination and combining the different views of public health stakeholders into a comparable and relevant set of public health indicators remains the objective of this group that will rely heavily on a national collaboration. An outline of this group's role is described earlier in this document. However, in summary, the establishment of an indicator and data technical advisory group would review and provide recommendations on:

- the indicator and data specifications;
- the data development requirements and processes;
- assessment of confidence in evidence;
- the methods of analysis; and
- the relevant standards.

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Appendix 1: Tobacco as a determinant of health-sample domain

Introduction

Tobacco is one of the major modifiable risk factors for death and illness from ischaemic heart disease and lung cancer as well as a range of other diseases (AIHW 1999). Tobacco smoking is the risk factor responsible for the greatest burden of disease in Australia, about 12% of the total burden of disease and injury in males and 7% in females (Mathers et al. 1999). Smoking in Australia is responsible for:

- 6% of all deaths from cardiovascular disease;
- 5% of all deaths from cancer; and
- 4% all deaths from chronic obstructive pulmonary disease (Waters et al. 1996).

Smoking of tobacco strongly increases the risk of lung cancer and accounts for 85% of new cases (DHFS & AIHW 1997). Lung cancer is the most common cause of cancer death among males and the second most common cause of all cancer deaths in Australia (DHFS & AIHW 1997).

Data specifications

The current *National Health Data Dictionary* defines a core set of definitions and data items related to tobacco smoking (AIHW 1999b). Use of the dictionary promotes a consistent understanding and presentation of tobacco smoking information. Tobacco smoking is listed under lifestyle characteristics and includes definitions of status, consumption, duration, and product.

Health status

The most sensitive health status indicator for monitoring the consequences of tobacco is lung cancer. In Australia, the rate of lung cancer is significantly greater in men, approximately three times more than for women. However, lung cancer incidence and mortality trends since the early 1980s show a decrease in male incidence and death by approximately 20% (Figure 1.1). This contrasts with an increase in female lung cancer incidence of approximately 40% and death of approximately 30%. Simple hospital separation rates for smoking are not presented as they are notoriously inaccurate measures of lung cancer prevalence due to changes in hospital arrangements such as the introduction of changes to 'long-stay' admission practices, and the possibility of many repeat admissions that cannot be ascribed to an individual.

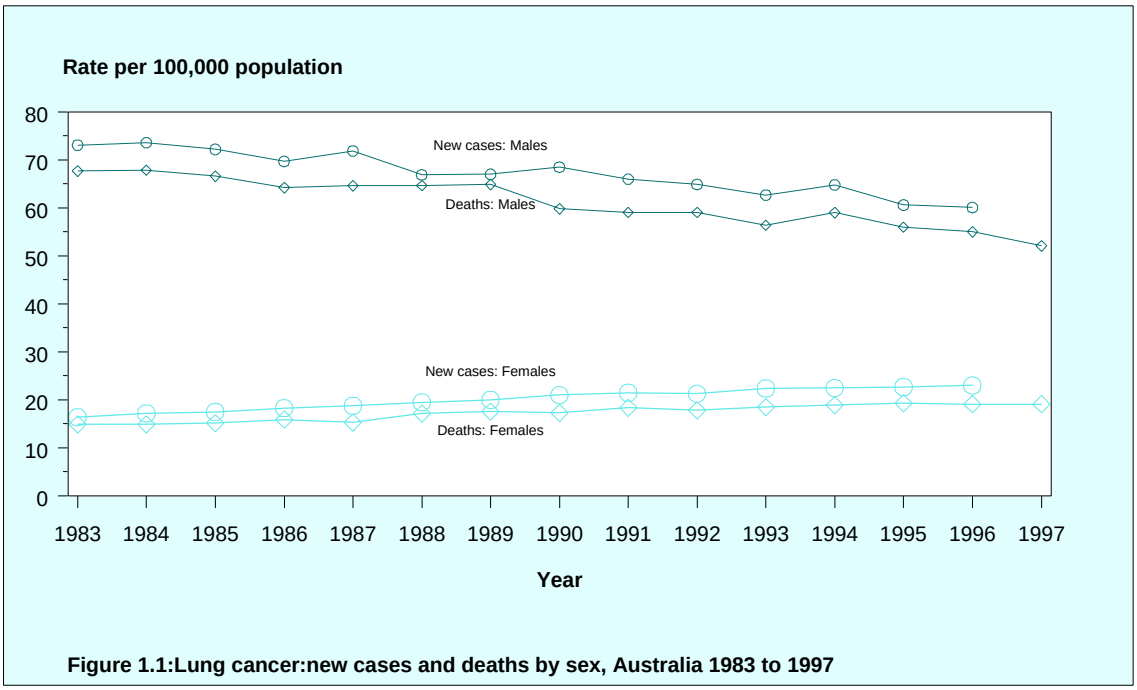


Figure 1.1:Lung cancer:new cases and deaths by sex, Australia 1983 to 1997

Table 1.1 Lung cancer: new cases and deaths by sex, Australia 1983 to 1997

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Males—Mortality	67.7	67.9	66.6	64.2	64.6	64.7	64.9	59.8	59.1	59.1	56.4	59.0	56.0	55.0	52.1
Female— Mortality	14.9	14.9	15.2	15.9	15.3	17.2	17.6	17.3	18.4	17.8	18.5	18.9	19.3	19.1	19.1
Males—Incidence	73.1	73.6	72.2	69.7	71.9	66.9	67.0	68.5	66.0	64.9	62.7	64.8	60.6	60.1	
Females—Incidence	16.4	17.2	17.5	18.3	18.8	19.5	20.0	21.0	21.5	21.3	22.4	22.5	22.7	23.0	

Source: AIHW Cancer Database 1999.

Impact

The Australian Burden of Disease and Injury Study has estimated the burden of disease in Australia for 1996 and the proportion of the total burden that is attributable to tobacco smoking (Mathers et al. 1999). This study measured mortality, disability, impairment, illness and injury arising from 176 diseases, injuries and risk factors using a common metric, the disability-adjusted life year or DALY. One DALY is a lost year of 'healthy' life and is calculated as a combination of years of life lost due to premature mortality (YLL) and equivalent 'healthy' years of life lost due to disability (YLD). Most of the burden of tobacco is due to lung cancer, chronic obstructive pulmonary disease and ischaemic heart disease. These three together comprise almost 72% of the attributable burden of tobacco smoking and account for almost 7% of all DALYs. Table 1.2 lists the conditions associated with tobacco smoking, along with the associated deaths, YLL, YLD and DALYs (Mathers et al. 1999).

Table 1.2: The disease burden attributable to tobacco smoking by condition

Condition	Attributable deaths	Attributable YLL	Attributable YLD	Attributable DALYs	Attributable DALYs as a proportion of total DALYs
Lung cancer	6,262	69,662	6,267	75,929	3.0%
COPD	4,645	40,464	19,322	59,786	2.4%
Ischaemic heart disease	2,507	32,317	6,254	38,571	1.5%
Total of all tobacco-related diseases	**16,875**	**183,380**	**58,759**	**242,138**	**9.7%**

Source: Mathers et al. 1999.

The tobacco related burden of disease by sex is presented in Table 1.3, which lists the total attributable YLL, YLD and DALYs as a proportion of the total disease burden. Nearly 1 in 5 male deaths (17%) can be attributed to tobacco and proportions of burden for males are nearly double those for females.

Table 1.3: The burden of disease attributable to tobacco as a proportion of the total disease burden

	Males		Females		Persons	
	Number	Per cent	Number	Per cent	Number	Per cent
Deaths	11694	17.1%	5181	8.6%	16875	13.1%
YLL	124769	16.6%	58611	9.8%	183380	13.6%
YLD	36731	6.4%	22027	3.8%	58759	5.1%
DALYs	161500	12.1%	80638	6.8%	242138	9.7%

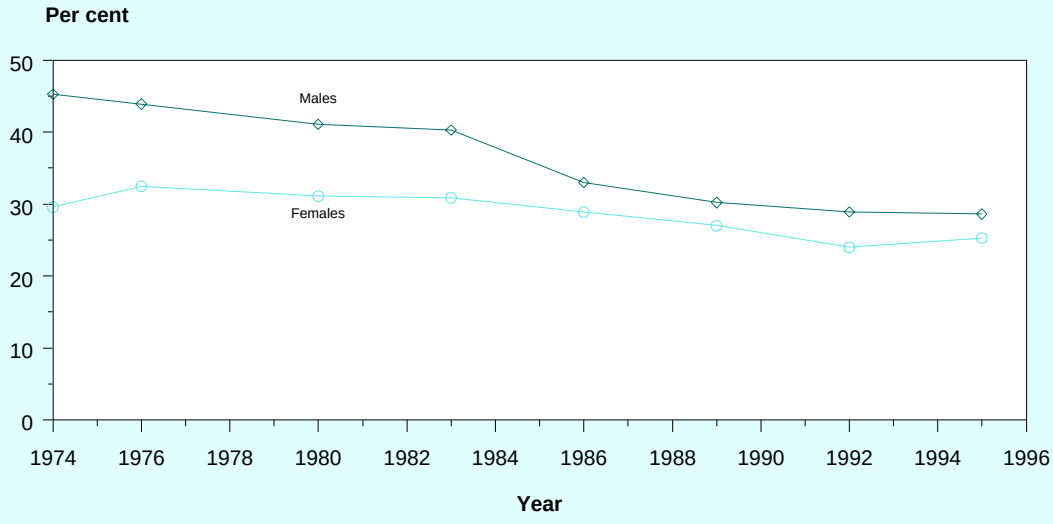
Source: Mathers et al. 1999.

The burden of smoking-related diseases has decreased in males but increased substantially in females. In the 15 years from 1981 to 1996, the per capita mortality burden for lung cancer and chronic obstructive pulmonary disease (COPD) decreased by 15% and 16% respectively for males, but increased by 62% and 70% respectively for females (Mathers et al. 1999).

Risk factor

Smoking rates have been declining since the early 1970's but this trend has platueaed during the 1990's (see Figure 1.2). The Anti-Cancer Council of Victoria' surveys show that the rate of decline in current smoking has slowed in more recent years. Smoking among 15-year old school students has stayed relatively constant over the past 10 years (AIHW 1999). The most recent estimate suggests that there were 3.2 million adult smokers in Australia during 1995 (DHFS 1995).

In 1995, about 27% of men and 23% of women over 16 years of age smoked tobacco. Men and women aged 25 to 29 years have the highest proportion of smokers at around 35%. After 30 years of age, the rate of smoking declines with increasing age and is lowest among men and women over 70 years of age (14% for men and 8% for women). In 1995, the proportion of ex-smokers in Australia was 32% for men and 22% for women. The proportion of people claiming to have never smoked was 39% for men and 53% for women (Mathers et al. 1999).



Note:Age-standardised to the 1986 Australian population

Sources:Hill 1988, Hill et al. 1991, Hill et al. 1995, Hill et al 1998, as reported in AIHW 1999

Figure 1.2:Proportion of persons who are current smokers, 1974 to 1995

Intervention/prevention

Prevention is the only strategy available to reduce the burden of tobacco-related diseases (DHFS & AIHW 1997). Reducing the use of tobacco has seen the development of several strategies which include price increases, preventing sales to minors, promoting 'quit' smoking programs and reducing passive smoking (Waters et al 1996).

Health outcome or gain

The attributable burden of tobacco smoking estimated by Mathers et al. (1999) relates to the proportion of current disease burden attributable to current and past tobacco smoking. Another form of attributable fraction would estimate the proportion of current disease burden that would be prevented in the future if smoking were eliminated or reduced. This form of attributable fraction is relevant to analysis of potential public health interventions but requires a model that predicts the disease burden under an alternative hypothetical or 'counterfactual' scenario (e.g. a halving of tobacco smoking rates over 5 years).

In the absence of such analyses, the current attributable burden of tobacco smoking shown in Tables 1.2 and 1.3 offer an approximate guide to the potential magnitude of health gains resulting from reductions in tobacco smoking. In addition, the dose-response relationship of tobacco and early mortality is well established. However, a recent study has demonstrated that there is a dose-response relationship between smoking and quality-of-life. People who smoke more scored lower on the quality-of-life measure and should encourage heavy smokers to consider becoming light smokers (Wilson et al. 1999).

Equity

Smoking is more common among people in the lowest socioeconomic group than those in higher socioeconomic groups (AIHW 1999).

Unemployed men and women are more likely to smoke than employed men and women (AIHW 1999).

Indigenous Australian men and women are at least twice as likely to smoke as other Australian adults (AIHW 1999).

People living in rural and remote areas are not significantly different in their rates of smoking compared with Urban Australians (AIHW 1999).

Further information

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For more information:

Tobacco Control Website at http://www.health.usyd.edu.au/tobacco/

Appendix 2: Framework for national public health indicators report

16 December 1999

Part/Chapter	
1. Overall health of the Australian population	Global indicators of trends in population health, adverse mortality trends (for causes of death where rates are increasing significantly)
1.1 Life expectancy and mortality	
1.2. Adverse mortality trends (surveillance)	
1.3. Self-reported health, disability and wellbeing	
1.4. Health expectancies	
1.5. Burden of disease and risk factors	
2. Structural determinants of health	Trends for key structural determinants. Other possible chapters could include culture, education and literacy levels
2.1 Population structure (demographic trends)	
2.2. Socioeconomic disadvantage	
2.3. Environmental sustainability	
3. Specific determinants of health	Chapter for each major determinant which is the focus of Partnership action (usually associated with national strategy, policy or action). Indicators generally include: • National trend in measure of exposure • Measure of intervention—trend • Health status measure related to exposure
3.1 Physical activity	
3.2. Overweight and obesity	
3.3. Diet and nutrition	
3.4. High blood cholesterol and hypertension	
3.5 Tobacco smoking	
3.6. Alcohol use	
3.7. Illicit drug use	
3.8 Environmental determinants	
3.9 Gun control?	

4. Priority health outcomes

4.1 Vaccine-preventable diseases
4.2. HIV/AIDS
4.3. Other communicable diseases
4.4. Cancer control
4.5. Breast cancer
4.6 Cervical cancer
4.7. Skin cancer
4.8. Other preventable cancers
4.9. Diabetes
4.10. Mental health
4.11. Cardiovascular disease
4.12 Asthma
4.13. Dental health
4.14. Injury
4.15 Suicide
4.16 Interpersonal violence

Chapter for each major health problem which is the focus of Partnership action (usually associated with national strategy, policy or action). Indicators generally include:

- National trend in health status measure
- Measure of intervention (if relevant)
- Exposures related to health problem

5. Public health infrastructure

6.1 Public health expenditure
6.2. Public health workforce
6.3. Public health information
6.4. Capacity benchmarks

This section might need to be left for second report pending development of data collections. Or for first report, use existing health expenditure and workforce data.