

Section 3

Health, inequality and social inclusion over the life course

In this section ...

Social inclusion and the promotion of health and wellbeing

Life course influences on health and wellbeing

Health inequalities across the life course

The role of the health sector

Sources of information

This page intentionally left blank

Social inclusion and the promotion of health and wellbeing

Health inequalities, an ageing population and changing patterns of disease present challenges that require new responses from the Australian health care system, its workforce and its ways of delivering services.^{2,4-6} To achieve good health for every segment of the population, the factors that determine health must also be addressed in order to shift from a narrow focus on illness, to a broader focus on health and wellbeing, and full participation in society.^{1,4}

Health is a human right; and the 'capabilities approach' to eradicating inequality, social exclusion and poverty focuses on achieving positive 'freedoms', such as being able to access health care and education, enjoy recreational activities, own property, and seek employment.^{7,8} These freedoms enable people to have a level of control or agency over their lives, that is, by having the ability to freely make choices regarding their life.⁸ From a social inclusion perspective, escaping poverty is not just having material wellbeing, but also the opportunities and choices to lead a fulfilling life.

As freedom from poverty involves more than freedom from insufficient income, so positive health transcends mere freedom from illness.^{9,39} The WHO adopted this perspective when it defined health in 1948 as "a state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity".¹⁰ This emphasised people's personal and social resources and ability to make choices in life, identify and realise aspirations, satisfy needs and change and cope with their environment, although some researchers have claimed that to achieve such a state is more ideal than realistic for most of the population.³⁹ The WHO's prerequisites for health for all include equal opportunities for all, satisfaction of basic needs (adequate food and income, basic education, safe water and sanitation, decent housing, secure work, a satisfying role in society), peace and freedom from fear of war - and incorporate current perspectives on sustainability.⁴¹

The 1986 Ottawa Charter for Health Promotion, moved beyond the original WHO definition, which regarded health as a state, towards viewing it as a dynamic process.¹¹ It defined health as "a means to an end which can be expressed in functional terms as a resource which permits people to lead an individually, socially and economically productive life." This definition also holds that "health is a resource for everyday life, not the object of living"; and it explicitly ties

health to capabilities and positive attributes of freedom, thus underpinning its relationship with social inclusion.¹²

The Charter describes health promotion as the process of enabling people to increase control over, and to improve their health.¹¹ It not only entails actions directed at strengthening the skills and capabilities of individuals, but also involves efforts aimed towards changing social, environmental and economic structures and conditions, in order to alleviate their impact on population and individual health. Health promotion is the process of enabling people to increase control over the determinants of health and thereby, to improve their health and that of the community. Community participation is essential to sustain health promotion action.¹²

Life course influences on health and wellbeing

To appreciate fully the impact of inequality on the wellbeing of individuals, it is necessary to consider the whole of their lives.^{3,13} The concept of 'life course' examines how people's health is shaped over their lifetime, by exploring the processes through which social inequalities and exclusion during gestation, infancy, childhood, adolescence, adulthood and older age play their part in the socioeconomic gradient in health and wellbeing.^{14,15} For example, a life course approach can assist the understanding of how underlying determinants of health, experienced at various life stages, differentially influence the development of chronic diseases, as mediated through specific biological processes.^{3,16} Using a life course approach, pathways to health and disease may be elucidated at a level of detail that identifies how and when optimal outcomes can be promoted.¹⁷ Thus, findings from life course research offer important background information to underpin more effective health promotion and disease prevention work, aimed at reducing the risk of ill health and health inequalities in today's children and young adults and tomorrow's middle-aged and elderly populations.^{3,18}

In life course research, which is aimed at understanding the relationship between socioeconomic inequalities and health, two main research streams have concerned:

- the links between early conditions and later health, morbidity and mortality; and
- the age-specific variation in health risks by social position, education, and income.¹⁹

Research outcomes show that, not only are the relationships among socioeconomic position and health complex, but also that the complexity is

increased by the fact that the interrelationships are dynamic across age, generations and time.²⁰ However, while the borders between childhood, youth, adulthood and old age in the life course are defined by different times, places and cultural contexts, the notion of life course is a useful advance in understanding the development of health and wellbeing for individuals and for populations.^{18, 19}

A number of interrelated models have been described to explain ways in which various factors may act to influence the development of chronic diseases over the life course:

1. The critical period model – where an insult during a specific period of growth or development has a lasting, lifelong effect on physical functioning or structure that results in disease later on. Examples include the effects of certain infections early in life (such as recurrent rheumatic fever, which damages heart muscle and valves, and is prevalent in Aboriginal and Torres Strait Islander peoples), deficiencies in beneficial or exposures to toxic substances (such as iodine, and lead) or maternal ingestion of particular drugs (such as thalidomide and diethylstilboestrol) on fetal development.³⁷
2. Critical period influences with later modifiers of their effects, that is, the later factors modify a risk incurred earlier (childhood-acquired *H. pylori* infection may result in stomach cancer in later life, which may be avoided if the infection is treated effectively).^{22,35-37}
3. Accumulation of risk with correlated results – where risk factors cluster in socially or biologically patterned ways, and hence raise the risk of disease through social and/or biological chains or pathways of risk where one adverse (or protective) experience will tend to lead to another adverse (or protective) experience in a cumulative way. This is exemplified by the effects on cardiovascular mortality when clustered early-life and adult socioeconomic and behavioural factors (such as smoking and poor nutrition) are combined.^{17,37}
4. Accumulation of risk with independent and uncorrelated results – where separate and independent risk factors at each stage of life combine to raise disease risk.^{14,15,17,21,37}

The interplay of the accumulation of risk and critical-period exposures in generating health inequalities differs in relation to a particular health outcome.^{17,21} For example, deprivation in early life is thought to play a role in the occurrence of haemorrhagic stroke.²² For certain lung cancers, exposure during adult life to

carcinogens such as tobacco smoke is important. For coronary heart disease and breast cancer, exposures acting across the life course are influential, yet even in these cases, some periods are more sensitive to exposures than others. For coronary heart disease, for example, the intrauterine environment may be a critical time, while for breast cancer, the period between puberty and the first pregnancy appears to be significant.¹⁷

An appreciation of time is particularly important in societies such as Australia, where chronic diseases are the major causes of mortality and morbidity. These are diseases with complex aetiologies where multiple factors are often involved and where there can be time lags of years or even decades between exposure and evidence of effect.⁴⁴ If life course matters – for example, if disadvantage in early life has life-long effects on life chances and health outcomes – then policies, which tackle inequalities in people's circumstances across their lives, are an essential part of equity-oriented public health and social inclusion strategies.¹⁴

Health inequalities across the life course

A consistent theme, throughout the discussion above, is that the problems of ill health, poverty and social exclusion compound one another. In this sense, accumulated problems can be exacerbated over the course of an individual's life and may be passed on across generations.¹⁴ The life course concept draws attention to how social inequality influences the paths people track through childhood, across adulthood and into old age, paths which shape their access to health promoting resources and their exposure to health damaging risks.^{13,15}

Childhood is a particularly important life stage since it is the period when the foundations of future wellbeing are established.^{1,2} Numerous studies show that childhood circumstances have long term effects on both adult health and socioeconomic circumstances.^{1,2} Longitudinal research following a group of people born in 1958 indicated that experiences in childhood often led to social exclusion in adulthood: social housing was more common if an individual's parents had lived in local authority housing, and those who were poor as children generally had lower incomes as adults.²³ It also revealed that parental interest in schooling was a powerful predictor of educational success. Furthermore, anxious children faced a higher risk of depression as adults, while low educational test scores

correlated powerfully with, amongst other things, a doubling of the risk of depression.²³

However, wellbeing in adulthood is not solely determined during childhood, for living and working conditions in adult life also influence health.²⁴ No stage of the life course is particularly privileged; and interventions that improve living and working conditions are likely to be beneficial regardless of the stage of the life course they target.²⁵

Examples of Australian health inequalities across the life course from the atlas (Section 5) include:

- the results of the AEDI, which show there are high proportions of children assessed as being developmentally vulnerable on one or more domains – 86% more children in the most disadvantaged areas in the major urban centres are in this category than in the least disadvantaged areas, and 64% more in the rest of state areas;
- children in families where the mother has low educational attainment, with much larger differentials, of almost two and three-quarter times (2.72) higher in the most disadvantaged areas in the major urban centres, and 73% higher in the rest of state areas;
- high rates of long-term unemployment, with a differential of 4.11 in rates in the major urban centres, and 2.60 in the rest of state areas;
- premature death rates (deaths before 75 years of age) in the major urban centres which are 55% higher for people from the most disadvantaged areas, and 38% higher in the rest of state areas.

The experience of earlier or current disadvantage can influence interlinked pathways through childhood, during which resources may be accumulated or lost, and health and development optimised or compromised. These pathways relate to physical and emotional health, health behaviours, social identities, and cognition and learning.¹³

Differences in educational attainment have been identified as one of the main determinants of socioeconomic inequalities in health; and tackling educational inequalities remains one of the most politically acceptable policy solutions to communities.^{13,26}

The role of the health sector

As outlined in Section 2, there are different pathways by which the experience of poverty and social exclusion can lead to ill health, while ill health can also lead to and compound poverty

and social exclusion. Addressing the interrelated problems of social exclusion and health inequalities requires an integrated approach which involves a range of policy sectors.

The extent of the contribution that the health sector – particularly the public health and health promotion fields – can make to reducing poverty and social exclusion is increasingly recognised, as is the need for greater cooperation between health and other sectors such as housing, transport, community services and education.^{11,43} Many initiatives aimed at addressing health inequalities may also have the indirect objective of reducing poverty and social exclusion; and there are other ways in which closer collaboration between sectors can strengthen efforts being taken in each area individually.^{11,43}

As discussed, socioeconomic inequalities in health are directly or indirectly generated by social, economic and environmental factors and structurally influenced health risk behaviours; and these determinants are all potentially amenable to change.²⁷ For the purpose of taking action, the health status of groups of people who are better off can be used as a practical indicator of the standard of health theoretically attainable for any society, and as the standard to which policies that address inequalities in health should strive.^{14,28} Indeed, the only way to narrow the health gap in an equitable way is to bring the level of health of the groups of people who are worse off, up to that of the groups who are better off – that is, improve the health of the most disadvantaged groups more quickly, and aim to reach the level of wellbeing of the middle- and high-income groups.^{14,28}

Initiatives to address health inequalities, and thereby to reduce poverty and social exclusion, have been classified depending on the level of focus.^{5,29} The role of the health sector in intervening to address socioeconomic inequalities in health and social exclusion can also be examined using this framework.

Structural interventions and policies include global forces and government policies, which can target socioeconomic disadvantage and thereby address the root causes of inequalities in health.²⁹ These interventions involve improving living standards through the social security system as well as education policy, employment policy, disability policy, housing policy and so forth. While poverty and social exclusion can only be tackled by addressing the root causes that lead to these conditions, health policymakers do not usually make decisions about basic socioeconomic distributions. They need to liaise

with other policy areas to ensure effective action in this area.¹¹

Whole of government approaches to policy development, implementation and service delivery are increasingly being examined and implemented in Australia. One such approach is Health in All Policies (HiAP), which takes as its starting point, the need for whole-of-government or inter-sectoral action, by integrating health considerations into other (non-health) policies.⁴² HiAP is the focus of new research and interest internationally and in Australia; and requires governments to work in partnership with civil society and the private sector to harness health, wellbeing and social inclusion.⁴³

Tackling intermediate factors, such as health-related behaviours and social support, may involve actions which have public health and health promotion goals.²⁹ Addressing the root causes of socioeconomic inequalities will not in itself improve the health status of those who are poor and those experiencing social exclusion. This is because improving individual health status implies changing day-to-day health risk behaviours, which may have been passed down over generations, developed across a lifetime, and patterned by a culture with which the person identifies.²⁹ These interventions and policies therefore aim to reduce exposure to, and the effects of, unfavourable specific material conditions, psychosocial factors and health risk behaviours in more disadvantaged groups. Such interventions can help prevent and alleviate adverse conditions for those living in poverty and experiencing social exclusion.¹¹

Strategies that address the person level, (as well as the effects of structural and intermediate factors on individual physiological and biological functioning), clearly involve the health care sector.^{3,5,29} However, health care interventions cannot prevent or eliminate the problems of people facing poverty and social exclusion, because people have to fall ill before medical care can attempt to address the damage.¹¹ Health care, nevertheless, can play an important role in improving certain aspects of the lives of socially excluded people and in generating an overall improvement in their health and quality of life.¹¹

A comprehensive health strategy that includes a combination of solutions and the relationships between them, as they are often closely interlinked, is required to assist in addressing socioeconomic inequalities in health. Analyses of unhealthy economic and social determinants of health need to be linked to individual causes of certain diseases and health problems.²⁷

Conversely, determinants of health, such as unhealthy behaviours, should be seen in the context of their patterning by wider socioeconomic influences.

As an example, the efficacy of tobacco control programs in Australia can be attributed to policies that include actions on both upstream determinants (such as legislation and the taxation of tobacco products) and midstream health education and smoking cessation programs.²⁷ Following this success, more explicit equity-oriented strategies in these public health programs are now needed.²⁹ For example, while overall smoking rates have been declining, socioeconomic inequalities in the use of tobacco have often increased. This has occurred because the prevalence of smoking has mainly reduced among high- and middle-income groups, while staying the same or increasing among low-income groups, particularly low-income women.²⁷ An equity-oriented tobacco strategy needs to address the gender-specific determinants of the social inequalities of smoke-related conditions, such as negative stress related to living and working conditions.^{27,38} Substantial inequalities in smoking are also evident for Aboriginal and Torres Strait Islander peoples. These highly disadvantaged populations require culturally-appropriate, broadly-based solutions that also recognise that that social and individual health is founded on wellbeing, and 'health is dependent on creating the conditions that enable people to take control of their lives'.⁴⁰

Therefore, while the health sector has limited control over structural interventions, it can try to influence other health-relevant policy areas; and it plays an important role with respect to intermediate and person-level measures.²⁹ Occupational health practitioners can, for example, introduce initiatives to reduce the effects of poor health on socioeconomic position by adapting the working conditions for chronically ill and disabled people to increase work participation. They can also take initiatives that involve improving workplace conditions or introducing health promotion programs, to reduce the effects of exposure to the adverse conditions that are often related to low socioeconomic status. Public health professionals can initiate health promotion programs in educational settings which provide poor children with opportunities to have a healthy lunch or to engage in sports, or offer greater support to their families.²⁹

Finally, health practitioners can reduce the health effects (including the consequences of illness) of being in a lower socioeconomic position through

improved geographic, economic and cultural access to effective health care. For example, this might occur by reinforcing primary health care in disadvantaged areas through the employment of practice assistants, nurse practitioners, culturally-specific workers and peer educators.²⁹ A focus only on access to health care interventions may draw attention away from preventive actions, which can be taken to break the links between poverty, social exclusion and ill health.^{11,29,38} Nevertheless, access issues are important to consider, since failure to get necessary and adequate care, or the inability to pay for medical treatment can exacerbate poverty and social exclusion. In addition, health care services are an important point of intervention to improve individual wellbeing.¹¹

Therefore, to be effective in tackling socioeconomic inequalities in health, policy-makers and practitioners need a sound understanding of the current evidence about the key determinants and ways in which health systems can confront them in different contexts.^{27,38} In the last two decades, our knowledge about what to do to address these differences has advanced considerably, particularly in terms of:

- the actions that are required (policy and programs);
- the focus of such actions (levelling up as well as reaching vulnerable groups); and
- the principles to be applied in the design, implementation and evaluation of such actions (e.g., active engagement of all stakeholders from the beginning).²⁷

While there is a distinction between actions that aim to promote health across the population and those that aim to reduce inequalities, population health policies should have the dual purpose of promoting health gains in the population as a whole and reducing socioeconomic and other avoidable inequalities in health.^{27,38}

Population-wide approaches to health promotion and disease prevention are often designed with the requirement for individuals to opt in, such as taking up appointments or attending group sessions. These types of actions have been shown to benefit those that are willing and able to take them up, but there is strong research evidence that individuals with the poorest health or greatest disadvantage are least likely to take part.^{30,38} Consequently, such approaches may contribute to increasing rather than reducing inequalities in health, and do little to remedy social exclusion.³⁸

Furthermore, focusing on high-need groups as an approach to addressing inequalities should be informed by local information from these communities themselves, and wider research. Without detailed analysis of population demographics and full consideration of the implications of a proposed intervention, there is the potential for certain groups or individuals who are already vulnerable, to be further disadvantaged by the redistribution of resources away from them, to target another priority group.³⁰

Barriers and discrimination that lead to differences in access to the resources and opportunities for health and wellbeing and full participation in society between social groups are both avoidable and unfair.^{31,32} Health holds a primary position in human rights, as everyone has the right to enjoy the highest attainable standard of health in their society.^{10,27} Health is also “a unique resource for achieving other objectives in life, such as better education and employment” and is a way of promoting the freedom of individuals and societies.^{27,33} It is, therefore, important for a society to organise its health resources equitably, so that those resources are accessible economically, geographically and culturally, to every citizen - for the existence of clear social and economic inequalities in health and in their determinants and social exclusion which can result, goes against accepted community values of fairness and justice in Australia.^{27,34}

To conclude, there is now substantial evidence that health wellbeing is the result of complex interactions of the social, biological and ecological contexts in which people live.^{1,2} If these are supportive, they provide a foundation for the development of competence and skills that underpin health, learning, and behaviour throughout life.^{1,25} However, a lack of enabling social conditions results in poorer life outcomes for people, and may adversely influence the wellbeing of subsequent generations, and the overall productivity and social cohesion of the nation.^{2,25}

Sources of information

The following resources were used to underpin the information presented in this Section.

1. Keating DP, Hertzman C. Modernity's paradox. In: Keating DP, Hertzman C (Eds.), *Developmental health and the wealth of nations: social, biological and educational dynamics*. New York: The Guilford Press, 1999.
2. Stanley F, Sanson A, McMichael T. New ways of causal pathways thinking for public health. In: Sanson A (Ed.), *Children's health and development: new research directions for Australia*. Canberra: Australian Institute of Family Studies, 2002.
3. Halfon N, Hochstein M. Life course health development: an integrated framework for developing health, policy, and research. *Milbank Q.* 2002; 80(3): 433-79.
4. Glover J, Hetzel D, Tennant S. The socioeconomic gradient and chronic illness and associated risk factors in Australia. *Aust NZ Health Policy* 2004; 1: 8.
5. Turrell G, Stanley L, de Looper M, Oldenburg B. *Health inequalities in Australia: morbidity, health behaviours, risk factors and health service use*. Canberra: Queensland University of Technology and the Australian Institute of Health and Welfare, 2006.
6. Centre for South Australian Economic Studies. *The impact of socioeconomic and locational disadvantage on health outcomes and cost*. Canberra: Department of Health, Housing, Local Government and Community Services, 1993.
7. Sen A. *Development as freedom*. New York: Knopf, 1999.
8. Sen A. Human capital and human capability. *World Dev.* 1997; 25(12): 1959-1961.
9. Richards R. Defining health: positive freedom and a capabilities' approach. At <http://www.suite101.com/content/defining-health---positive-freedom-and-a-capabilities-approach-a239111#ixzz14fOzWhrx> (accessed 2 November 2010).
10. World Health Organization (WHO). Definition of health. Preamble to the Constitution of the WHO as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the WHO, no. 2, p. 100) and entered into force on 7 April 1948.
11. Stegeman I, Costongs C. *Health, poverty and social inclusion in Europe: literature review on concepts, relations and solutions*. Brussels: EuroHealthNet, 2003.
12. The Ottawa Charter for Health Promotion – Charter adopted at an International Conference on Health Promotion, The move towards a new public health, November 17-21, 1986; Ottawa, Ontario, Canada.
13. Law C. Life-course influences on children's futures. In: Graham H (ed.), *Understanding health inequalities* (2nd edn.). New York: McGraw Hill, 2010.
14. Graham H. The challenge of health inequalities. In: Graham H (Ed.), *Understanding health inequalities*. (2nd edn.). New York: McGraw Hill, 2010.
15. Kuh D, Ben-Shlomo Y, Editors. *A life course approach to chronic disease epidemiology*. Oxford: Oxford University Press, 1997.
16. Davey Smith G. Life-course epidemiology of disease: a tractable problem? *Int J Epidemiol.* 2007; 36: 479-480.
17. Davey Smith G. Life-course approaches to inequalities in adult chronic disease risk. *Proc Nutr Soc.* 2007; 66: 216-236.
18. Kestilä L. *Pathways to health: determinants of health, health behaviour and health inequalities in early adulthood*. (A23/2008). Helsinki, Finland: National Public Health Institute, 2008.
19. Mayer KU. New directions in life course research. *Annu Rev Sociol.* 2009; 35: 413-433.
20. Lynch SM. Race, socioeconomic status, and health in life-course perspective: introduction to the special issue. *Res Aging* 2008; 30: 127-136.
21. Lynch J, Davey Smith G. A life course approach to chronic disease epidemiology. *Annu Rev Pub Health* 2005; 26: 1-35.

22. Hart CL, Davey Smith G. Relation between number of siblings and adult mortality and stroke risk: 25 year follow up of men in the Collaborative Study. *J Epidemiol. Comm. Health* 2003; 57: 385-391.
23. Hobcraft JN. Intergenerational and life-course transmission of social exclusion: influences of childhood poverty, family disruption, and contact with the police. (CASE paper 15). London School of Economics, UK: Centre for Analysis of Social Exclusion, 1998.
24. Berney L, Blane D, Davey Smith G, Holland P. Life course influences on health in early old age. In: Graham H (ed.), *Understanding health inequalities*. Buckingham, UK: Open University Press, 2000.
25. Holland P, Berney L, Blane D, Davey Smith G. Life course influences on health in early old age. Findings from the Health Variations Program Issue 6, September 2000 (online). At <http://www.lancs.ac.uk/fass/apsocsci/hvp/pdf/fd6.pdf> (accessed 13 October 2012).
26. Commission on the Social Determinants of Health. *Closing the gap in a generation: Health equity through action on the social determinants of health*. Geneva: World Health Organization, 2008.
27. Dahlgren G, Whitehead M. *Levelling up (Part 1): a discussion paper on concepts and principles for tackling social inequities in health*. Copenhagen: World Health Organization Regional Office for Europe, 2006.
28. Dahlgren G, Whitehead M. *Levelling up (Part 2): European strategies for tackling social inequities in health*. Copenhagen: World Health Organization Regional Office for Europe, 2006.
29. Mackenbach JP, Bakker MJ, Kunst AE, Diderichsen F. Socioeconomic inequalities in health in Europe: an overview. In: Mackenbach JP, Bakker MJ (Eds.), *Reducing inequalities in health: a European perspective*. London: Routledge, 2002.
30. Glasgow Centre for Population Health. *The development of a framework for monitoring and reviewing health and social inequalities*. (Findings series, Briefing paper 23). Glasgow: Glasgow Centre for Population Health, 2010.
31. Whitehead M. *The concepts and principles of equality and health*. (EUR/ICP/RPD 414). Copenhagen: World Health Organization Regional Office for Europe, 1990.
32. Braveman P, Gruskin S. *Defining equity in health*. *J Epidemiol. Comm. Health* 2003; 57: 254-258.
33. Sen A. Economic progress and health. In: Leon D, Walt G (Eds.), *Poverty, inequality and health: an international perspective*. Oxford: Oxford University Press, 2001.
34. Daniels N, Kennedy B, Kawachi I. *Is inequality bad for our health?* Boston: Beacon Press, 2000.
35. Rocha GA et al. Transmission of *Helicobacter pylori* infection in families of preschool-aged children from Minas Gerais, Brazil. *Trop Med Int. Health* 2003; 8(11): 987-991.
36. Davey Smith G, Hart CL, Blane D, Gillis C, Hawthorne V. Lifetime socioeconomic position and mortality: prospective observational study. *BMJ* 1997; 314: 547-552.
37. Darnton-Hill I, Nishida C, James WPT. A life course approach to diet, nutrition and the prevention of chronic diseases. *Public Health Nutrition* 2004; 7(1A): 101-121.
38. Capewell S, Graham H. Will cardiovascular disease prevention widen health inequalities? *PLoS Med* 2010; 7(8): e1000320.
39. Huber M et al. Health – how should we define it? *BMJ* 2011; 343: 235-237.
40. Marmot M. Social determinants and the health of Indigenous Australians. *Med J Aust*. 2011; 194(10): 512-513.
41. Mahler H. The meaning of "Health for all by the year 2000". *World Health Forum* 1981; 2(1): 5-22.
42. World Health Organization, Government of South Australia. *The Adelaide Statement on Health in All Policies: moving towards a shared governance for health and wellbeing*. *Health Promot. Int.* 2010; 25(2): 258-260.
43. Kickbusch I. Health governance in the 21st century: a commentary. *Public Health Bulletin SA* 2010; 7(2): 9-12.
44. Thacker S, Stroup D, Rothenberg R: Public health surveillance for chronic conditions: a scientific basis for decisions. *Stat Med.* 1995; 14: 629-641.

This page intentionally left blank