Health inequity: a review of the literature

Donna Lloyd

Sallie Newell
Southern Cross University

Uta C. Dietrich
Northern Rivers Area Health Service

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For further information please contact
Donna Lloyd
Coordinator, Health Equity
Health Promotion Unit
Population Health & Planning Directorate
Northern Rivers Area Health Service
PO Box 498
LISMORE NSW 2480
Phone: (02) 66 207501
Fax: (02) 66 222151
Email: donnas@nrahs.health.nsw.gov.au

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PLEASE NOTE:
When reading the word Aboriginal in this document it refers to both Aboriginal and Torres Straight Islander people.
Health Inequity: a review of the literature

Health Promotion Unit
Population Health & Planning Directorate
Northern Rivers Area Health Service
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<td>Attention Deficit Hyperactivity Disorder</td>
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<td>CRH</td>
<td>Corticotropin-releasing hormone</td>
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<td>CRH-HPA pathways</td>
<td>Endocrine and immune systems</td>
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<td>CVD</td>
<td>Cardiovascular disease</td>
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<tr>
<td>DALY</td>
<td>Disability adjusted life years</td>
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<td>ECD</td>
<td>Early childhood development</td>
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<td>ED</td>
<td>Emergency Department</td>
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<td>FAS</td>
<td>Foetal Alcohol Syndrome</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<td>HPA pathway</td>
<td>Hypothalamus-pituitary-adrenal pathway</td>
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<td>Institute of Applied Economic Research</td>
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<td>IQ</td>
<td>Intelligence Quotient</td>
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<td>NHS</td>
<td>United Kingdom’s National Health Service</td>
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<td>NSW</td>
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<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
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<td>Sudden Infant Death Syndrome</td>
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<td>United Kingdom</td>
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"It is one of the greatest contemporary social injustices that people who live in the most disadvantaged circumstances have more illnesses, more disability and shorter lives than those who are more affluent."(1)

“We assert that all people should be offered equal opportunities to achieve their full health potential, regardless of their position in society. Any fair and just society should consent to be evaluated on how well they fulfil this aim.

Authorities in all sectors should promote equity in the opportunities for people to maintain their health and thereby reduce social inequities in health. This requires focussing on the prerequisites for health in its broadest sense, encompassing training, research and practice.”(2)
Executive Summary

“Individuals and their ill health cannot be understood solely by looking inside their bodies and brains; one must also look inside their communities, their networks, their workplaces, their families and even the trajectories of their life.”(3)

The international focus on health inequity has been gathering momentum since the 1980s with the publication of the UK document, The Black Report.(4) Overall health inequities occupy a central position on the health research and policy agendas of many countries, including Australia.

Health inequities exist in all societies.(5-11) Inequities in health are long standing and their determinants are deeply ingrained in our social structure.(5-11) Although health and overall life expectancy have generally improved, in many nations, health inequities between rich and poor have widened.(5-11)

Factors that influence health and quality of life are known as determinants of health.(11, 12) Determinants can be political, global, social, economic, cultural, biological, physical, environmental and behavioural.(12) There is growing evidence supporting the psychosocial impact of these determinants on individual health status.(11, 12) There is also growing evidence supporting the importance of the early childhood years in shaping outcomes throughout the life course.(13, 14)

A substantial reduction in health inequities in any country will require considerable resources, great opportunity costs, complex broadband planning and a long-term time frame.(6) Multilevel actions to reduce inequities should include changes to macro social and economic policies; improving living and working conditions; strengthening communities for health; improving behavioural risk factors; empowering individuals and strengthening their social networks; and reorienting the healthcare system and associated treatment services.(6)
Using this document

The interest in health inequity crosses over many disciplines. Subsequently, there is a great deal of literature published on the topic. This paper aims to draw together the literature and provide a comprehensive overview of the topic.

The paper is divided into sections:

Section 1: Explaining Health Equity and Its Language
Provides an explanation of terms commonly used in health equity/inequity literature and provides a historical review of major developments in the health equity field.

Section 2: The Determinants of Health
Investigates the determinants of health and how they influence health inequities.

Section 3: Framework for Reducing Health Inequities
Explores recommended frameworks for reducing health inequities.

Section 4: Conclusion
Summarises the previous sections.

Section 5: References
Lists all references cited throughout this review.
The Perpetuating Cycle of Inequity (15)

"Why is Jason in hospital?
Because he has a bad infection in his leg.

But why does he have an infection?
Because he has a cut on his leg and it got infected.

But why does he have a cut on his leg?
Because he was playing in the local tip near his house and there was some sharp, jagged steel there and he fell on it.

But why was he playing in the tip?
Because he lives in a poor neighbourhood.
A lot of kids play there because there is no where else to play and there is no one to supervise them.

But why does he live in that neighbourhood?
Because his parents cannot afford to live anywhere else.

But why can’t his parents afford a nicer place to live?
Because his Dad is unemployed and his Mum is always sick.

But why is his Dad unemployed?
Because he doesn’t have much education and he can’t find a job.

But why hasn’t his Dad got much education?
Because his family was poor and he dropped out of school.

But why??“
Introduction

Health inequities exist in all societies. Inequities in health are long standing, interrelated and their determinants are deeply ingrained in our social structure.\(^{(5-11)}\) Although health and overall life expectancy have generally improved, in many nations, health inequities between rich and poor have widened.\(^{(5-11)}\) Our understanding of the health and wellbeing of populations has broadened over the last 100 years, from primarily a biological focus to a far more complex interplay of sociological, psychological and biological factors.\(^{(5-11)}\)

In 1845, studying conditions of the English working class, Frederick Engels reproduced data demonstrating the difference in mortality according to the houses, streets and areas in which people lived.\(^{(16)}\) A ratio was calculated of the number of people who died in the last year to the number of people living.\(^{(16)}\) Results showed that mortality was lowest in the best off houses and streets and highest in the worst off houses and streets.\(^{(16)}\) Engels came to the conclusion that the type of house, street and area people lived in influenced their life expectancy.\(^{(16)}\)

Differences in health outcomes according to social class still exist. In 2004, we continue to observe, in nearly all developed countries, substantial differences in health outcomes as measured by life expectancy, mortality, disability or the incidence and prevalence of specific diseases and risk factors.\(^{(7)}\)

Some things have changed since Engels’ study. There has been improved collective health of individuals with average life expectancies showing a steady upward trend over the last two centuries especially in developed countries.\(^{(7)}\) The most dramatic historical improvements in health have been associated with increased prosperity.\(^{(7)}\)

Countries with high investment in health tend to have strong, growing prosperous communities and less health inequity and those with modest and poor investment have weaker economies, poorer prosperity and higher health inequities.\(^{(7)}\) Enhanced prosperity leads to better living conditions and working conditions.\(^{(7)}\)

Despite the increasing wealth of developed countries and the development of sophisticated social welfare systems, health inequities are not decreasing and the gap between those at the top and bottom levels of the social strata is actually widening.\(^{(7, 17)}\)

Health is profoundly unequal. Health inequity runs throughout the life course, from conception to death.\(^{(17)}\) Health inequity exists between social classes, has been described in all developed countries, at national, regional and local levels within and between countries, for almost all diseases and causes of death, between men and women and between people from different ethnic or cultural backgrounds.\(^{(8, 18, 19)}\)

People’s health is determined by behaviour and lifestyle as well as by global issues and government policies.\(^{(19)}\) People’s health is also determined by economic, social, cultural, biological and environmental factors, access to health care, food and other public
services. (19) Therefore, the wellbeing of the population depends not only on medical care, but also on a relatively equitable distribution of income, on a social environment which provides people with a sense of security and control, on stable and satisfying employment and on the availability of social support. (20) These social and economic determinants are the major factors influencing health, with health care making only a small contribution to the health of a population. (9, 10, 12, 17, 21)

The relationship between determinants of health and actual level of health is complex. (6, 7, 13, 22) Because health determinants are inter-related and interdependent, outcomes of one determinant will influence and produce other outcomes. (6, 7, 13, 22) For example, low income can result in lower levels of education, which influences employment opportunities, which influence where people live, their social contacts, their behaviours, lifestyle and overall health status. (6, 7, 13, 22)

Also, overall mortality and most forms of morbidity follow a gradient across socioeconomic levels. (6, 7, 13, 22) That is, health status worsens at every step down the socioeconomic ladder. (6, 7, 13, 22) Lower socioeconomic groups may be more at risk but everyone is affected. (7)

Outcomes are also cumulative. Individuals or groups who experience low income, low educational attainment, lack of control, lack of social supports and inadequate coping skills have a poorer health status than those with fewer health risks. (18)

There is currently a wave of international and national interest in tackling health inequity. (9) Understanding the determinants of health and their interdependence has an important influence on the strategies and interventions adopted to reduce health inequities. (18, 23)
SECTION 1: Explaining Health Equity & Its Language

"The pursuit of greater equity in health is fraught with difficulties. There are differences in opinion concerning the meaning and significance of key terms in the debate. There are ideological differences about the nature of a good society, imperfect understanding of the underlying causal mechanisms which generate inequalities, varying assessments of which inequalities are the most inequitable and debate if anything can realistically be done to reduce inequalities."(24)

Health

Health is clearly more than the absence of disease and illness.(25) Health is the capacity or resource for everyday living that enables us to pursue our goals, acquire skills and education, grow and satisfy personal aspirations.(26) It encompasses social, economic, physical, cultural and psychological wellbeing and the ability to adapt to stressors of every day life.(25) What makes people healthy or unhealthy can be identified as the determinants of health.(26)

Health Equity

Equity in health has been conceptualised and defined in many ways. The World Health Organization suggests health equity should be defined as providing fair opportunity for all people to enjoy health to their fullest potential.(10) Equity is concerned with creating equal opportunities for health and with bringing health differentials down to the lowest level possible.(27)

Health Inequality and Inequity

Biological factors such as age, gender and genetic make up are differences in health that cannot be helped and are therefore known as health inequalities.(28) Inequity describes differences that are beyond the individual’s control.(28) They are not inevitable but avoidable, unnecessary, unjust and unfair.(27) Health inequity often occurs when social, economic and political influences limit a person’s choices and opportunities to control factors that may influence their health.(12)
Social Determinants of Health

The social, cultural and economic factors that influence health are often described as the social determinants of health.(9) People's lifestyles and the conditions in which they live and work strongly influence their health and longevity.(10)

The Life Course Approach

The number of studies linking health status at middle to older age to the health and social conditions in early life are growing.(29) Amongst researchers, there is growing acceptance that to understand disease, health and its social distribution needs to be studied over the whole of the life course from conception to death.(30)

A life course approach considers the influence of early childhood, cumulative disadvantages and adult experiences and the impact these have on health outcomes and provides opportunities to examine how social factors may influence health.(9) A life course approach is important in attempting to establish any causal pathways from poverty in childhood to health outcomes in adulthood.(9)

The life course approach highlights that the social and biological beginnings of life and the interaction of these factors are important building blocks of adult health.(9) Ill health and health damaging lifestyles in childhood can impact greatly on circumstances throughout the life course.(9) In adulthood, an individual's living standards, health related behaviour, social networks and current health status are determined partly by their accumulated life course experiences and partly by their social roles, in terms of marital status, employment, parenthood and social networks.(31)

Therefore, the life course approach examines health from conception to death in order to emphasise that the accumulation of advantage or disadvantage is crucial in influencing morbidity, mortality and our overall chances in life.(30)

Advantages and disadvantages throughout life tend to cluster cross-sectionally, accumulate longitudinally over time and cut through the generations.(30) For instance, less affluent families are more likely to come from less affluent backgrounds and are more likely to produce babies of lower birth weight.(10) Low birth weight children are more likely to experience poorer health outcomes during childhood and adolescence and have an increased risk of chronic disease in middle age.(32) In addition, children of less affluent families are more likely to experience failure at school, to find work in the more disadvantaged sectors of the labour market and to experience unemployment early in their working lives.(29)

People who enter lower paid employment are more likely to encounter work insecurity, physical and chemical hazards at work, live in less well constructed housing, in more polluted neighbourhoods and to retire on the basic pension.(29) At each stage of the life course, social and economic disadvantage can push the individual another step towards established chronic illness.(29)
Analyses of various cohort data have been important steps in identifying the importance of the life course and showing how the accumulation of disadvantage or different ‘life trajectories’ influence health and disease risk in adulthood.(29)

Results from the British Birth Cohort Study (1958), where the impact of socioeconomic circumstances on health at birth, 16, 23 and 33 years were measured, showed that social class in early life and in adulthood both make independent contributions to inequities in poor health status in later life.(33, 34) Similar findings in respect to dying have also been reported, as have results showing that housing deprivation during childhood can have long-term health consequences in adult life.(31) Poor growth during early childhood, which in itself may be more likely where there is material or psychosocial adversity, has been linked to poorer health in adult life.(31) Slow growth at age seven has been associated with an increased risk of unemployment in young men regardless of their adult stature.(31)

A life course approach is necessary in understanding social variations in health.(31) A life course approach is needed in order to take into account the complex ways in which biological risk interacts with economic, social and psychological factors in the development of chronic disease and overall health in later life.(31) Life course effects are fundamental to understanding the origins of health inequities.(31)

Health Gradients
Health inequities affect the whole of society not just the disadvantaged.(13) Health conditions consistently present themselves as gradients when assessed against the social and economic circumstances of individuals.(13) Coping, competence, income, education and ill health all show socioeconomic gradient patterns and occur not only between rich and poor but within socioeconomic classes across the life span.(10, 13)

Gradients in health specify that the health status of each class does better than that of the classes below and worse than the classes above.(13) People further down the socioeconomic ladder run greater risk of higher morbidity and mortality than those further up the ladder.(35) This is consistent across OECD countries regardless of whether classes are determined by income, education or occupation.(5, 29, 36)

There is no threshold effect, that is, no clear point with good health above and poor health below.(13) The steepness of the gradient in health status can tell us whether a society is supporting or undermining the development of a population.(13) The steeper the gradient, the worse the developmental health outcomes for the entire population.(13) The more shallow the socioeconomic gradient, the flatter the health gradient and the higher the mean level of health for a population.(36) Therefore the steepness of the gradient is an important indicator of a population’s wellbeing.(13)

Figure 1 shows that in 1995-97, an overall socioeconomic mortality gradient existed in Australia for both males and females.(37) Mortality increased as socioeconomic status decreased, with the 1st quintile representing the least disadvantaged and 5th quintile representing the most disadvantaged.
Results from the longitudinal British Birth Cohort Study (1958 onwards), show similar gradients exist between socioeconomic status, behaviour and learning. As shown in Figure 2, the percentage of children with no educational qualifications at age 23 was highest for those born in the lowest classes (classes IV and V) however, improved with each step upward in social class at birth for both men and women.

The same study also showed a similar gradient relationship between socioeconomic status and poor self-reported health and higher psychological distress, with each increasing as one moved down the social hierarchy.
Gradients in health can be small or great depending on the socioeconomic marker, and affect all sectors of society particularly the middle classes. How socioeconomic factors influence health gradients has been much debated. Among the most prominent studies of socioeconomic factors and health are the UK Whitehall Studies (I and II) of British civil servants, which showed that a health gradient existed within higher socioeconomic groups. The results showed that all sectors of society not only the poor, are affected by factors in the environment. Therefore, health gradients cannot be explained purely by income and material deprivation alone: other factors are at play, with the broader social environment clearly having an effect.

Gradients have been demonstrated over the entire life course. During the early years they occur in relation to infant mortality and low birth weight, during childhood, in terms of cognitive and behavioural development, in early adulthood they emerge in relation to mental health status and obesity and occur in later life for chronic diseases and dementia.

The Cycle of Disadvantage

A well established link between poverty and poor health has been documented in the literature. People of low socioeconomic status have worse reported health, higher rates of disability and higher rates of mortality and morbidity due to disease and injury. They make the most use of primary and secondary health services and the least use of preventive services.

Poverty imposes constraints on the material conditions of every day life by limiting access to the fundamental building blocks of health such as adequate housing, good nutrition and opportunities to participate fully in society. Unhealthy communities are unable to build or maintain the physical and social infrastructure their members need to support each other and to realise their individual potential. Those who have relatively few material resources have the greatest exposure to multiple adverse health risks throughout life. The longer people live under poor social and economic circumstances, the greater the psychological and physiological wear and tear they suffer and the less likely they are to enjoy a healthy old age.

Poverty has a cumulative effect. There is a growing body of evidence emerging, which shows that health outcomes in adulthood reflect the accumulated influence of poor socioeconomic circumstances throughout life. Children who grow up in poverty show almost 3.5 times the number of conduct disorders, twice the rate of chronic illnesses and twice the rate of school problems, hyperactivity and emotional disorders as children who do not come from disadvantaged communities. The lower the social status, the greater the physical and mental ill health and the worse the psychological wellbeing.

Figure 3 demonstrates the cyclical and self-perpetuating nature of poverty, disadvantage and associated outcomes. Problems located at any one point can be traced back to previous stages in the life cycle.
Level of income determines the ease at which fundamental prerequisites for health are obtained: needs such as food, shelter, warmth and the ability to be able to participate fully within our families, communities and society in general. (44) Income levels also affect the way in which parents are able to care for their own and their children’s health. (30) Low income increases an individual/family’s exposure to harmful physical and social environments and influences levels of control people feel they have over their life and destiny. (30) Low income affects where people live, where their children go to school and makes it difficult to exercise control over the family’s health. (30) Low income is associated with stress and reinforces health damaging behaviours such as tobacco and high alcohol consumption and increased risk taking behaviour. (30) Psychological demands and challenges faced in everyday life due to low income also trigger biological stress responses affecting the cardiovascular and immune systems; the heart rate will rise and anxiety will increase. (30) If this biological stress response is activated too often and for too long, there may be multiple health costs including depression, increased susceptibility to infection, diabetes, high blood pressure and high cholesterol levels increasing the risk of heart attack and stroke. (30)

**Developmental Health & Wellbeing**

The quality of physical and mental health, wellbeing, coping and competence people experience is influenced by their social environment. (45) Developmental wellbeing is about creating an environment in which people can develop their full potential and lead productive, creative lives in accordance to their needs and interests. (46) Human development involves nurturing the talents, skills, capabilities and choices of children and adults to live a life they value and to make a valued contribution to society. (46) People are the real wealth of nations, development is about expanding the choices people have to lead lives that they value. (46) Economic growth is only a means of increasing people's choices. (47)
Health Inequity – a Historical Perspective

There have been many reports and studies undertaken that, today, shape current thinking within the health equity field. An historical understanding of this work is important in understanding the evolution of health determinant theory (5)

General thinking regarding what has the greatest impact on health inequities tends to change periodically with the focus of debate and research alternating between the various health determinants. During the latter half of the twentieth century the biomedical model and its impact on health and disease dominated beliefs about health. (5) At other times socioeconomic factors and lifestyle and behaviour have been thought to be particularly significant. (5) Current debate across many disciplines is now focusing more on the biological, behavioural and social environments and the impact these determinants have on health status throughout the life course. (6, 7, 10, 13)

How illness is defined, what public policies are initiated and how resources are allocated is dependent on whatever health determinant is popular at a given time. (5)

The United Kingdom

The work undertaken in the United Kingdom over the past 50 to 60 years has influenced and shaped the health inequities debate internationally. (5) Recognising that health inequities and, more importantly, that a gradient in health existed, the National Health Service (NHS) was established in 1948 with the aim of providing equitable medical care by removing financial barriers to health care access. (5) It was believed that by doing so, this would effectively reduce the inordinate burden of illness among the disadvantaged, reduce morbidity and mortality gradients and thus reduce inequity in health. (5) Unfortunately, despite this move, the gap in health status between the different social classes in the United Kingdom has widened, even though overall mortality rates have fallen. (5) These outcomes suggested that providing medical care to reduce inequities was not enough, there were other factors influencing health status. (7)

The Black Report

In 1977, the then Labour government established a research working group to investigate the broader factors influencing health. Led by Douglas Black, this group published a report in 1980 referred to as the Black Report. (4) This report concluded that while health care contributed to improved health and wellbeing, socioeconomic factors were of equal or greater importance in influencing health status and health gradients across social classes. (4) The Black Report was influential in explaining differentials in health suggesting that smoking, diet and other behavioural and biological factors, contributed to but did not fully explain inequities in health. (4)

The Black Report was a landmark document. It paved the way, in 1998, for the establishment of an inter-departmental working group chaired by the Chief Medical Officer, Sir Donald Acheson, and the publication of the Independent Inquiry into Health Inequalities otherwise known as the Acheson Report. (8)
The Independent Inquiry into Health Inequalities (Acheson Report)
In 1998, the Independent Inquiry into Health Inequalities was established to investigate the ways in which biological, economic, environmental, cultural and behavioural factors interrelate to produce social variation in health and to explore possible interventions to reduce health inequities. The report recognised that health is influenced by a complex interaction of multiple factors including personal behaviour, lifestyle, social and community influences, living and working conditions, food supplies, access to essential goods and services, and overall economic, cultural and environmental conditions. (8)

With a focus on the life course and on gender and ethnic inequities, areas identified for future policy development included: poverty, income, tax and benefits, education, employment, housing and environment, mobility, transport, pollution and nutrition. (8) The report identified 13 priority areas to guide policy development and provide direction in developing beneficial and cost effective interventions to reduce inequities in health and proposed 39 recommendations based on a broad analysis of the social, economic and environmental determinants of health as outlined by the WHO’s 10 Solid Facts, developed by Marmot and Wilkinson. (8, 10) (See Appendix 1) The final report set a research agenda which placed emphasis on identifying and accurately measuring those factors which combine to produce observed variations in health status over the life course. (8)

British Birth Cohort Longitudinal Studies
The British Birth Cohort studies collected data about the lives of up to 40,000 individuals across three post war generations in Britain, of people born in one week of 1946, 1958 and 1970 respectively. (48) These studies allowed researchers to assess the effects of changing social and economic circumstances and policies on subsequent education, employment, health and citizenship outcomes in adult life. (48)

Although there are some differences in emphasis, each study has collected information on the range of circumstances, experiences and personal characteristics relevant to development at different ages. (48)

Education and family background feature prominently in early studies whereas employment, income, marriage and family formation, housing and citizenship are the focus of later studies. Health is covered at all ages in all studies. (48)

Analyses of the data have been used for a variety of purposes and have shown associations between occupational status, educational qualifications and health conditions in later life and individual behaviour and circumstances in early life. (33, 34) These cohort studies have also been instrumental in tracing the effects of policy change on and across populations over time. (31, 33, 34)

The Whitehall Study of British Civil Servants
The Whitehall Study I, conducted by Marmot and others (1960 onwards), was a longitudinal study (25 years follow-up) of British civil servants working at desk or desk related jobs in the centre of London. (49, 50) Data revealed a substantial health and social gradient existed according to job rank, as measured by death rates and sick leave from work in a population
not subject to industrial hazards, unemployment, poverty or excessive affluence.(49-51) Results also highlighted that the risk of dying from a heart attack for those in the bottom tier was more than 2.5 times that of the top rank.(38)

The study also showed that increased occupational status was associated with lower mortality rates for most major causes of death such as smoking and non-smoking related cancers, coronary heart disease, stroke, gastro intestinal diseases, suicides and accidents as shown in Figure 4.(38)

**Figure 4: The Whitehall Study. Mortality rates, over 25 years, of British civil servants by employment grade (38)**

<table>
<thead>
<tr>
<th>Rate ratio</th>
<th>Professional/executive</th>
<th>Clerical</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Ratios are relative to the administrative grade, which equals 1 and is not shown. *Not related to smoking.*

These observations could not be explained by poverty as the civil service excludes the richest and the poorest members of society.(49) These findings questioned what actually causes variations in health status across societies.(49)

It was argued that many of the causes of death identified by the study, were smoking related and could therefore, be explained by differences in behaviour or lifestyle factors.(49) However, Marmot and others found that adjusting for conventional risk factors such as cholesterol, blood pressure and smoking accounted for only 25% of the civil service social gradient in coronary heart disease, leaving 75% of the difference in risk unexplained.(49)

Given the social status of the sample involved, Marmot and others concluded that differences in medical care usage could not explain such a large mortality difference between tiers.(49) The rest of the risk was related to other factor/s in the social environment in which the civil servants lived and worked.(49)

Consequently, Whitehall Study II looked at levels of control in the workplace.(50) The findings showed that at work, higher incomes were associated with less subordination, more autonomy and control and less job insecurity.(50) The study also showed low control as an independent predictor of the risk of cardiovascular disease (CVD), accounting for much of the social gradient for CVD and depression.(50) Outside of work, the study also showed that people who reported feeling low control at home and over life circumstances in general had an increased risk of depression.(50)
Whitehall Study II showed that smoking behaviour was significantly determined by the social environment in which people lived and work and was not entirely a matter of free choice, indicating that behaviour was strongly influenced by where an individual was in the social hierarchy. (50) The study confirmed that the social environment in which people live and work and their general psychosocial wellbeing, greatly impact on health. (50)

  As a result of the Industrial Revolution, Western societies experienced greatly enhanced prosperity, leading in turn to dramatic improvements in overall health and a noticeable decline in mortality rates. (5) Consequently, this period in history has been labelled as one of the greatest events in human history. (5) In 1953, the United Nations published a report attributing the decline in mortality rate to advances in medical knowledge and therapeutics, improved public health measures and personal hygiene and better living standards. (52)

To better understand why health improved so dramatically in England and Wales during the period from 1838-1970’s, McKeown and Brown (1955) looked at what factors influenced this decrease in mortality rates. (53) From an analysis of the Registrar General’s death records, they illustrated that the bulk of change in mortality could not be explained by medical interventions or public health measures such as improved water or sanitation systems. (53) The decline in mortality was instead most likely due to increased prosperity and nutrition which led to better living and working conditions. (53) An improved social environment rather than improved medical interventions, was the key factor that changed the health status of the population. (53)

As a result of this work, *The Modern Rise of Population* was published. This document has been influential in guiding major debate and study regarding health determinants. (53)

**Canada**

- **Lalonde Report (1974)**
  With the publication of *A New Perspective on the Health of Canadians* (1974), the concept of modern health promotion was conceived. (54) Under the leadership of Marc Lalonde, the then Canadian Minister of Health and Welfare, the Lalonde Report signified for the first time that a major government publicly acknowledged that medicine and the health care system play only a small role in determining health status and suggested health promotion was a key strategy for improving health. (54) The document proposed that health was determined by the interplay of human biology, health care organisation, environment and lifestyle and that the non-medical determinants of health such as income, employment and social support were fundamental in explaining the level and distribution of health in populations. (54)

- **Ottowa Charter and Health For All Framework (1986)**
  Before the Lalonde Report, health programs were preventive in nature and focussed on reducing health related risk behaviours through lifestyle changes. (55) After the publication of the Lalonde Report, the focus shifted to other health determining factors, highlighting the impact of the social, physical, economic and political environments on health. (55)
focus was then established with the endorsement and publication of the *Declaration of Alma-Ata* and the development of the *Health For All Strategy* by WHO.\(^{(56, 57)}\)

As a result of these publications, the First International Conference on Health Promotion was held in 1986. At this conference two documents were released; *The Ottawa Charter on Health Promotion* and *Achieving Health for All: A Framework for Health Promotion*.\(^{(58, 59)}\) These documents were instrumental in changing the way people thought about health determinants and have guided policy and program discussions on how health is created and how health can be achieved equitably by society.\(^{(60)}\) Appendix 2 outlines the role of health promotion in reducing health inequities.

**World Health Organization (WHO)**

In 1946, the constitution of the World Health Organization was adopted by member states.\(^{(61)}\) The constitution stated that the enjoyment of the highest attainable standard of health was one of the fundamental rights of every human being regardless of race, religion, political belief, economic or social condition.\(^{(61)}\)

The *Health for All Framework* was adopted in 1977 and launched in 1978.\(^{(57)}\) The focus was for citizens of the world to achieve a level of health that would permit everyone to lead socially and economically productive lives by the year 2000.\(^{(57)}\) National policies, strategies and plans of action were formulated around this framework as a means of attaining acceptable levels of health for all by all member states.

Poverty and growing social inequities over the past twenty years have continued to impede the *Health for All* campaign.\(^{(62)}\) Therefore, in 1995, in light of changing global socioeconomic, technological and epidemiological realities, member states agreed to renew the *Health for All* campaign and its indicators.\(^{(62)}\) The result, *Health for All in the 21st Century (Health 21)* is a continuation of the original process and takes on a more holistic approach to health policy by focusing on the concepts of equity and solidarity, emphasising individual, family and community responsibility for health.\(^{(63)}\) The purpose of *Health 21* is to guide action and policy for health at the international, national, regional and local levels and to identify global priorities and targets for the first two decades of the 21st century.\(^{(63)}\)

In 1998, WHO released the document *Social Determinants of Health – The Solid Facts* and in 2003 released a second edition.\(^{(10, 64)}\) Co-authored by Professors Michael Marmot and Richard Wilkinson, this publication was part of a WHO Regional Office for Europe campaign to present evidence on the social determinants of health.\(^{(10)}\) The document identified the implications for policy in ten selected areas to broaden awareness, stimulate debate and promote action in the area of health inequities highlighting:

- the need for policies to prevent people from falling into long term disadvantage;
- how the social and psychological environments affect health;
- the importance of ensuring a good environment in early childhood;
- the impact of work on health;
- the problems of unemployment and job insecurity;
- the role of friendship and social cohesion;
- the dangers of social exclusion;
• the effects of alcohol and other drugs;
• the need to ensure access to supplies of healthy food for everyone; and
• the need for healthier transport systems. (10)

In 1999, the WHO European Committee for Health Promotion Development published a report on Reducing Health Inequalities - Proposals for Health Promotion Policy and Action: A Consensus Statement. (65) Based on the international review of the evidence on social inequities in health commissioned by WHO Regional Office for Europe, the consensus statement put forward the argument supporting health promotion practice in reducing health inequities. (65) The statement aimed to increase awareness of health inequities amongst major stakeholders and policy makers, clarify the implications of these inequities for health promotion policies and programs and provide a focus for action on a number of key issues that health promotion should address in order to make the reduction on inequities in health a major target. (65)

The release of all of these publications has since led to an international resurgence of the health equity debate. There have been many reports and policies published outlining strategies to reduce health inequities, both nationally and internationally. These strategies have been developed to impact on the many factors that determine health, as outlined in Section 2 of this review.
SECTION 2: The Determinants of Health

“There is a growing body of evidence that the determinants of health go beyond individual genetic endowment, lifestyle behaviour and the health care system to the more pervasive forces in the physical, social and economic environment. Health policy makers and analysts urge us to direct attention towards modifying not only risk factors and risk behaviours but also risk conditions such as poverty, powerlessness and lack of social support when tackling health issues and inequities.” (32)

Theories of disease causation that focus primarily on individual lifestyle and behaviour, individual risk factors and medical treatment miss the larger picture: there is a systematic patterning of risk across social contexts. (12) An extensive body of research now indicates that the physical, economic and social conditions under which people live their lives are the major factors in determining their health status. (13) Factors such as control over work environments, social support, community cohesion and trust between individuals and social institutions impact significantly on health status. (7, 12, 13)

As shown in Figure 5, health determinants can be political, global, social, economic, cultural, biological, physical, environmental and behavioural. (66) There is growing discussion in the literature supporting the psychosocial impact of these determinants on individual health status with growing evidence supporting the importance of early life development and its impact on coping, competency and overall health and wellbeing outcomes throughout the life cycle. (12)

The Northern Rivers HEWG Determinants of Health Model identifies biological, behavioural, physical, socioeconomic and environmental factors that impact on health status. (66) The model is presented in a circular format to highlight the inter-relationship between various determinants and the cumulative impact they have on health outcomes. (66, 67) The main outcome is the overall health of the population and is presented as the inner circle. (66) It is measured by mortality, morbidity, life expectancy and quality of life. (66) The layers surrounding the inner circle represent the determinants of health. (66)

The remainder of this section will focus on the individual determinants of health and the importance of each on overall health and wellbeing.
Early Child Development Determinants

Growing evidence on the effects of early experiences on brain development, school readiness and health in later life highlights early child development as a powerful determinant of health. (7, 10, 14, 68)

Infants and young children require love, security, protection from harm, socialisation and moral guidance as well as the opportunity to learn about themselves and the world in an appropriate learning environment. (69) If these needs are met, there is an increased possibility that children will develop into physically and mentally healthy adults capable of making positive contributions to society. (69)

The development of optimum health across a person’s life begins in early childhood, when either positive or negative health behaviours are learned. (70) Childhood is a critical and vulnerable stage and strong evidence is emerging highlighting the importance of the early years in influencing adult health and wellbeing. (71) According to McCain and Mustard (2002), early child development is equal to, if not more important as time spent in education or post secondary education in determining the quality of generations. (72)
There is increasing evidence that patterns of learning, competency (literacy, maths, science) and behaviour are initiated and established in early childhood. Much of this evidence comes from historical studies, longitudinal birth cohort studies, population epidemiology, cross sectional studies and randomised trials. A summary of the literature has been included as Appendix 3. As summarised in Table 1, the evidence resulting from these studies has uncovered new evidence regarding brain development, especially about the importance of the early childhood period, substantially improving our understanding of:

- the interplay between nature and nurture in brain development;
- how extensive brain development is in utero and the first years of life;
- how nutrition, care and nurturing directly affect the wiring of the pathways of the brain in the early years;
- how nurturing by parents in the early years has a decisive and long lasting impact on how people develop, their capacity to learn, their behaviour and ability to regulate their emotions and their risks of disease later in life; and
- how negative experiences in the early years including severe neglect or absence of appropriate stimulation are likely to have decisive and sustained effects throughout life.

Table 1: Rethinking the brain (73)

<table>
<thead>
<tr>
<th>RETHINKING THE BRAIN</th>
<th>- OLD THINKING -</th>
<th>- NEW THINKING -</th>
</tr>
</thead>
<tbody>
<tr>
<td>How a brain develops depends on the genes you were born with.</td>
<td>How a brain develops hinges on a complex interplay between the genes you are born with and the experiences you have.</td>
<td></td>
</tr>
<tr>
<td>The experiences you have before age three have a limited impact on later development.</td>
<td>Early experiences have a decisive impact on the architecture of the brain, and on the nature and extent of adult capacities.</td>
<td></td>
</tr>
<tr>
<td>A secure relationship with a primary caregiver creates a favourable context for early development and learning.</td>
<td>Early interactions don't just create the context, they directly affect the way the brain is &quot;wired&quot;.</td>
<td></td>
</tr>
<tr>
<td>Brain development is linear: the brain's capacity to learn and change grows steadily as an infant progresses towards adulthood.</td>
<td>Brain development is non-linear: there are prime times for acquiring different kinds of knowledge and skills.</td>
<td></td>
</tr>
<tr>
<td>A toddler's brain is much less active than the brain of a college student.</td>
<td>By the time children reach age three, their brains are twice as active as those of adults. Activity levels drop during adolescence.</td>
<td></td>
</tr>
</tbody>
</table>
The level of mother and child bonding, emotional regulation and attachment, language development and the development of motor skills that occur during early childhood, will influence the quality of life a person experiences throughout their life course. These outcomes will be influenced by biological factors as well as childhood risk factors, low birth weight, parenting styles and family structure during early childhood.

- **Biological embedding**
  Biological embedding refers to the switching on of genetic mechanisms during early life, which are responsible for initiating specific neuron function in different regions of the brain. Two pathways which are developed in utero and in the early years which are dependent on the activation of this neuron function are the sensing and stress pathways.

- **Sensing pathways**
  **Neural wiring and sculpting**
  The social and physical environment of the infant and young child organises the experiences that shape the networks and patterns of the brain. Therefore, the quality of early developmental experiences impact on brain and behavioural development.

  Early brain development is interactive, rapid and dramatic. During critical periods particular parts of the brain need positive stimulation to develop properly. The quality of this early sensory stimulation influences the brain’s ability to think and regulate bodily functions.

  Two weeks after conception, the neural tube which will form the brain and spinal cord, is formed. The brain then produces billions of neurons, the bulk of which are produced between four and seven months of gestation. Once developed, they then migrate to their correct locations and form connections. As shown in Figure 6, the bulk of this work happens just after birth and in the first 12 months of life but continues up until the age of three years and continues with decreasing activity, up until the age of 10 years, although some connections occur throughout life.

*Figure 6: Critical periods for some aspects of brain development and function*
The brain consists of the:

- **cortex** - responsible for abstract cognition and language systems;
- **limbic area** - responsible for aspects of emotion, including regulation and attachment;
- **midbrain** - works with the brain stem to mediate a state of arousal (fight or flight), appetite, control and sleep; and
- **brain stem** - responsible for regulating core functions such as respiration, body temperature, heart rate and blood pressure.

Unlike other compartments of the brain, the limbic and midbrain regions are organised and set early in life, making them difficult to modify once wiring and sculpting have taken place. Under-development of these areas can result in the development of abnormal cognitive abilities and behaviour disorders later in life. The child's ability to cope will be affected and the child will have difficulty responding to certain kinds of sensory stimulation or stressful situations. Transferred to the classroom, the child will quite possibly display disruptive behaviour or use aggression as a means of problem solving. Evidence from animal and human studies is consistent with the notion that the wiring and sculpting of the brain is substantially affected by the quality of stimulation or nurturing received during early life.

All components are interconnected. Positive sensory stimulation, through nurturing, helps strengthen cognitive development, establish stable emotion and attachment patterns and normal balanced arousal responses. Conversely, inadequate stimulation can lead to unsatisfactory development of the part of the brain responsible for these functions.

At the same time key pathways are being developed, there is an important process of pruning away neurons, synapses and entire neural pathways that are not being stimulated. Those that are not used or are not efficient are eliminated. This process is referred to as neural sculpting.

**Sensitive or critical periods**

Wiring and sculpting of the neurons is necessary to connect regions of the brain (cortex) to the sensing organs responsible for vision, touch, sound and smell. Research suggests that for some biological systems there are narrow and well defined critical periods. If the right kind of stimulation is not available at the right time, the system will not hook up. Research on biological sensing pathways such as vision, has shown that during early development, there is a sensitive period for wiring and sculpting the neurons necessary for normal vision. If this sensitive period is missed, the connection between the retina and brain will not function as well as it could. The same has been proven for other biological sensory pathways such as sound and touch.

Although less is known about the development of neural pathways connecting other parts of the brain that affect arousal, emotions, behaviour, language, literacy and mathematical skills, some neuroscientists speculate that the wiring and sculpting of these pathways develop in a similar fashion to the sensory systems. Therefore, as well as sensitive periods for biological systems, there are likely to be sensitive periods for cognitive, social and emotional
Collectively, these systems are responsible for establishing a person’s life coping and competency skills (39).

Figure 6, above, shows the ages at which critical periods for brain development and function occur. Most of these critical periods are complete or slowing down by age six, highlighting the importance of the early years on brain development and functioning. (14)

A Swedish longitudinal study found that boys from all socioeconomic groups who showed delays in early language development at six, 18 and 24 months and who had difficulties in understanding and expressing verbal communication at age three and five years, were more likely to be functionally illiterate and to engage in criminal activity by age 17. (76) This study concluded that verbal skills predict subsequent behaviour and cognitive skills. (76) By reading to a child, it can stimulate sensitive neural pathways and influence the development of cross connections that influence arousal and emotions. (14) Reading and playing with children during the first 36 months after birth promotes the development of children’s verbal ability. (14)

- **Stress pathways**

  **The neural, endocrine and immune systems**

  Individual experiences during early life help to establish key pathways between the neural, endocrine and immune systems. (13) The development and regulation of the endocrine and immune systems (CRH-HPA systems) occur early in life through external and internal stimuli received in utero and shortly after birth and influences the regulation and function of the CRH-HPA pathways in later life. (14) These pathways influence memory, cognition, behaviour, metabolic pathways, the immune system and cardiovascular system throughout life. (14) Much of the evidence linking early life experiences to physical and mental health problems in later life points to the CRH-HPA pathway. (14)

  The development of the endocrine and autonomic nervous systems (fight or flight) in early life also affects brain development and reactions to stress in later life. (9) In times of stress, stress hormones (steroids) are released by the body, affecting cardiovascular and endocrine pathways. (9) Hormones and the nervous system prepare the body for immediate physical threat by raising the heart rate, diverting blood to muscles and increasing anxiety and alertness. (9) As a result, anxiety and heart rates will increase. (9) This flight or fight response increases sensitivity to sensory stimulation and improves memory. (9) Once the danger has passed, hormones levels are quickly restored to normal. (9) Unfortunately, animals and humans who do not cope well with challenges do not quickly restore their hormone levels to the resting state and this poor response to challenges can lead to persistently elevated steroid levels which depresses the host defence system and other body functions. (77)

  The quality of sensory stimulation in early life helps shape the brain’s endocrine and immune pathways and the amount of control the brain has over them. (14) The relationship between the brain and the immune and endocrine systems seems to be a pathway for how coping and competence skills influence learning, behaviour and disease risks in later life. (14) The better the stimulation, the better the connection and the better the coping and competency skills. (14) Lack of stimulation (touch) makes it difficult for animals to respond in a balanced
manner to stressful events and studies have shown that animals and humans who are poorly nurtured in early life tend to retain sustained levels of sterols (stress hormones) long after the situation that caused arousal has gone.(14)

Therefore, the quality of stimulation received in the early years sets patterns for response to stress which become embedded in our physiological and neurological systems.(14) Exposure to stressors early in life may modify our ability to moderate or control response later in life.(14, 39) Ongoing or chronic stress reduces the ability to handle arousal stimulation, affects learning and impacts on the child's ability to cope.(14) This can lead to early school dropout, antisocial behaviour, delinquency and crime in later life.(14, 39)

Excess activity of the endocrine and immune systems, which leads to an increase in production of sterol levels in early life, can produce permanent and marked reductions in immune competence.(14) Studies in monkeys have shown that infant monkeys raised in a deprived environment exhibit changes in antibody function that can increase the risk of autoimmune disorders and conditions such as asthma.(14, 39)

Childhood risk factors

Current research suggests that the number, rather than the kind of risk factors a child is exposed to, may have more of an impact on health outcomes, with multiple risk factors placing a child at greater risk and disadvantage.(43)

Risk factors include experiences such as poverty, dysfunctional home environments, parent/carer unemployment, poor housing, social isolation, insufficient cognitive stimulation, nutritional deprivation, inadequate health care and poor social interaction.(78) Combined with other early childhood risk factors (eg: low birth weight or parental smoking), these stressors can impede normal development and increase the chance of adverse health effects later in life.(74) For example, parental smoking impedes a child’s respiratory development.(74) If combined with cold and damp dwellings, this decreases childhood respiratory functioning and, thereby, increases vulnerability to respiratory disease in adult life.(74)

Longitudinal data have demonstrated that risk factors in childhood are cumulative and that adding or removing risk factors can have significant effects on the life of a child and family.(70) It has been calculated that exposure to six or more risk factors increases the chance of poor overall health outcomes by twenty fold.(70) Developing resilience in children, increasing protective factors and reducing risk factors is likely to have beneficial effects in adult life.(70) Appendix 4 outlines the numerous risk and protective factors, including how they influence childhood outcomes.

Early childhood is a period of vulnerability and opportunity.(13) Psychosocial and socioeconomic conditions of early childhood are powerful determinants of health and wellbeing across the life cycle.(74)

Low birth weight

Low birth weight can have lifelong impact regardless of what happens in later years.(79) Low birth weight studies have shown a relationship between low birth weight (less than 2500 grams) and length of gestation to health in later adult life.(39) Low birth weight babies
are at increased risk of hospitalisation and neonatal death and are more likely to suffer from physical and neurological complications than babies of normal birth weight. They are also at increased risk of death and hospitalisation and are more likely to develop high blood pressure, non insulin dependent diabetes, impaired glucose tolerance and reduced immune function later in life. Studies have also linked low birth weight with increased coronary heart disease and blood pressure, chronic pulmonary disease, cardiovascular disease and stroke in later life.

Children of very low birth weight (less than 1000 grams) have also been found to have a higher incidence of psychosocial problems, an increased risk of having difficulties at school and are less likely to achieve academically as teenagers. Having a low birth weight baby is more likely if the mother is socioeconomically disadvantaged and it is more prevalent amongst single and Aboriginal mothers.

Figure 7 shows the relationship between low birth weight and the socioeconomic status of Canadian children, from the Canadian National Longitudinal Study of Children and Youth (1994). Low socioeconomic groups are represented by -1 to -2, lower middle to upper middle groups are represented by -1 to +1 and +1 to +2 represents the higher socioeconomic groups. It shows that the incidence of low birth weight increases as one moves down the socioeconomic ladder.

Figure 7: Socioeconomic gradients for low birth weight for children aged 0 to 3 years (80)

» Parenting styles
Parents are the primary gatekeepers of their child’s health. They are responsible for making important decisions regarding the amount and quality of health care their children receive, the food they eat, the amount of physical activity they participate in, the amount of

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emotional support they receive and the quality of the environments in which they live both before and after birth. These choices are conditioned by the parents' material resources, knowledge of health practices and programs, their own health and behaviour and the characteristics of the communities in which they live.

Links have been established between parental conflict and children’s wellbeing and behaviour. Children exposed to parental conflict may become fearful and angry and often suffer from stress and subsequently, show signs of aggression in relationships. A recent study of Australian children with asthma, found that children who lived in families where there was tension and conflict were more distressed and frightened by their asthma symptoms than other children with asthma.

Often parenting styles are passed down through the generations, with parenting attitudes and behaviour deeply embedded in adults as a result of major influences on their lives over a sustained period of time. These beliefs, the patterns of early upbringing and the effects of immediate pressures and influences principally determine how a parent interacts with their child. Abused children often become abusing parents and the quality of parenting styles experienced as a child often influences the quality of parenting in the next generation.

Socially isolated families often have high levels of abuse and neglect which have been associated with later delinquency, and children of socially isolated parents are more likely to truant, fight, fail and drop out of school at an early age and become delinquent.

Individual factors such as a person’s own upbringing, level of inter generational trauma experienced, stress, coping skills, knowledge of the child’s needs, the mental, emotional and physical health of parents influences parenting styles. Interpersonal factors such as the quality of relationships with partners and other family members, access to family and community support networks, and the social and economic circumstances of the parent such as access to support from partners, friends, family, formal services and access to other resources such as income, housing, employment, also influence parenting styles.

A key prerequisite for optimal child development is the formation of a secure attachment to a trusted caregiver who provides consistent caring, support and affection early in life. If the level of trust is high between caregiver and infant, the attachment is described as secure. Infant and toddlers with a secure attachment use the emotional and physical security that it provides as a base from which to explore their environment. Successful exploration attempts increase the child’s self-confidence and encourage more explorations which further enhances competence, self confidence and readiness to keep exploring.

Insecure adults develop insecure bonding patterns, which develop insecure children. Therefore, secure attachment relationships are a protective factor against poor mental health outcomes later in life. Poor nurturing during early childhood is linked to poor educational attainment and behavioural problems such as hyperactivity and other conduct disorders and may lead to a lifetime of material and emotional insecurity. Level of cognitive skill has been related to the level of emotional bonding which occurs in early life and the appropriate provision of play materials as early as 6-12 months.
For parents who struggle to cope with family life and raising children, the causes will be varied and the need for assistance and support will take many different forms. Parenting issues cannot be corrected in isolation of the broader socioeconomic and cultural context in which the family functions.

**Family structure**

Evidence suggests that growing up with two stable and happy parents is one of the strongest protective factors for children against a wide variety of mental, physical, educational and peer related problems. Parental conflict, distress and divorce are risk factors for a range of poor outcomes including depression, withdrawal, conduct disorder, poor social competence, health problems and academic under achievement. The negative effects of parental relationship problems and divorce have long term impacts on children, with adult offspring of divorced parents having substantially higher rates of psychological disorder and being much more likely themselves to divorce.

Living in one parent, step or blended families can be a risk factor for poorer health and wellbeing because of the factors that tend to be associated with these types of families, such as lower socioeconomic status and increased parental stress, due to lack of adult support within the household. Figure 8 shows results from the Canadian National Longitudinal Study of Children and Youth (1994) which reviewed, amongst other things, childhood behavioural difficulties in relation to family type. Results showed children with difficulties were more prevalent within single parent families.

**Figure 8:** The prevalence of children with difficulties by family structure

![Graph showing prevalence of children with difficulties by family structure](image)

Boys in one parent families have been found to suffer higher rates of poor health, injuries and chronic illness then boys with two parents. Results from the Australian National Survey of Mental Health and Wellbeing (1998) found that children in one parent families, in step or blended families, suffered more mental disorders then children in two parent families.
Biological Determinants

Age, sex and genetic predisposition are examples of biological factors which influence health.(7, 8) Our predispositions to health or disease begin to take form at the moment of conception as embedded in our genetic blueprint for construction are the genes that will influence our size, shape, gender and personality.(7, 8)

The basic biology and organic make up of the human body are fundamental determinants of health.(8) Inherited predispositions influence the ways individuals are affected by particular diseases, stressors or health challenges.(8)

- Gender

Gender refers to the many different roles, personality traits, attitudes, behaviours and relative powers and influences which a society assigns to both sexes.(87) Each gender has specific health issues or may be affected in different ways by the same issue.(87)

Gender has an influential effect on all the other health determinants as it shapes individual opportunities and experiences across the life course.(87) Men and women are exposed to different biological health risks, risk taking behaviours and mental and social influences, resulting in different mortality outcomes, as shown in Table 2.(29, 87) In general, women experience greater morbidity but lower mortality rates for most of the leading causes of death and for all ages with the difference in mortality rates widening during adolescence and early adulthood.(8) Overall life expectancy is higher for women than men.(8)

Table 2: Top 10 leading causes of disease burden by sex, Australia, 1996. Calculated as Disability Adjusted Life Years (DALYs) (29)

<table>
<thead>
<tr>
<th></th>
<th>MALES % of total DALYs</th>
<th>FEMALES % of total DALYs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.. Ischaemic heart disease</td>
<td>13.6</td>
<td>1.. Ischaemic heart disease</td>
</tr>
<tr>
<td>2.. Stroke</td>
<td>4.8</td>
<td>2.. Stroke</td>
</tr>
<tr>
<td>3.. Lung cancer</td>
<td>4.5</td>
<td>3.. Depression</td>
</tr>
<tr>
<td>4.. Chronic obstructive pulmonary disease (COPD)</td>
<td>4.2</td>
<td>4.. Dementia</td>
</tr>
<tr>
<td>5.. Suicide and self inflicted injuries</td>
<td>3.3</td>
<td>5.. Breast cancer</td>
</tr>
<tr>
<td>6.. Road traffic accidents</td>
<td>3.0</td>
<td>6.. COPD</td>
</tr>
<tr>
<td>7.. Diabetes mellitus (Types 1 &amp; 2)</td>
<td>3.0</td>
<td>7.. Asthma</td>
</tr>
<tr>
<td>8.. Depression</td>
<td>2.7</td>
<td>8.. Diabetes mellitus</td>
</tr>
<tr>
<td>9.. Colorectal cancer</td>
<td>2.7</td>
<td>9.. Osteoarthritis</td>
</tr>
<tr>
<td>10.. Dementia</td>
<td>2.5</td>
<td>10.. Colorectal cancer</td>
</tr>
</tbody>
</table>
Despite women’s increased participation in the workforce, women and men occupy very different positions in and outside the labour market. Outside the labour market it is generally women, rather than men who take primary responsibility for keeping the home and caring for children and other relatives although this role is changing.

Women have higher morbidity rates from poor mental health particularly relating to depression and anxiety. Women are twice as likely as men to suffer from depression, stress, eating disorders and over use of tranquillisers, while men experience higher deaths rates from injury including depression. National Australian health surveys of school children have shown fairly consistent gender specific behaviour patterns: secondary school aged girls have higher rates of regular smoking patterns than boys, although boys who are regular smokers smoke more tobacco; boys tend to drink alcohol more regularly and in higher quantities than girls; girls tend to eat more fruits and vegetables, diet more and tend to go without breakfast more so than boys and to spend less of their free time playing games or sport.

Ethnicity and Cultural Determinants

As determinants of health, culture and ethnicity have not been as well documented as other health determinants. People most often associate culture with ethnicity however, the term is much broader.

Cultural factors have both positive and negative effects on health. The concept of culture has been described as a set of guidelines both implicit and explicit, which individuals inherit as members of a particular society or group and refers to accepted patterns and norms of behaviour within identifiable groups. Cultural groups are not only defined by their ethnicity but also by social class, religion, age, occupation, location and leisure time activities. Each type of group has its own distinct culture and, depending on how many groups an individual belongs to, individuals may be subject to a number of cultural influences simultaneously.

Ethnicity is characterised by distinctive social and cultural traditions, a sense of identification with a group and, often, members have a common genetic heritage characterised by cultural identity, place of origin and skin colour. For many ethnic groups, there may be several different cultures within a specific group. Throughout all ethnic groups, culture is central to health and wellbeing.

Ethnicity greatly influences an individual’s values and behaviours. Certain protocols and beliefs that are part of an ethnic group’s cultural practices may protect health, while others can be harmful. For example, religious membership can promote social cohesiveness and provide social support. Some religions expressly sanction or proscribe certain behaviours relating to diet, alcohol and sexual practices. Studies have established an association between moderate to high levels of religious faith and/or spiritual awareness with greater resilience to stress, lower levels of anxiety, better coping skills, a greater sense of belonging and a generally more positive approach to life.
Discrimination is the most important factor leading to health inequities for ethnic communities.(20) Social isolation/marginalisation and lower socioeconomic status are also associated with poor health status in ethnic groups.(42)

People who experience discrimination based on differences in race, ethnic background or sexual orientation are more likely to suffer from adverse mental and physical health consequences, especially cardiovascular disease and hypertension.(93) Repeated exposure to discrimination creates constant stress, feelings of depression and anger, low self esteem and can contribute towards economic insecurity and poor educational opportunities.(93)

**Psychosocial Determinants**

Advances in neuroscience and behavioural medicine have shown that, like many physical illnesses, mental and behavioural disorders are the result of a complex interaction between biological, psychological and social factors.(94)

Mental health is more than just mental health disorders.(94) Mental wellbeing includes subjective wellbeing, perceived self-efficacy, autonomy, competence, intergenerational dependence and self-actualisation of one’s intellectual and emotional potential.(94)

Mental health is as important as physical health to the overall wellbeing of individuals, societies and countries.(94) It has been argued that psychosocial factors related to the circumstances in which people live and work, their levels of social inclusion, stress and personal control, have a greater influence on disease than individual medical care or risk factors.(7, 32)

There are many factors which impact on mental health status.(94) Age, gender, family structure, individual psychological factors, urbanisation, poverty, technological change, isolation, lack of transport, poor communication systems and limited educational and economic opportunities have all been linked to the development of mental and behavioural disorders.(94) Poverty and associated conditions such as unemployment, low education, deprivation and homelessness influence the prevalence of mental and behavioural disorders including substance abuse disorders.(32) Poor living and working conditions, the worries and insecurities of daily life and the lack of supportive environments all impact on health status with unhealthy material environments and behaviours directly affecting health outcomes.(32) Individuals may be predisposed to mental disorder because of their social situation and those who develop disorders may face further deprivation as a result of being ill.(94)

Over the past decade there has been a notable change in recognition and understanding of the influence of psychosocial influences on health.(95) Psychosocial outcomes associated with income, social isolation and the growing economic gap are major factors determining whether people develop a variety of diseases, including cardiovascular disease.(32) Anxiety, stress, shame, insecurity, social isolation, depression, low self esteem, lack of personal control over work and home life accumulate during the life course and increase the chances of developing poor mental and physical health, resulting in premature morbidity and mortality.(9, 10, 96)
Coping skills, sense of identity, competence and personal effectiveness are strongly linked with health status. How we manage stress and respond to life challenges, how we communicate with others, our capacity to express feelings and respond to the feelings of others, all contribute to overall health outcomes.

**Level of control**

How people explain life events and the level of control they feel they have over them has been identified as crucial in determining their physical and mental health. Wallerstein (1992) indicated that control of one’s destiny, or lack thereof, was an important disease risk factor. Lack of control over one’s life promotes susceptibility to ill health for people who live in high demand or chronically marginalised situations and who lack adequate resources, supports or abilities to exert control in their lives.

Attributional style refers to how people explain why a life event occurs and can accurately predict a range of depressive disorders and associated physical illnesses. People that have a negative attributional style believe they have no control over the occurrence of positive life events and blame themselves when negative events occur. When a person with a negative attributional style experiences financial difficulties and disadvantage, the result can lead to chronic depression and a state of learned helplessness that prevents the person from escaping the cycle of disadvantage. Alternately, a positive attributional style, attributing positive events to personal effort or skill, has been found to act as a buffer against negative life events and poor health outcomes.

Higher perceived control results in better outcomes, including higher personal effectiveness and better adjustment to situations. Higher perceived control has been linked to low subjective pain, reduced deleterious effects of ageing, improved immune system functioning and overall better health. Perceived low personal self control can lead to poor academic achievement and depression.

The Whitehall Studies (I and II) found that lifestyle and environmental factors could not account for all the risk associated with CVD mortality. In a Swedish study of 1600 randomly selected working men interviewed about their work and heart disease symptoms, it was found that individuals in high demand positions who were restricted in the freedom to make decisions and saw themselves as having poor control over their work, had a higher incidence of coronary heart disease symptoms than people in high demand positions who believed they had good control. The researchers concluded that job strain and poor control may contribute almost as much to the statistical risk of coronary heart disease as some of the conventional medical risk factors such as smoking, high blood pressure and elevated blood cholesterol levels.

**Stress**

Long periods of anxiety, psychological demands and challenges faced in everyday life situations, exacerbated by low income and poor social conditions, trigger biological stress responses which affect the cardiovascular and immune systems. High levels of stress reflect a lack of control and over long periods of time can lead to anxiety and insecurity, increased depression and susceptibility to infection, diabetes, high blood
pressure, high cholesterol levels, increasing the risk of heart attack and stroke. Reduced variability in heart rate is linked to anxiety and increased risk of sudden death. Depression has been linked to an excessive production of glucocorticoids and predicts future heart disease. In industrialised countries, biological stress response and associated health issues increase as one moves down the socioeconomic ladder.

The evidence suggests that psychosocial factors operating throughout the life course influence a variety of biological variables and that the biological stress response and a person’s ability to deal with stressful situations in adult life are strongly associated with brain development in utero and early childhood. Where people are in the social hierarchy and the degree of control they enjoy over what they do appear to be important factors in determining vulnerability to a wide range of diseases.

### Lifestyle Determinants

The increasing prevalence of chronic illness and disabling conditions, along with greater life expectancy and the rising average age of the population, are substantive contributors to the rising economic burden of illness. Diet, smoking and other addictive behaviours, alcohol intake, levels of physical activity, sexual behaviour, coping ability and response to stress impact on health status and influence health outcomes throughout the life cycle as shown in Table 3 and Figure 9.

#### Table 3: The relationship between risk factors and disease (29)

<table>
<thead>
<tr>
<th>Risk and Protective Factors</th>
<th>National Health Priority Areas</th>
<th>Chronic Diseases</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco use*</td>
<td></td>
<td>Heart Disease &amp; Stroke</td>
<td>Diabetes</td>
</tr>
<tr>
<td>Alcohol misuse*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Dyslipidemia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diet*</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Physical Activity*</td>
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<td></td>
</tr>
<tr>
<td>Obesity*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic Stress</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early life factors (eg low birth weight, infections, abuse and neglect)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low socio-economic status</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

* established risk/protective factor  
? possible risk/protective factor  
+ association/comorbidity  
* current national population health strategy or in development
Health damaging behaviours are more likely to persist when social conditions are poor. Knowledge alone is often not enough to change behaviour when there are other more dominant factors influencing lifestyle. Making changes that affect future health is particularly difficult for people whose socioeconomic circumstances are insecure. For example, people from lower socioeconomic situations, have a greater chance of experiencing lower education, social isolation and a higher chance of engaging in a wide range of risk taking behaviours and engaging in fewer health promoting behaviours. People who live in conditions of poverty and insecurity are more likely to engage in risk taking behaviours, such as smoking and consuming large quantities of alcohol, as the pleasure provided by these activities often serves as distraction and respite from difficult life situations.

According to Syme (1998), most human behaviour is heavily influenced by the social environment in which people live and work. Therefore, the reason why risk modifying interventions often fail is because they view lifestyle behaviours as problems of the individual rather than as problems related to one’s social and cultural environment. The New Zealand National Advisory Committee on Health and Disability (1998), agrees with this view and states that behaviour has been difficult to change amongst people living in poor social circumstances because the state of their social circumstances has not been the focus for intervention. Lifestyle and behavioural interventions cannot alleviate the deeper influences of poverty and social disadvantage on health.

A study conducted by Lantz et al (1998) revealed that lifestyle risk factors such as alcohol and tobacco use, body mass index and activity accounted for a small proportion of variance in total death rates from cardiovascular disease as compared to income. Similarly, the largest international study of cardiac disease conducted by the World Health Organization (1998) found that according to rates of cardiovascular disease among 21 nations, there was no relationship between reductions in cardiovascular disease and national changes in obesity, smoking, blood pressure and cholesterol levels. Instead, the findings suggested
that factors such as societal unrest, poverty and social and economic change may be responsible for different levels of cardiovascular disease. (108)

WHO (1998) have recently redefined the term ‘lifestyle’ as meaning a way of living based on identifiable patterns of behaviour that are determined by the interplay between an individual’s personal characteristics, social interactions and socioeconomic and environmental conditions. (109) WHO suggests that efforts to improve health by enabling people to change their lifestyles must be directed not only at the individual but also at the social and living conditions which contribute to the behaviour or lifestyle. (109)

A healthy lifestyle is a valuable resource and reduces the incidence and impact of health problems, improves recovery from disease and illness, improves the ability for coping with life stressors and generally improves quality of life. (104) The following sections outline lifestyle behaviours and their associated impact on health outcomes throughout the life cycle.

Nutrition, obesity and food security

The relationship between diet and health is well established with a good diet and adequate food supply central to the promotion of health and wellbeing. (29) The availability of affordable healthy, nutritious food makes more difference to what people eat than health education. (64) A shortage of food and lack of variety can cause malnutrition and deficiency diseases whereas excessive food intake has been linked to a number of diseases including obesity, coronary heart disease, stroke, hypertension, some cancers, type 2 diabetes, osteoporosis, dental caries, gall bladder and colorectal disease. (29) Good nutrition is now acknowledged as a major factor affecting general physical and mental health and overall quality of life. (29)

Social and economic conditions influence the availability of healthy foods with food consumption varying between different socioeconomic groups. (10) Competing priorities for limited family income affect what food the family eats. (110) People on low incomes are least able to eat well and often substitute cheaper processed foods for fresh foods. (10) Food costs are a key factor in the determination of food choices especially within rural communities where healthy foods are more expensive and less available than in urban areas. (111)

Poor nutrition is related to affordability and availability of healthy food. (111) Research shows that poor diet and nutrition related diseases are more common in disadvantaged groups. (8) This results in a social gradient in diet quality that contributes to health inequity. (8) Improving nutritional status should lead to a reduction in diseases such as cardiovascular disease, diabetes, cancer, obesity, hypertension, osteoporosis, anaemia and dental caries. (8, 78)

The high prevalence of overweight and obesity in our society is a major health problem, contributing to premature morbidity and mortality through conditions such as hypertension, cardiovascular disease, non insulin dependent diabetes, breathlessness, sleep apnoea, impaired fertility, arthritis and lower back pain. (112) Overweight and obesity affect over half of the adult population in NSW with the prevalence in Australian adults and children increasing at almost one per cent per year. (112) Being overweight or obese is more prevalent among NSW adults who are married, not in the workforce, have not finished high school or live in urban areas, and amongst women who reside in economically disadvantaged areas. (112)
A well balanced diet during childhood is a major contributor to growth and assists in maintaining optimum health.(71) As eating habits begin early in childhood and are maintained throughout life, establishing a healthy diet in childhood is likely to encourage a healthy diet through to adulthood.(71)

- **Breast feeding**

Breastfeeding impacts on the survival, growth, development and health of infants and young children as well as having social and economic benefits.(71) Antibodies in the mother’s milk protect the infant from disease while its own immune system is developing.(71) Studies have shown that breastfeeding protects against acute conditions such as diarrhoea, respiratory infection, otitis media, bacterial meningitis and urinary tract infection and even has a protective effect against sudden infant death syndrome, diabetes mellitus, eczema and asthma.(71)

- **Tobacco alcohol and other drug use**

Alcohol dependence, legal and illicit drug use and cigarette smoking are all closely associated with markers of social and economic disadvantage and are significant causes of physical, social and emotional health problems.(112)

Evidence shows that smoking during pregnancy has serious adverse health consequences for the newborn.(81) It is a moderate risk factor for pre-term delivery, a major risk factor for intra uterine growth retardation and is also related to sudden infant death syndrome (SIDS).(81) Smoking during pregnancy has also been associated with behavioural and cognitive problems among older children, including lower IQ and attention deficit hyperactivity disorder (ADHD).(81) Animal studies suggest that prenatal exposure to nicotine affects brain development and may have long lasting health outcomes.(81) Research has shown that young children whose mothers smoke are much more likely to develop wheezing and to have diminished pulmonary function which can predispose them to asthma and chronic bronchitis later in life.(81)

At low to moderate levels, alcohol appears to have certain health benefits and has been associated with decreasing the risk of heart attack and ischemic stroke.(112) However, excessive alcohol consumption increases the risk over time, of chronic ill health and premature death with the harm caused by excessive alcohol consumption accounting for approximately 4.9% of the total disease burden in Australia.(112)

Although per capita alcohol consumption has declined in Australia, more young people drink alcohol at an earlier age and are increasingly adopting high risk drinking patterns.(112) Alcohol misuse is associated with health and social problems affecting young people including depression, suicide, road trauma, assault and other risk behaviours.(112) Alcohol consumption during pregnancy can result in foetal alcohol syndrome (FAS) in infants characterised by low birth weight, small head circumference and neuro developmental and facial anomalies with children at older ages displaying a wide variety of cognitive, social and behavioural problems.(81) According to the literature, heavy drinking and binge drinking during pregnancy greatly elevates the risk of foetal alcohol syndrome.(81)
Addictive behaviour increases the incidence of accidents, violence, poisoning, injury, suicide and other alcohol and drug related addictions. (10) Shifting the problem onto the user is an inadequate response, addressing the complexities of the social circumstances that generate addiction is what is needed. (10)

- **Physical activity**
  There is growing evidence in the literature associating physical inactivity with chronic diseases such as colon cancer, diabetes and in particular, cardiovascular disease. (113) Regular exercise protects against disease and promotes a sense of wellbeing. (113) Physically active adults are more likely to experience a higher quality of life, better mental health and less functional decline in old age than inactive adults and may protect older people from depression. (113)

  Physical inactivity accounts for 7% of the disease and injury burden in Australia. (112) It is now recognised as a key health issue and is the second most important risk factor, after tobacco, that contributes to the burden of disease, mortality and morbidity in Australia. (112)

  Physical activity in children is important to lifelong health and wellbeing and plays an important role in the socialisation process, development of physical coordination and has been associated with lower rates of overweight and obesity. (70)

  Appropriate and reliable access to recreational facilities is essential for protecting and improving health. (42) Lower socioeconomic groups, youth, people with disabilities, older people and people who cannot drive may have limited access to recreational facilities. (42) Therefore public parks, swimming pools, public halls, sporting fields, walkways and cycle ways provide access to recreational opportunities for people who may have limited access to other forms of recreational activity. (42)

- **Injury**
  Injury includes unintentional injuries and those resulting from intentional acts of violence such as motor vehicle accidents, firearms, poisoning, falls, drowning, suicides, workplace and sporting injuries, burns and scalds, homicides, interpersonal violence and sexual abuse. (114) Most injuries do not happen by chance but are predictable and preventable. (114)

  In Australia, injury remains a leading cause of death, illness and disability and resulted in 6.5% of all deaths and approximately 403,386 episodes of inpatient hospital care in 1997-98. (112) In NSW, the total cost of direct morbidity following injuries is estimated to be around $1.5 billion per year. (112)

  While every person is at risk of injury, certain types of injuries affect some groups more frequently. (114) Infants and toddlers of both sexes are at highest risk of drowning and suffocation, males aged 15 to 24 years have the highest rates of injuries due to motor vehicle accidents, while falls are the leading cause of injury hospitalisation amongst older people with women having significantly higher rates then men. (114) Youth, especially males, continue to be involved as both perpetrators and victims of violent injuries and females and children are often injured as a result of physical and sexual assaults. (114)
**Oral health**
Dental health is a sensitive marker for socioeconomic status. Poor dental health has been associated with lower socioeconomic groups with studies highlighting a significant increase in dental caries as the level of disadvantage increases. Dental disease can affect confidence and self-esteem, it impacts on an individual's ability to socialise and obtain employment and the high cost of treatment can place financial burden on individuals and families. The causes are complex however, there is enormous scope for reducing inequities in oral health as most dental disease is preventable.

**Sexual health**
Sexual health and the practice of responsible sexual behaviours are complex issues influenced by a wide range of biological, social, emotional, interpersonal and cultural issues. Sexually transmitted diseases are more prevalent amongst groups who practice unprotected vaginal and anal intercourse such as adolescent and young adults, men who have sex with men and lower socioeconomic groups.

**Vulnerable groups**
Vulnerable groups, including children, single women living in disadvantage, Aboriginal people, people with disabilities, people in same sex relationships, recent immigrants, unattached elderly women, low income families and rural populations are especially subject to material, social and economic inequities and to adverse health outcomes. Vulnerable groups tend to experience higher rates of poverty, low education, smoking, physical inactivity, poor diet and depression. They tend to experience reduced access to economic resources, and higher levels of social isolation. A disproportionate number of all behavioural, material and psychosocial risk factors for communicable, non-communicable and mental health chronic disease occur in these groups.

**Environmental Determinants**
The environment in which people live and work throughout the life cycle and how individuals cope with their varying environment influences health. At certain levels of exposure, contaminants in the air, water, food and soil can cause a variety of adverse health outcomes, including cancer, birth defects, respiratory illness and gastrointestinal problems. In the built environment, factors relating to housing, indoor air quality, access to recreational facilities and the design of communities and transportation systems can significantly influence health and wellbeing and contribute greatly to the burden of preventable injury morbidity and mortality.

**Housing**
Evidence suggests that differences exist in health status according to place of residence whether it be urban, rural or remote. Also, physical quality and type of housing, level of overcrowding and the cost of housing impact directly on health. Locational disadvantage, or where people live, can impact on an individual's ability to improve their life situations by denying them access to social supports or preventing them from purchasing nutritious food. Even travelling small distances can make accessing care difficult for people without adequate and secure transport.
The United Nations recognise adequate shelter as a basic human right.(46) Good quality housing invariably has an impact on health: housing that is safe, warm, well ventilated and dry is a necessity to life while housing that is cold, damp, crowded, in poor repair or in an unsafe neighbourhood can contribute directly to disease or injury.(118) Lower socioeconomic groups, the elderly, small children and the chronically sick are most vulnerable to poor quality housing.(21)

Poor quality housing is associated with increased prevalence of allergic and inflammatory lung diseases, such as asthma, independent of smoking and socioeconomic factors, a higher incidence of falls and higher heating costs.(119) The incidence of infectious diseases and the number of accidental deaths are also positively associated with high levels of overcrowding.(8)

Housing represents the largest monthly expenditure for most households.(118) Many low income families spend a much greater proportion of household income on housing costs than families with higher incomes.(118) High housing costs leave less money for other budget items essential to good health.(118) If health suffers as a result of these circumstances, the ability of low income earners to support themselves may be compromised at further economic, physical and social costs to themselves, their families and the community.(9)

Improving energy efficiency in homes is likely to improve the health of occupants, both directly and indirectly by conserving energy thereby releasing financial resources for other uses.(8) Removing hazards from the home is likely to lead directly to reduced death and injury from accidents.(8)

A house is also a home, a place where people can feel secure, a place to keep things that are important to them and a place to develop a sense of identity and belonging, all factors that enhance health.(120) People who have insecure access to housing and have to move frequently, are less able to integrate into and contribute to the community and this has implications for a person’s psychological health and increases social isolation.(18)

The design of neighbourhoods, public buildings and other physical community structures influences health.(18) Injuries and violence are reduced by structures designed to ensure the safety and security of residents while communities designed to give all residents access to necessary services and amenities protect their safety and provide opportunities for recreation and social interaction, creating a quality of life that has a strong positive influence on health.(18)

Shelter is a prerequisite for health.(64) Improving the availability of housing, the quality of housing and increasing the safety of the environment in which people live all impact significantly on overall health outcomes, especially for lower socioeconomic groups.(8)

- **Transport**

  The primary function of transport is to provide access to people, goods and services, improve employment opportunities and increase availability of leisure activities.(21) By doing so transport plays a role in maintaining social networks, improving physical activity levels and
reducing the incidence of obesity. (21) Suburbs which depend on cars for access to facilities tend to isolate people without cars, particularly the young, adolescents, mothers of young children, people with disabilities, residing in remote communities and the elderly. (18, 121)

Transport networks such as multi-lane expressways and railway systems can have a negative impact on a community’s physical and social environment. (8) Their physical presence can be aesthetically unpleasant and can separate communities, adding to isolation while high traffic volume leads to increased levels of air and noise pollution and higher rates of road traffic accidents. (9, 10, 120)

The type of transport employed can have a positive impact on communities with cycling, walking and the use of public transport promoting health by initiating physical activity, reducing fatal car accidents, increasing social contact and reducing air pollution. (78) Well planned urban environments, which separate cyclists and pedestrians from road traffic, increase the safety of cycling and walking and encourage physical activity and social interaction. (78)

**Access to Services**

Appropriate and reliable access to population-based services and facilities such as health, educational facilities, social services, transport services and recreational facilities are essential for protecting and improving health. (42)

- **Service utilisation**

Health services, especially those that focus on maintaining and promoting health, are designed to prevent disease and injury and so contribute greatly to improving population health. (87) Unfortunately communities most at risk of ill health tend not to access these types of preventive services. (87) This is known as the Inverse Care Law. (122, 123)

In Australia, the evidence for disparities in access to care is most apparent in primary, secondary and tertiary preventive care services. (123) Studies of health care utilisation have demonstrated that affluent, middle class areas spend more on the provision of health services for their populations than do less affluent working class areas. (124) People who are socioeconomically disadvantaged are more likely to need, but less likely to use preventive health services such as dentists, immunisation clinics and cancer screening. (123) They are more likely to delay seeking medical treatment, resulting in more crisis health management, increasing hospital episodes, including emergency department use and outpatient visits. (123) This practice is particularly evident in Aboriginal communities. (123)

Across Australia geographic isolation impacts on health status with people living in rural and remote areas generally having worse health than those living in metropolitan areas. (112) The elderly, women, children, lower socioeconomic groups and Aboriginal communities are most affected. (9) People living in remote areas generally have a lower life expectancy, higher avoidable mortality, report fewer consultations with general practitioners, more visits to hospital emergency departments and are more likely to die from motor vehicle accidents and gun related injuries. (112) Death rates due to heart disease are higher among remote areas.
as compared to NSW overall and survival after diagnosis of a number of cancers is shorter in residents of rural/regional areas than in accessible areas.(125, 126)

There are a number of factors which influence access to health care including:

- geographic distribution of and availability of services, especially in rural and urban remote areas;
- availability and expertise of staff;
- range and quality of facilities;
- cultural sensitivity of the service;
- availability of affordable and safe means of transport;
- cost of referrals and treatments; and
- waiting times for publicly funded health services especially allied health services, outpatient medical specialist services and elective procedures.(20)

For the consumer, barriers which impede access to and utilisation of health services include:

- lay health beliefs;
- not knowing what services are available locally;
- limited social mobility;
- financial insecurity; and
- lack of informal carer support.(20)

To achieve and maintain health, health services must effectively promote health, protect health, relieve pain and suffering, restore function and provide compassionate care for the vulnerable.(123) Strategies which have been shown to be effective in reducing health inequities include outreaching services, reducing the cost of services, developing culturally appropriate services, and increasing access to skills and resources that will enable people to adopt more health promoting lifestyles.(20)

Lowering the financial barriers to health care is only part of the solution as can be seen by reviews of the UK National Health Service.(127) The Black Report (1980) produced evidence that not only had the universal tax based service ineffectively reduced inequities in health, it had actually increased inequities between social groups since its inception.(4)

As essential as medical care is for individuals, it is not the most significant determinant of a healthy society.(79) World wide, wealthier countries usually spend more on health services and have healthier people, but at a certain level of spending within industrialised countries, additional spending does not necessarily appear to improve health status of the population.(79)

As can be seen from Table 4, results from a study of health care spending and health outcomes of 29 OECD countries (1997), showed that health care spending did not necessarily equate to improved health outcomes as measured by life expectancy and infant mortality.(128) Results show that the United States spent more on health services than any other country, a total of $3,925 per person on health care.(128) However, Australia and New Zealand showed better health outcomes while spending considerably less on health services $1,805 and $1,352 per person respectively.(128)
Table 4: Health care spending and outcomes in 20 OECD countries (128)

<table>
<thead>
<tr>
<th>Country</th>
<th>Per Capita Health Spending</th>
<th>Percent of GDP on Health</th>
<th>Life Expectancy Male</th>
<th>Life Expectancy Female</th>
<th>Infant Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>$1,805</td>
<td>8.4</td>
<td>75.2</td>
<td>81.1</td>
<td>5.8</td>
</tr>
<tr>
<td>Austria</td>
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<td>7.9</td>
<td>73.9</td>
<td>80.2</td>
<td>5.1</td>
</tr>
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<td>7.6</td>
<td>74.3</td>
<td>81.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Canada</td>
<td>2,095</td>
<td>9.0</td>
<td>75.4</td>
<td>81.5</td>
<td>6.0</td>
</tr>
<tr>
<td>Czech Rep.</td>
<td>904</td>
<td>7.0</td>
<td>70.5</td>
<td>72.2</td>
<td>6.0</td>
</tr>
<tr>
<td>Denmark</td>
<td>1,848</td>
<td>7.4</td>
<td>72.8</td>
<td>78.0</td>
<td>5.2</td>
</tr>
<tr>
<td>Finland</td>
<td>1,447</td>
<td>7.2</td>
<td>73.0</td>
<td>80.5</td>
<td>4.0</td>
</tr>
<tr>
<td>France</td>
<td>2,051</td>
<td>9.6</td>
<td>74.1</td>
<td>82.0</td>
<td>4.9</td>
</tr>
<tr>
<td>Germany</td>
<td>2,339</td>
<td>10.4</td>
<td>73.6</td>
<td>79.9</td>
<td>5.0</td>
</tr>
<tr>
<td>Greece</td>
<td>974</td>
<td>7.1</td>
<td>75.1</td>
<td>80.4</td>
<td>7.3</td>
</tr>
<tr>
<td>Hungary</td>
<td>602</td>
<td>16.5</td>
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<td>74.7</td>
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<tr>
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<td>3.7</td>
</tr>
<tr>
<td>Ireland</td>
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<td>7.0</td>
<td>73.2</td>
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<td>Italy</td>
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<td>7.6</td>
<td>74.9</td>
<td>81.3</td>
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<td>Japan</td>
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<td>77.0</td>
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<tr>
<td>Korea</td>
<td>587</td>
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<td>69.5</td>
<td>77.4</td>
<td>9.0</td>
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<td>Luxembourg</td>
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<tr>
<td>Mexico</td>
<td>391</td>
<td>4.7</td>
<td>70.1</td>
<td>78.5</td>
<td>17.0</td>
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<tr>
<td>Netherlands</td>
<td>1,838</td>
<td>8.6</td>
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<tr>
<td>New Zealand</td>
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<tr>
<td>Norway</td>
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<td>7.5</td>
<td>75.4</td>
<td>81.1</td>
<td>4.0</td>
</tr>
<tr>
<td>Poland</td>
<td>371</td>
<td>5.2</td>
<td>67.8</td>
<td>76.8</td>
<td>12.3</td>
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<tr>
<td>Portugal</td>
<td>1,125</td>
<td>7.8</td>
<td>71.2</td>
<td>78.5</td>
<td>6.9</td>
</tr>
<tr>
<td>Spain</td>
<td>1,168</td>
<td>7.4</td>
<td>74.4</td>
<td>81.6</td>
<td>5.0</td>
</tr>
<tr>
<td>Sweden</td>
<td>1,728</td>
<td>8.6</td>
<td>78.5</td>
<td>81.5</td>
<td>4.0</td>
</tr>
<tr>
<td>Switzerland</td>
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<td>10.1</td>
<td>75.7</td>
<td>81.9</td>
<td>4.7</td>
</tr>
<tr>
<td>Turkey</td>
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<td>4.0</td>
<td>65.9</td>
<td>70.5</td>
<td>42.2</td>
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<td>U.K.</td>
<td>1,347</td>
<td>6.7</td>
<td>74.4</td>
<td>79.3</td>
<td>6.1</td>
</tr>
<tr>
<td>U.S.</td>
<td>3,925</td>
<td>13.5</td>
<td>72.7</td>
<td>79.4</td>
<td>7.8</td>
</tr>
<tr>
<td>Median</td>
<td>1,728</td>
<td>7.5</td>
<td>74.0</td>
<td>80.3</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Note: 1997 OECD expenditure data; 1996 health status measures.

- **Health insurance**

The reduction of government financing of health care and the increased reliance on private funding accompanied by an increase in co-payments, undermines access to health care for low income people.(118) In Australia, dental health, certain allied health services, some specialist medical care and some pharmaceuticals, medical aids and appliances are not covered by Medicare.(118) For families suffering chronic illness and who are just above the level of eligibility for a health care card, or for those that cannot afford private health care insurance, access to these services may be denied due to their high cost.(118)

In the United States, those without health insurance and easy access to health services have higher mortality rates than those with private health insurance.(129) Results of a national study found that over a 17 year follow up period, adults under 65 years of age, who lacked health insurance had a 25% greater chance of dying prematurely than those who had private health insurance from the outset.(129) This pattern was found when comparing deaths of insured and uninsured patients from heart attack, cancer, traumatic injury and HIV infection.(129) In the United States, uninsured people are significantly less likely than those insured to receive health care deemed necessary by physicians, including preventive
services and care for chronic conditions.(130) Two thirds of all uninsured people are members of families who earn less than twice the federal poverty level.(130) Minority groups are more at risk of being uninsured due to income and employment disadvantage.(124)

Community and Social Determinants
Social cohesion, social inclusion/exclusion and social capital are key concepts derived from the social and political science disciplines. However, these terms are now used quite extensively in health because of the influential role they play along with other factors, in determining health.(131) There is contentious debate amongst academics regarding the importance of social capital.(131) Regardless of the debate, how we associate with each other and on what terms has enormous implications for overall wellbeing.(131)

Social cohesion/social exclusion
Societal values and rules affect the health and wellbeing of individuals and populations.(87) Social stability, recognition of diversity, safety, good human relationships and community cohesiveness provide a supportive social environment which encourages health.(87)

Social cohesion/connectedness refers to the existence of mutual trust and respect in a community and the wider society, and is determined by the degree to which individuals are integrated with, and participate in a secure social environment.(78) Social support and good social relations have positive influences on health and protect against poor health.(42)

Support from families, friends and communities is important in helping people deal with difficult situations and in maintaining a sense of mastery over life circumstances.(18) Supportive social relations can reduce adverse responses to stress and social isolation.(18) Supportive networks help us to feel that we have a place in the world, that we are important in the lives of others and belonging to a social group makes people feel cared for, loved and valued and provides social status and a sense of control over life situations.(7) The caring and respect that occurs in social relationships and the resulting sense of satisfaction and wellbeing, acts as a buffer against health problems.(31)

Evidence suggests that people with good social support networks live longer, are at reduced risk of cardiovascular disease, are less likely to report being depressed, or to suffer a recurrence of cancer and are less susceptible to infectious illness than those with poor social networks.(8) Studies have shown an association between cardiovascular disease and social cohesion: when social cohesion is increased, rates of cardiovascular disease decrease.(22) Several studies have reported death rates two to three times higher for people with low levels of social integration.(7, 35) People who receive less social support are more likely to experience depression and mental illness, pregnancy risks and chronic disability.(7) Social support interventions improve medical outcomes in a variety of high risk populations.(7)

Many studies have revealed a clear association between social support networks and mortality, indicating that social relationships or lack thereof, constitutes a major risk for health.(87) Some studies conclude that the health effect of social relationships may be as
important as established risk factors such as smoking, obesity, high blood pressure and a sedentary life style.(87)

In a study conducted by Berkman and Syme (1979) of men and women in Alameda County, California, results showed that across age groups, men with the least social contacts were more than twice as likely to die as their same age counterparts that had many contacts.(132) Women with the least contacts were almost three times as likely to die at any given age.(132) In a study conducted by Groen et al (1968), of coronary heart disease amongst Israeli civil servants, an increased risk of angina was associated with social problems and conflicts and a decreased risk was associated with established emotional support.(133) Social support provides a buffer against adverse life events and living conditions and is an emotional and practical resource for coping and for enhancing quality of life.(133)

Links have been established between marriage and greater life expectancy and widowhood and higher mortality rates.(86) Mutually satisfying long term relationships are associated with greater resilience to the negative effects of life stresses and reduced rates of psychological disorder.(86) In contrast, relationship problems, marital distress and separation are very stressful life events and are associated with higher rates of many forms of individual maladjustment, including substance abuse, depression, bipolar disorder and anxiety.(86)

Access to emotional and practical social support varies with social and economic status.(32) The quality of the social environment is worse where financial deprivation is greatest.(32) Societies with low levels of income equity have low levels of social cohesion.(32) Communities that experience low levels of social cohesion, have higher violent crime rates and their members are more likely to suffer greater psychosocial stress and adopt health threatening behaviours resulting in higher morbidity and mortality rates.(78)

The socially excluded lack the means to participate in mainstream economic, social, cultural and political life and, therefore, are denied the opportunities to participate in activities normally expected of members of society.(42) People particularly vulnerable to social isolation or exclusion include the unemployed, single parent families, people with mental illness, people with disabilities, people from other cultures, people living alone and older people.(10, 32, 42)

Crime and fear of crime can profoundly affect the quality of people’s lives.(8) In communities where citizens do not feel safe, quality of life will deteriorate.(120) Crime directly affects the quality of life of not only the victims but their friends, family and the general community in which they live.(120) The fear of crime isolates communities and has financial repercussions for communities: housing prices drop, people who can move do move and businesses bypass high criminal areas.(120)

Evidence is growing which links levels of crime to social cohesion: low levels of mutual trust and reciprocity between people living in the same neighbourhood, region or society are associated with low levels of social cohesion.(8) According to Acheson (1998), the most effective strategies for crime prevention are likely to be those which are integrated with wider social and economic policies for reducing health inequities.(8) Early child development
programs have been shown to have long term effects on the incidence of criminal behaviour in early adult life.(8)

Healthy social environments that enhance positive self concept improve opportunities for success in life.(10) Institutions such as schools and workplaces that provides people with a sense of belonging and the feeling of being valued, are likely to be healthier places rather than those where people feel excluded, disregarded and used.(10)

Social capital

Social capital refers to the type and strength of relationships which bind individuals together in families and as part of communities.(134) Putnam (1993) defines social capital in terms of the community cohesion associated with the existence of cooperative and accessible community networks/organisations and high levels of participation in such groups; a strong sense of local identity; high levels of trust, mutual help and support amongst community members.(135) In short, social capital is concerned with the processes that occur between people which establish networks, norms and social trust and facilitates coordination and cooperation for mutual benefit.(136)

A sense of community refers to a feeling of belonging or membership, having influence on your community, being able to meet most of your needs through the community (safety, services, respect) and being emotionally connected and committed to your community.(120) A strong sense of community is related to greater feelings of safety and security and increased levels of voting, recycling, helping others and volunteering.(120) Studies have revealed that individuals with a strong sense of community are generally happier, worry less and perceive themselves to be more competent at controlling their lives.(120) A strong sense of community has also been associated with lower mental illness, lower suicide rates, less child abuse, high quality of parenting, physical improvements in neighbourhoods and reduced crime.(120)

Social capital is not what you know, it is who you know.(131) One’s family, friends and colleagues constitute an important asset that can be called on in a crisis and enjoyed for its own sake.(131) Communities with a rich stock of social networks and civic associations will be in a stronger position to confront disadvantage and vulnerability, resolve disputes and/or take advantage of new opportunities.(131) Social capital can be measured using a range of indicators but the most commonly used measure is trust in other people.(131, 134)

According to Woolcock (2001), social relations which enable a country to positively deal with risks, adverse events and opportunities assist in achieving sustainable economic development.(131) Getting the social relations right is a critical component of sustainable development.(131)

However, social capital has potential disadvantages as well as advantages: it can foster behaviour that worsens rather than improves economic performance (cartels), it can act as a barrier to social inclusion and social mobility (old boy networks, racist or gender specific clubs), it can also divide rather than unite communities (some religious faiths) and it can facilitate rather than reduce crime (mafia or the IRA).(134)
Incremental amounts of social support bring incremental health benefits. Therefore, a society which nurtures skills and abilities throughout the population, which provides economic opportunities for all and fosters a cohesive and integrated environment would do more for health than curative medical services. Social support is seen as either directly promoting health and health behaviours or as buffering the adverse effects of stressors. Overall, the effects of social support on health can be beneficial or detrimental depending on whether it is present or absent from a community.

**Socioeconomic Determinants**

Socioeconomic status is the social and economic ranking of a person or group in comparison to the rest of the population. A number of different indicators can be used to measure socioeconomic position such as household income, level and type of educational attainment, occupational status, access to or ownership of various assets and place of residence. Most studies use a combination of these indicators. However socioeconomic status and health is measured, research indicates that income and social status are the single most important determinants of health.

A socioeconomic gradient describes the relationship between a cognitive, social or behavioural outcome with socioeconomic status. Studies have shown that health status improves at each step up the income and social hierarchy. People of higher socioeconomic levels have better health and lower mortality, longer life expectancy and improved quality of life than lower socioeconomic groups, as shown in Table 5. Socioeconomic differences in health are evident for both males and females at every stage of the life cycle and the relationship exists irrespective of how socioeconomic status and health are measured.

### Table 5: Comparison of age standardised mortality rates (per 100,000) by area socioeconomic status, 1985-1987 and 1995-1997, Australia

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All causes</td>
<td></td>
<td>338.4</td>
<td>568.5</td>
<td>1.66</td>
<td>24</td>
<td>250.4</td>
<td>410.8</td>
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<tr>
<td>Circulatory system</td>
<td></td>
<td>125.7</td>
<td>207.8</td>
<td>1.65</td>
<td>24</td>
<td>63.2</td>
<td>118.2</td>
</tr>
<tr>
<td>Coronary heart disease</td>
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<td>96.0</td>
<td>149.0</td>
<td>1.55</td>
<td>21</td>
<td>43.0</td>
<td>80.7</td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
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<td>27.5</td>
<td>2.10</td>
<td>34</td>
<td>7.7</td>
<td>16.0</td>
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<td>1.73</td>
<td>24</td>
<td>4.3</td>
<td>9.0</td>
</tr>
<tr>
<td>Cancer</td>
<td></td>
<td>117.9</td>
<td>150.6</td>
<td>1.28</td>
<td>12</td>
<td>90.3</td>
<td>125.4</td>
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<tr>
<td>Lung cancer</td>
<td></td>
<td>29.7</td>
<td>47.3</td>
<td>1.60</td>
<td>23</td>
<td>17.6</td>
<td>34.8</td>
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<tr>
<td>Injury and Poisoning</td>
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<td>50.6</td>
<td>99.2</td>
<td>1.96</td>
<td>30</td>
<td>43.7</td>
<td>76.9</td>
</tr>
<tr>
<td>Suicide</td>
<td></td>
<td>19.5</td>
<td>39.7</td>
<td>1.73</td>
<td>24</td>
<td>22.2</td>
<td>33.8</td>
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<td>Motor vehicle accidents</td>
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<td>1.73</td>
<td>27</td>
<td>8.4</td>
<td>19.6</td>
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<tr>
<td>Respiratory system</td>
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<td>13.7</td>
<td>31.7</td>
<td>2.31</td>
<td>37</td>
<td>8.0</td>
<td>20.0</td>
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<td>9.7</td>
<td>1.90</td>
<td>33</td>
<td>4.4</td>
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<td>31.4</td>
<td>3.06</td>
<td>48</td>
<td>8.8</td>
<td>19.3</td>
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</tbody>
</table>

a. Source: Adapted from Turrell and Matthers.  
b. High and low correspond to the least and most disadvantaged quintiles of the Index of Socioeconomic Disadvantage respectively.  
c. Ratio between the standardised mortality rate for the most and least disadvantaged quintile.  
d. Per cent of deaths that would be avoided if all quintiles had the same mortality rate as the least disadvantaged quintile.  
Income

Income is one of the most important life conditions determining whether individuals stay healthy or become ill. At a material level, it provides the means of obtaining fundamental prerequisites of health such as shelter, food and warmth. As well as satisfying basic human needs, level of income serves psychosocial and symbolic purposes. It allows people to express identity and to participate fully within their families, communities and broader society. Those with relatively few material resources have the greatest exposure to multiple adverse health risks throughout life. Income levels affect the degree of control people feel they have over their own life and destiny. Self image is enhanced by possessions and wealth is a marker for social status, success and respectability.

Low income increases an individual or family’s exposure to harmful physical and social environments. Low income reinforces health damaging behaviours and causes stress. A meta analysis of 34 international studies has shown a strong relationship between greater income inequality and increased homicide.

The literature demonstrates a strong, consistent pattern between income inequality and child health outcomes, with higher income inequality associated with higher infant mortality, low birth weight and mortality in people aged 1-14 years in both sexes. Socioeconomic status and income in early childhood can have profound effects on overall development which impacts on health and behaviour in later life. Parental disadvantage starts a chain of social risk. It can result in reduced readiness for and acceptance of school, leading to behaviour difficulties and poor educational attainment and can lead to unemployment, perceived social marginality, low social status and low control employment in adult life.

Table 6 shows results from the 1993 Canadian Ontario Child Health Study. The study found a strong and significant relationship between behaviour and academic problems and family low income status for children aged 6-16 years. The results showed that low income status children tended to experience more behaviour and academic problems with the number of problems increasing down through the socioeconomic levels. The data also showed that academic and behavioural problems were not isolated to low income groups, there was no cut off point although the proportion of children with difficulties decreased each step up the socioeconomic ladder.

Table 6: The prevalence of one or more behavioural or academic disorders, by family income for children aged 6-16 years

<table>
<thead>
<tr>
<th>Family Income Level</th>
<th>Risk of One or More Disorders (per 100)</th>
<th>Total Children in Income Category (% of all children)</th>
<th>% of Total Cases Occurring in Income Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; $10,000</td>
<td>36.3</td>
<td>7.3</td>
<td>14.5</td>
</tr>
<tr>
<td>$10,000 - $25,000</td>
<td>17.4</td>
<td>27.7</td>
<td>26.5</td>
</tr>
<tr>
<td>$25,000 - $50,000</td>
<td>16.8</td>
<td>52.5</td>
<td>48.7</td>
</tr>
<tr>
<td>&gt; $50,000</td>
<td>14.9</td>
<td>12.5</td>
<td>10.3</td>
</tr>
<tr>
<td>All Income Levels</td>
<td>18.2</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Low income can lead to poor health but it can also be the result of poor health. A person in poor health may not be able to work and therefore, may be forced to reduce their hours, leave their job, change occupations, or even lose their job, resulting in lower income. The longer the time spent at a low income level, the more difficult it is to move out of and more likely it is to suffer adverse health outcomes.

**Income distribution and its relationship to health status**

What matters in determining mortality and health in society is less the overall wealth of the society and more how evenly wealth is distributed. The more equally wealth is distributed, the better the health of that society.

International comparisons of data have suggested that most of the variation in life expectancy can be related to differences in income distribution rather than individual income. How societies create and distribute their wealth determines the health and wellbeing of the population. Inequitable distribution of wealth in a society affects the health of the entire population since differences in health and illness exist across all socioeconomic levels not just between the poor and the non poor.

People live longer and have better health not in the wealthiest countries, but in countries where income inequity is smallest. Societies which are reasonably prosperous and have an equitable distribution of wealth such as Japan and Sweden, have the healthiest populations regardless of the amount they spend on welfare systems and medical care. As shown earlier, in Table 4, Japan spends less on health than Australia, Canada and America and, in 1997, had the second lowest mortality rate compared to 29 OECD countries. Japan has the smallest relative difference in income distribution between the bottom and the top socioeconomic groups. Societies with a smaller gap between rich and poor have lower rates of unemployment, less crime, improved education and living standards, and more inclusive societies. They also spend more on social infrastructure.

At an individual level, it remains unclear how exactly unequal income distribution affects a person’s health and it remains unclear what has the greatest impact on health: the relative position a person holds in society and the associated psychosocial impact or the lack of access to basic resources necessary for health that is associated with low income distribution.

**Income distribution, social hierarchy and health status**

It has been argued that a person’s relative position in the social hierarchy determines morbidity and mortality rather than their income. Where a person sits in the hierarchy will determine how influential income will be in determining their health status.

Data from the Whitehall II Studies of British civil servants suggested that a number of factors influenced the health and socioeconomic gradient including:

- features of the work environment: low control, low variety and skill use, high pace, low support and low satisfaction;
• social circumstances outside of work: negative aspects of social supports and financial difficulties; and
• health behaviour: greatly contributed to the social gradient in overall health status and contributed to all of the gradient in depression and psychological wellbeing.(143)

These studies suggest that at the lower end of the scale, material deprivation including lack of income, plays an important role in generating inequities in health.(143) At the threshold above absolute poverty, other factors come into play in generating relative differences in health.(143) That is, there are different intervening mechanisms operating at different points in the social hierarchy.(143) What explains the link between social position and health at the low end may not be relevant explanatory factors at the high end.(143)

Wilkinson (1999) has stated that the psychosocial stress of low socioeconomic status and the poorer quality of social relations found in more hierarchical societies has a greater impact on health outcomes than material assets.(144) What is important is not what the absolute level of material prosperity is but how it compares or where it places a person in relation to others in society.(30) In higher socioeconomic groups, psychosocial factors such as fears of incompetence and inadequacy, feelings of insecurity and fears of inferiority relating to income, have more of an impact on health than income per se.(30) Therefore, a person's position in the social hierarchy determines how income will influence their health.(30)

Wilkinson (1999) also cites evidence that the social environment becomes less supportive and more conflictual where income differences become larger.(144) Kawachi et al (1997) have shown that the proportion of people who feel they can trust others declines sharply where income differences are larger.(145) According to Wilkinson, income inequity and associated poor social bonds influence population health rather than individual income.(144)

Income distribution, the materialist pathway and health status
Lynch et al (2000) argue that income inequity is not the starting point for health inequity.(146) Social and economic inequities such as insufficient income, poor access to education and employment opportunities, deprive lower socioeconomic groups of the material necessities for good health and it is this that results in poor health status.(146)

The neo materialists believe that improving absolute income, education and employment opportunities and access to health care, will have a greater impact on reducing health inequities than targeting psychosocial outcomes associated with social hierarchy.(30)

Income distribution, politics and health status
A growing body of research now suggests that income inequity is influenced by historical, political, cultural and economic processes and that inequities cannot be effectively reduced without broader analysis of market economies, globalisation and the welfare state.(93) Systematic under investments by governments, across a wide range of community infrastructures, cause health inequities.(30) Therefore, any reduction of inequities depends on active government intervention.(30) These factors not only produce a particular pattern of income distribution but also create community infrastructure through policies that affect education, public health services, transportation, occupational health regulations, availability
of healthy food, zoning laws, pollution and housing. (30) How social infrastructure is set up influences income distribution which determines individual income and the ability to buy health related goods and services. (30)

Employment

Employment plays a fundamental role in society. (87) It not only is a source of status in industrialised countries and a means of obtaining an income, it also provides purpose, contributes to self esteem, provides social contact and entry into community life and increases opportunity of regular activity. (9) There is an association between level of employment and health. (87) Studies have shown that people who have more control over their work circumstances and fewer stress related demands on their job are healthier than those who have no control and high stress levels. (8) Low job insecurity has been shown to increase anxiety, depression, self reported ill health, heart disease and risk factors associated with heart disease. (10) Job insecurity is a chronic stressor whose effects increase with length of exposure and has been linked to increased sickness absence and health service use. (10)

Unemployment is detrimental to both physical and mental health. (147) For the majority of the population, unemployment tends to have a significant adverse effect on both physical and mental health. (147) Unemployment has been associated with higher self harm rates, higher suicide rates, higher risk of mortality and lower levels of educational attainment. (8) Australian studies have shown an associations between with unemployment and reported higher rates of serious chronic illness, disability/handicap, symptoms of psychological distress, including depression and anxiety, overweight/obesity, smoking and greater restrictions to social interactions. (148-150) Evidence from a number of countries show that even after allowing for other factors, unemployed people and their families suffer up to 20% increased risk of premature death, including suicide, compared to employed people. (78)

Studies have shown that unemployed people engage in risk taking behaviours at higher rates than those employed. (40) In an Australian study conducted by Schofield (1996) the level of alcohol consumed was found to be significantly higher for unemployed people than for those working less than 39 hours per week. (151) The incidence of smoking was also significantly higher for unemployed groups. (151)

Unemployment over a period of time, can lead to increased poverty and hardship, stigma and isolation. (40) People who are unemployed and who suffer from chronic illness or disability face double disadvantage as their ill health puts them at greater risk of becoming unemployed and the experience of being unemployed in turn, may damage their health further. (8) Lone parents wishing to take up employment face several barriers including lack of affordable child care, limited flexibility in parental leave to care for sick children and excessive or unsociable working hours. (8)

Being employed has also been associated with poor health outcomes. (40) Longer average hours of work per week have been associated with greater rates of smoking, lower rates of regular physical activity and higher average alcohol consumption levels. (40)
### Occupation

Some occupations have been associated with greater risks of injury and illness. (40) British studies (1991), have shown higher death rates for manual workers for most causes of death and in almost every age group when compared to non manual workers. (152) The 1995 Australian National Health Survey (1997) found that among employed males 25-54 years, those in occupations classified as professional, technical or administrative had the lowest death rate (156 per 100,000) while those classified in trades, transport and labour had the highest death rates (248 per 100,000). (153) In Australia, in 1996, two thirds of recipients of disability support pensions who had been employed had worked in 'blue collar' occupations as trades people, labourers, drivers or machine operators. (154)

### Work conditions

Low control in the work environment can lead to high physical and mental health issues. (8) Studies have shown that jobs with high demand and little control lead to increased health risks. (8) British, American and European studies have shown a relationship between lack of control at work and increased risk of cardiovascular disease, musculoskeletal disorders, mental illness and sickness absence. (8) There is some evidence to suggest that increased social support reduces these effects. (8)

Workplace conditions influence health through the culture and policies adopted by the organisation. (8) The psychosocial work environment makes an important contribution to the social gradient of ill health. (10) Recognition in the form of salary increases and improving the status or self esteem of employees, leads to improved work conditions which leads to a healthier workforce and increased productivity. (10)

By improving workplace support through establishing and maintaining safe working practices, showing sensitivity towards the needs of employees and their families, by increasing employee participation in decision making processes and providing flexible workplace conditions in the form of parental leave policies, flexible work arrangements and the availability of worksite child care, improves workplace support which leads to better outcomes for both the employee and the organisation. (8)

### Education

Along with income and employment status, education is critical in determining people's social and economic position and visa versa. (42) There is strong evidence associating low educational levels with poor health status. (9) In particular, evidence in developing countries is showing that the education of women is particularly important in improving health outcomes for children and families. (40)

Education which is meaningful and relevant equips people with knowledge and skills for daily living, increases opportunities for income and job security, provides people with a sense of control over life circumstances and enables them to participate in society. (87) Education can also increase a person's capacity to assimilate information, access health services and make better decisions about lifestyle factors influencing health. (18, 40)
Health status improves with level of education and literacy. (121) Children and adolescents with low levels of education are more likely to have poor health as adults. (8) Educational attainment is strongly associated with occupation and income level and poor social circumstances in early life are associated with low levels of academic achievement. (121)

Children’s developmental outcomes are related to the socioeconomic status of their parents/carers. (14) Children whose parents have lower levels of education and income and are working in less prestigious occupations, are less likely to succeed academically, more prone to behavioural disorders and more vulnerable to poor health than are children living in more affluent families. (14)

Figure 10 shows literacy levels for youth aged 16-25 years across a variety of OECD countries according to their parent’s level of education. (80) The horizontal axis represents the number of years of parents’ education and the vertical axis represents literacy scores on the 1994 International Adult Literacy Study. (80) There is a strong correlation between parents’ level of education and the child’s literacy level: the higher the parents’ education, the better the youth literacy level. (80) Countries such as Sweden and the Netherlands that have low levels of income inequity, show high literacy rates regardless of parents’ education. (80) The gradient is also flatter suggesting that there is very little difference between the parents’ levels of education. (80) Conversely, countries such as Ireland, Great Britain, New Zealand which have higher levels of unequal income distribution, have very steep gradients, showing a strong relationship between the literacy level of children according to parental education and socio-economic status. (80)
Figure 10: Literacy scores for youth (16-25 years) across a variety of OECD countries, by their parents’ level of education. (Level 1 = lowest literacy score, Level 4 = highest) (80)

Educational qualifications determine an individual’s labour market position which, in turn determines income, housing options and access to material resources. (8) Education is the traditional means by which people move away from disadvantage and up the socioeconomic ladder. (8) Education plays an important role in developing life skills by supporting emotional development and developing social skills that enhance participation in society. (8) Appropriate education protects and promotes health by providing an environment and culture which is safe, healthy and conducive to learning. (8) Appropriate education is likely to lead to direct health gains through the adoption of health promoting behaviours and indirectly by providing access to employment opportunities and life chances that can protect individuals from disadvantage. (8)
Government Policies and Global Determinants

Degrees of inequity are clearly influenced by international, national and local political policies, which are amenable to change. We can either ignore these processes or seek to understand and begin to change them.(93)

Although individuals make choices about how they act, these choices are partially determined within economic, historical and political contexts.(155) Globalisation, trade agreements, environmental conditions such as global warming, natural and manmade disasters, all have direct effects on health status across nations.(155) The links between economic globalisation, development and health are multifaceted.(156)

Globalisation, the increasing interconnectedness of people and nations through economic integration, communication and cultural diffusion, brings many benefits to societies but it also carries many risks, particularly for health.(157) The diffusion of new knowledge and technology as a result of globalisation, can aid in surveillance, treatment and prevention of diseases.(157) However, it has also been associated with worsening epidemic diseases in developing countries with the World Health Organisation estimating that almost 25% of disease, 90% of malarial deaths and overall injury worldwide, is connected to environmental decline attributable to globalisation.(157) The influence of western lifestyles through globalisation also brings with it the opportunity of adopting unhealthy Western lifestyles and associated risk taking behaviours.(157)

Globalisation has been linked to improvements to health through increases in trade.(157) In theory, this in turn increases economic growth which increases wealth and decreases poverty, automatically improving health.(157) Unfortunately, an increased trade in goods also means increased use of fossil fuels, increased exploitation of environmental resources and more toxic pollution.(157) The health damaging effects of all these are inherently global since contaminants, like disease, does not respect borders.(157)

Economic development can lead to an increase in disposable income which leads to better working conditions, education, nutrition, access to medical care, greater labour productivity, growth and development.(156) These factors are directly related to a country’s health status however, do not necessarily translate into better life and health conditions across population groups.(156) Globalisation has the potential to improve health outcomes, providing astonishing wealth for some countries while globalisation of trade and finance has been associated with growing inequities in health outcomes between and within countries.(158) These gross inequities themselves are factors in determining ill health.(156)

A recent review comparing health, economic and developmental indicators for the pre-globalisation period (1960-1980) and the rapid globalising period (1980-2000) show that economic growth per capita declined in all countries, but declined more rapidly for the poorest 20% of nations.(157) The rate of improvement in life expectancy declined for all except the wealthiest 20% of nations, infant and child mortality improvements slowed, particularly for the poorest 40% of nations and the rate of growth for school enrolment, literacy rates and other educational attainment measures slowed for most of the poorest 40% of nations.(157) In the pre-globalisation period, two out of four of the world’s poorer regions
Health promotion - population health & planning directorate - northern rivers area health service

The health of a nation is closely linked to its structure and organisation. Politicians develop and implement public policies, which can reinforce or reduce poverty by impacting on income, housing or neighbourhood conditions. Improving health is more than achieving full employment and high incomes; it is also reliant on the equitable distribution of income, the availability of resources and the policies developed by governments at the local, state and national levels. Higher levels of both social expenditure and taxation as a proportion of gross domestic product are associated with longer life expectancy, lower maternal mortality, and a smaller proportion of low birthweight deliveries. A strong economy that provides meaningful work is an important component of a healthy population. A combination of public health interventions and improved health care services combined with public policies have created positive economic and social environments which have resulted in improved living and working conditions for some population groups, increasing life expectancy.

Empathic governments can lead action to overcome poverty and inequity. Unfortunately, economic and political forces can constrain the extent to which public resources can and will go to the disadvantaged.

Examples of existing legislation driven by governments with positive health outcomes are excise taxes on tobacco and alcohol products, enforcement of non-smoking laws, development and implementation of safety standards for workers and products, zoning approaches to enhance recreational opportunities or reduce the density of liquor stores and the establishment and monitoring of environmental standards for potential hazards. However, a broader, more committed approach across governments is needed.

The most fundamental approach to reducing inequities is to tackle the root cause that is, address social, cultural and economic inequities. This includes action which directly addresses policies concerning education, occupation, income and the economy. It involves investment in education and the social security system, the development of labour market policies that strengthen the position of those most at risk of unemployment. It involves changing social and economic policies at the macro level such as reducing unemployment, increasing income and benefits in line with OECD levels to ensure a basic standard of living, providing adequate and affordable child care, using taxation policy to redistribute resources to the poor and people on low incomes, building up infrastructure within health, education, employment, training, transport, housing, communication technology and recreational facilities and building up social assets such as education, social security, participation and civil society. It involves the development of labour market policies that strengthen the position of those most at risk of unemployment.

Policies that create a more equal economic environment and provide services and opportunities across socioeconomic groups, that prevent discrimination and foster a civil society will greatly impact on health and health inequities experienced by populations and nations.
SECTION 3: Framework for Reducing Health Inequities

“*It is essential to develop more effective strategies to enable disadvantage groups to have better control over their health behaviour and other determinants that influence their health.*”(156)

“You will never solve a problem if you use the same thinking that got you there in the first place.”(162)

Tackling health inequities has become an important priority of health policy makers both nationally and internationally.(138, 163) International evidence suggests that although health inequities vary between countries, within countries and change over time, it is possible to reduce them.(42)

Why Intervene? - Associated Benefits of Reducing Health Inequities

- Population benefits
  It has been documented that countries with reduced socioeconomic disparities across the populations, have better health status across socio-economic groups, contributing to a more cohesive and stable society.(164) There is common acceptance that reducing health inequities benefits all of society rather than just the disadvantaged and the existence of the gradient effect on health well substantiates this claim well.(164) Everyone pays the cost that results from inequities whether it be through higher taxes or loss of services, lower thresholds for risk or violence or reduced social connections.(121) The welfare of everyone is affected by conditions of the most vulnerable members of the community.(121)

- Economic benefits
  There are sound economic reasons for improving population health and reducing health inequities.(13) Success in a modern global economy requires a workforce that is healthy and highly skilled.(13) Throughout the industrialised world, large numbers of working days are lost each year owing to sickness and injury at considerable cost to business and the wider community.(13)
Low human capital investment in the form of education and skills leads to lower labour productivity and ultimately threatens economic growth. (13) Better output as a result of a healthy workforce is in the interests of primary wealth creation, which may in turn benefit population health. (13) Improving the health of children and young people better equips them to learn, which is likely to improve the skill level and productivity of the future workforce. (13)

- **Health benefits**

Health policy that aims to achieve the maximum health benefits for the population will receive a greater potential return on investment by concentrating on groups with poorer health. (42) A society that tolerates a steep socioeconomic gradient in health outcomes will experience a slow improvement in life expectancy and pay the cost through excess health care utilisation. (42) Reducing the burden of ill health reduces unnecessary expenditure on treatment services, freeing resources for other uses. (164) Improving overall health may reduce inefficient use of treatment services. (164)

- **Global benefits**

When there are marked inequities, those who are disadvantaged may lack the resources to participate in the social and economic mainstream of society. (42) This also applies between countries: wide disparities of wealth and power mean that poorer nations are effectively excluded from international affairs. (42) Exclusion represents a loss of potential resource use and individuals and countries that are out of the mainstream do not have a stake in national and international security. (42)

**Where to Intervene - What Works?**

Attacking the causes of ill health goes beyond interventions addressing physical health and health behaviours. (93) Such interventions have a limited potential for decreasing health inequities and more often fail because the total life circumstances of individuals and their families and the stresses flowing from these circumstances, often override the best intentioned programs. (93)

Countries with universal health care have shown clearly that improving health care is not enough in reducing health inequities. (17, 127) Poverty must be reduced, educational and economic opportunities must be increased and social and economic policy must be reinforced by economic, environmental and social justice. (8, 30, 91)

Supportive social, environmental and economic conditions contribute to differences in health not yet fully understood, influencing early childhood experiences, lifestyle and behaviour, affecting people’s sense of control over their lives, enhancing social inclusion and impacting on self esteem, optimism, coping and attachment across the life cycle. (121)

Given the inter-relationship between personal behaviour, lifestyle, social, cultural and economic determinants, interventions addressing the socioeconomic determinants of health and health disparities require a strategic, intersectoral approach that acknowledges the complex, diverse and variable relationship between social inequity and health. (42, 159) There is no single factor or determinant that explains how and where health is created. (159) Rather the pathways between determinants and health status are complex, and that there may be a
The literature now suggests that instead of trying to determine causal pathways to health, what may be more important is teasing out the nature of inter-relationships between determinants and isolating appropriate intervention points. That is, which of a number of factors might be amenable to intervention and might interrupt pathways leading to further inequities in health.

The evidence base for intervention outcomes to reduce health inequities is quantitatively small and qualitatively poor. Although some attempts have been made to assess the effects of interventions on reducing health disparities, the quality of the studies performed has often been far from optimal. Given the complexity of the issues and cost of evaluating such interventions, in the short and medium term, the evidence on the effectiveness of interventions to reduce health inequities is fragmentary.

Internationally, there is a lack of longitudinal studies measuring the effectiveness of interventions as well as an incomplete understanding of how factors directly impact on health inequities. There are theoretical grounds on which to recommend interventions however, there is not a full understanding of what approaches should be adopted. Consequently, the effectiveness of interventions and policies is largely unknown.

Gepkens and Gunning-Scheppers (1996), in a review of 98 intervention publications that focussed on reducing health inequities, found that structural measures, focussing on interventions modifying the social or physical environment, were more effective than others. As shown in Table 7, health education strategies, focussing on behavioural risk factors, were of limited effectiveness unless combined with personal support or structural measures. The report also found most reported interventions for reducing health inequities were designed to improve the accessibility of health services or focussed on health education to reduce behavioural risk factors. Most of the structural interventions targeted improving the financial accessibility of health and support services. The review found very little published evidence on the impact of broader social or economic policies or of the effectiveness of population based health measures.

Table 7: Results from the Gepkens and Gunning-Scheppers’ (1996) review of interventions’ effectiveness at reducing health inequities

<table>
<thead>
<tr>
<th>Types of intervention</th>
<th>Effective</th>
<th>Dubious</th>
<th>Ineffective</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural measures*</td>
<td>11</td>
<td>4</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>Existing health care</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Health education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Providing information</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Providing information + personal support</td>
<td>32</td>
<td>12</td>
<td>5</td>
<td>49</td>
</tr>
<tr>
<td>Health promotion + structural measures</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>27</td>
<td>13</td>
<td>98</td>
</tr>
</tbody>
</table>

* Interventions were classified as “effective” in this review when the targeted outcome measure showed a positive result and when the intervention was at least as effective for the lowest socioeconomic group as it was for the highest.

# Structural measures include all interventions intended to modify the social or physical environment, that are neither existing health sector or purely health education or health promotion interventions.
For strategies to affect the root causes of inequity, the international literature suggests that interventions need to be aimed more at the macro level targeting social and economic factors and directed more at the population and the places where people live and work. (42)

Promoting equity in health – best practice principles

The National Health Service Centre for Review and Dissemination (1995) reviewed the effectiveness of 94 interventions for reducing health inequities. (168) The review highlighted characteristics of successful interventions to include:

- improving access to health services;
- planned systematic and intensive approaches to delivering effective interventions;
- prompts to encourage use of services;
- a multifaceted approach which involves a combination of strategies;
- inter agency collaboration;
- ensuring that they address the expressed or identified needs of the target group;
- development of skills in target groups; and
- involvement of peers in the delivery of interventions. (168)

In addition, the New Zealand Ministry of Health (2002) suggested the following principles should be considered when addressing inequities. Interventions should:

- not make inequities worse;
- increase people’s control over their lives;
- actively involve users of health services and communities;
- favour the most disadvantaged;
- be comprehensive, targeting individual, family, communities and the environment;
- foster social inclusion and minimise stigmatisation;
- work both in the short and long term;
- respond to changing circumstances; and
- work with, and build the capacity of local organisations and community networks. (155)

As well, the following priorities should be factored into intervention design:

- political commitment;
- sufficient scale;
- adequate and realistic time frames;
- planning for and provision of sustainable outcomes;
- evidence based and/or have the capacity to build on theory and knowledge; and
- equity based resources. (118)

Marmot and Wilkinson (1998) have identified ten inter-related areas of action required to address social determinants of health and promote health equity, with a focus on:

- preventing long term disadvantage;
- psychosocial factors;
- early childhood;
- social environment;
- employment and job insecurity;
- social cohesion;
- social exclusion;
• risk taking behaviours;
• nutrition and food security and
• healthier transport systems. (10)

Promoting equity in health – best practice models
Mackenbach (1994) and others, suggest four possible points to intervene to effectively reduce health disparities:

- establish supportive policies at the macro or socioeconomic level;
- improve living and working conditions;
- implement behavioural change strategies; and
- improve the health care system. (42, 118, 169)

New Zealand and Australia have used the Mackenbach model as a basis for developing their own strategic intervention frameworks. The following sections provide a detailed explanation of how these frameworks can be implemented to reduce health inequities.

The Mackenbach model
Establishing supportive policies at the macro or socioeconomic level (upstream solutions)
The macro level is the most important level at which to intervene as it has the ability to make the biggest contribution to reducing inequities across the population. (170-172) Unfortunately, it is also the most difficult level at which to intervene. (170-172) Intervention at the macro level involves addressing the root causes of inequity, focusing on changing social and economic policies. (170-172) Control lies outside the health sector and relies on intersectoral collaboration and working in partnership with other sectors. (170-172)

Examples of macro policy changes include:

- reducing unemployment;
- increasing income to ensure an adequate basic standard of living;
- providing adequate and affordable childcare;
- using taxation policy to redistribute resources to the more disadvantaged;
- building up infrastructure such as healthcare systems, schools, employment, training, transport, housing, communication technology, recreational facilities; and
- building up social assets such as education, social security, participation and civil society. (118)

Some macro policies have been evaluated within their respective disciplines, however, rarely have such evaluations taken into consideration the health impact of the intervention. (118) There is little evidence to support the effectiveness of such interventions at this level as it is difficult to quantify health improvement costs and the complex relationships between these factors make it difficult to attribute effect. (118) Regardless, several countries have and are undertaking interventions to reduce socioeconomic inequities in health by addressing underlying socioeconomic determinants. (118)

The United Kingdom, during the second world war, and Japan, after the second world war, noted greater than expected improvements in the health of the population when policies were introduced that reduced inequities in income and increased the availability of social
New Zealand noted the sharpest reduction of Maori/non-Maori mortality differences between the years 1940 and 1960 at a time when there was heavy investment in public services. In Sweden, a range of social and economic policies have been introduced such as housing programs, high levels of income support and welfare provision for women and children. In recent decades the country has experienced a decline in child mortality numbers for the entire population and the gap between social groups has narrowed. Sweden has also introduced legislation and financial incentives to address inequities in work related problems by improving both psychosocial and physical conditions in workplaces.

Intermediate solutions (midstream solutions)
Intermediate factors such as improving living and working conditions and improving health behaviours may reduce the health impact of socioeconomic disadvantage but can have only a limited effect on socioeconomic health inequities. Evaluations of these programs have indicated the causal pathways between socioeconomic factors and poor health.

The intermediate approach targets an individual approach rather than a population based approach. Mackenbach (1994) suggests that there is good evidence regarding cost effectiveness and effectiveness of some intermediate interventions. However, there are disadvantages regarding this approach, including victim blaming. These interventions have proved more successful with higher socioeconomic groups than they have with lower income groups, who have less options and less control over their lives, making them less able to act on health education messages, thereby widening the health gap between socioeconomic groups. Isolated health education has limited potential to improve health, particularly among low socioeconomic groups but is more effective when coupled with personal support and structural changes that make healthy choices the easier choices.

Public health interventions aimed at modifying individual behaviour have been categorised as high risk strategies for prevention. These types of interventions are effective in modifying the risk status of targeted individuals and they may have a role in reducing health inequities however, generally have a limited impact at the level of the population.

Health sector interventions may reduce the impact of socioeconomic disadvantage but can have only a limited effect on socioeconomic inequities. By targeting health care services to disadvantaged groups and focusing on treatment rather than prevention of health problems, it is possible to alleviate some of the health impact of poor socioeconomic circumstances. Unfortunately, this shifts the focus from underlying determinants, and the provision of treatment services has limited impact when the major socioeconomic determinants are not addressed. Working independently has far less ranging impact than working collaboratively with other sectors.

Specifically focusing on ill health (reverse causality pathway) also has a limited impact on health status. Chronic illness can lead to a loss of employment which is likely to reduce income and lead to poorer housing circumstances which, in turns, has a negative impact on health. Preventing a further drop in socioeconomic status in people who are, or become ill, is an important area for intervention, however overall, is only a minor contributor to overall inequities and can encourage a sick role for some people.
The New Zealand model

The New Zealand model, adopted from the Mackenbach model and summarised in Figure 11, suggests that in order to make a significant difference to the health of the population, there is a need to develop and implement comprehensive strategies that target all levels.\(^\text{(155)}\) Interventions at each level may apply at a national, regional and local level; at the clinical, planning and policy level; and on a population and individual basis.\(^\text{(155)}\)

Figure 11: New Zealand intervention framework to improve health and reduce inequities (155)

Level 1: Structural pathways (upstream approaches)

These address the root causes of inequity that is, the socioeconomic determinants of health through policies which address education, occupation, income and the economy.\(^\text{(155)}\) The health sector can take a lead role in encouraging a wider and more strategic approach to developing healthy public policies by encouraging an intersectoral approach and ensuring that their own policies are directed towards a more equitable distribution of health resources in relation to inequities in health status.\(^\text{(155)}\)
Level 2: Intermediary pathways
The effect of socioeconomic status on health is mediated through the psychosocial and behavioural pathways therefore, may provide effective intervention points. Included also in this approach are any programs which help to reduce exposure to unfavourable physical and psychosocial working conditions, that empower people and increase feelings of control and develop adequate coping and competency skills. Examples of interventions include housing policies, workplace interventions, community development programs and health and safety regulations.

Level 3: Health and disability services pathways
Health services specifically should provide greater access and remove barriers that inhibit the effective use of services for certain disadvantaged groups.

Level 4: Impact pathways
The impact of disability and illness on economic and social status can be reduced through a variety of support services including income support, disability allowance, accident compensation, anti discrimination legislation and education and support services.

The New Zealand and Mackenbach models support strong and positive leadership as central to addressing socioeconomic inequities in health and view the health sector as an important driver of this process. Both models clearly state that without such leadership, intervention strategies will fail to reduce health disparities across populations.

Promoting equity in health – theory into action at the macro level
Sweden has developed a coordinated and comprehensive New Public Health Policy (2003), that is:
- coordinated by a central body;
- organised around the social determinants of health rather than health outcomes;
- focusses on wellness rather than disease;
- aims to work towards broad, popular support and consensus; and
- coordinates the entire Swedish governmental policy with a view to improving public health as an explicit goal.

In 2003, the Swedish Parliament passed the Government’s Public Health Objectives Bill, giving the country a national public health policy, making public health a fundamental part of social policy. As health is influenced by a variety of sectors, the Bill sets objectives that act as guiding principles for all government sectors, not just the health sector. The overall aim of the Swedish public health policy is to create social conditions that ensure good health for the entire population and in particular, to improve the public health for those groups most vulnerable to ill health.

Based on the determinants of health, the policy is based on eleven objectives:
1. participation and influence in society;
2. economic and social security;
3. secure and favourable conditions during childhood and adolescence;
4 healthier working life;
5 healthy and safe environments and products;
6 health and medical care that more actively promotes good health;
7 effective protection against communicable diseases;
8 safe sexuality and good reproductive health;
9 increased physical activity;
10 good eating habits and safe food; and
11 reduced use of tobacco and alcohol, a society free from illicit drugs and doping
and a reduction in the harmful effects of excessive gambling.\(^{(174)}\)

The first five objectives focus on helping to create the social conditions for change while the last six focus on behaviour modification.\(^{(174)}\) Achieving the eleven objectives involves collaboration between approximately 50 government agencies and relies primarily on the involvement of municipalities and county councils for conducting public health work at the local and regional level.\(^{(174)}\) Targets and indicators are to be developed to measure how well objectives are being met, generating a progress report on outcomes every four years.\(^{(174)}\)

**Strengthening the social determinants of health: the Toronto Charter for a Healthy Canada**

During November-December 2002, a conference of over 400 Canadian health policy experts, community representatives and health researchers met in Toronto to:

- consider the state of the 10 social determinants of health across Canada; early life, education, employment and working conditions, food security, health services, housing, income and income distribution, social exclusion, the social safety net, unemployment and job insecurity as outlined in the 1998 WHO Report, *The Solid Facts - Social Determinants of Health*.\(^{(10)}\)
- explore the implications of these conditions for the health of Canadians.
- outline policy directions to improve health by influencing the quality of these determinants of health.\(^{(175)}\)

As a result of the conference, the *Toronto Charter on the Social Determinants of Health* was developed.\(^{(175)}\) The *Charter* outlines the factors that determine health and highlights the important roles of all levels of government, public health, health care organisations and the media have in emphasising the importance of addressing the social determinants of health in order to reduce health disparities.\(^{(175)}\) The Charter recommends that governments invest in children and families and that a task force be established by the federal government to identify and advocate policies by all levels of government to support population health.\(^{(175)}\)

The charter has been endorsed by health boards and councils across Canada.\(^{(175)}\) The charter is a tool for promoting health and social justice both within and outside Canada and provides a powerful impetus for social change, through municipal council endorsement, followed by political action.\(^{(175)}\)

To summarise, greater equity in health and wellbeing is achievable through the provision of better opportunities for good health, by investing in human capital, redistributing policies at a
macro level and ensuring comprehensive access to health care. (164) Action to decrease inequities in health involve changes from within and from outside the health system. (164)

Successful action requires a thorough understanding of the nature and extent of the problem and of possible solutions and involves developing new partnerships and bringing different agencies together to tackle the wide range of life circumstances that are central to ill health. (8) The health sector must work effectively across organisational boundaries in partnership with local agencies, the voluntary and business sectors, to involve local people in developing and providing services, creating a shared responsibility for health and contributing actively to social and economic regeneration. (118)

Interventions are more likely to be successful if they are multilevel, multi disciplinary and collaborative. (9, 176) Action must be taken at all levels and all sectors, at national, regional and local levels and reach far beyond the scope of health. (177) A holistic approach is necessary in reducing health disparities. (177, 178)

**The Australian perspective**

In Australia, Oldenburg et al (2000) believe that there is no single, correct entry point for tackling health inequities and that policies and strategies need to be multilevel, multifaceted and intersectoral. (6) As with the Mackenbach and New Zealand models, they suggest interventions should involve:

- changing macro level social and economic policies;
- improving living and working conditions;
- involving local communities in health initiatives and health care;
- reducing health and behavioural risk factors;
- empowering individuals and strengthening their social and family networks; and
- improving the equity of the health care system. (6)

Their adaptation of the Mackenbach model is summarised in Figure 12 and expands on the various strategies that the researchers believe should be the focus for future evidence based, long term intervention to reduce health inequities within Australia. (6)
**Figure 12: Evidence based actions proposed to reduce health disparities within Australia** (6)

<table>
<thead>
<tr>
<th>Macroeconomic and social policies:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Pursue policies that build up national health capital through investment in physical assets (i.e. healthcare system infrastructure, schools, transport systems, housing) and social assets (i.e. education, social security, participation in civil society).</td>
</tr>
<tr>
<td>- Reduce income differentials and poverty through progressive taxation and the provision of adequate income support for those in poverty (especially families with young children).</td>
</tr>
<tr>
<td>- Reduce unemployment through labour market policies that strengthen the position of those at greatest risk of unemployment (e.g. young people and those living in disadvantaged communities).</td>
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<table>
<thead>
<tr>
<th>Living and working conditions:</th>
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<tbody>
<tr>
<td>- Implement community development programs in disadvantaged areas that focus on creating supportive community networks, with funding to invest in schools, day care centres, recreation and leisure facilities and health services.</td>
</tr>
<tr>
<td>- Implement workplace reforms to give employees greater control over their work and working conditions.</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Behavioural risk factors:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Implement behavioural change strategies among disadvantaged groups, with an understanding of and sensitivity to the barriers to change that difficult life circumstances can impose.</td>
</tr>
<tr>
<td>- Implement behavioural health promotion among disadvantaged groups that is complemented with support and structural change to facilitate the change process.</td>
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</table>

<table>
<thead>
<tr>
<th>The healthcare system:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Maintain a universal, non-targeted healthcare system.</td>
</tr>
<tr>
<td>- Provide a healthcare system that is publicly funded through taxation.</td>
</tr>
<tr>
<td>- Provide an economically, geographically and culturally accessible healthcare system.</td>
</tr>
<tr>
<td>- Redistribute resources within the healthcare system to support public health and health promotion programs, including primary and community care programs.</td>
</tr>
<tr>
<td>- Focus healthcare reform on the providers of care and the funding allocation mechanisms that distribute funds to service providers.</td>
</tr>
<tr>
<td>- Implement healthcare reform and intersectoral collaboration as complementary strategies.</td>
</tr>
</tbody>
</table>

According to Oldenburg et al (2000), tackling socioeconomic health inequities represents one of Australia’s most challenging public health issues and, so far, Australia has yet to develop a coordinated and integrated approach to addressing health disparities. (6)

- **Government strategies to reduce inequities in health**
  - **Federal strategies**
    At a federal level, to improve health disparities, it has been suggested that the Australian government should:
    - invest in young children parenting/preschool, family support and education;
    - ensure policies provide services such as housing, education, nutrition, job training, disease prevention, access to health care;
    - improve work environments;
    - strengthen community support by building social networks;
    - research into economic and social action on health;
    - create a more equal economic environment; and
    - focus on family and individual wellbeing and the workplace. (6)

- **State strategies**
  At a state level, the NSW Health Department (2004) has released the *NSW Health and Equity Statement - In All Fairness*. The aim of the document is to increase equity in health
across NSW by addressing six key areas that have been identified by the NSW Health Department as important in effectively addressing health inequity.\(^{(11)}\)

Key focus areas identified for priority action in reducing health disparities have been based on a comprehensive international and Australian review of strategies that have been shown to work in reducing inequities.\(^{(11)}\) The six key focus areas are:

- strong beginnings: investing in the early years of life;
- increased participation: engaging communities for better health outcomes;
- developing a strong primary health care system;
- regional planning and intersectoral action;
- organisational development; and
- resources for long term reduction in health inequities.\(^{(11)}\)

Strategies identified within the *NSW Health and Equity Statement* focus areas include:

**Strong beginnings – investing in the early years of life**
Childhood experiences and the influence of family and peers are important in developing long term health related behaviours.\(^{(11)}\) Therefore, strategies which support mothers and children (0-8 years) and which aim to enhance the family and social functioning of mothers and their families should be supported and implemented.\(^{(11)}\)

**Increased participation – engaging communities for better health outcomes**
Health outcomes improve if consumers have active and meaningful participation in their health care as participation and control over decisions promotes health and wellbeing.\(^{(11, 179)}\) Community participation is integral to efforts to reduce health inequities as it helps to achieve:

- better and more relevant and appropriate decisions;
- more effective services;
- greater ownership; and
- sustainable programs.\(^{(11, 179)}\)

Strategies for this key focus area aim to increase the opportunities for individuals and communities to participate in a full range of activities within the NSW health system.\(^{(11)}\)

**Developing a strong primary health care system**
A strong primary health care system is important in reducing health inequities and improving health status for disadvantaged groups in the community.\(^{(11)}\) Strategies for this key focus area involve developing accessible, high quality primary health care services that are integrated into the health system and are available to everyone in NSW who needs them.\(^{(11)}\)

**Regional planning and intersectoral action: working better together**
New approaches to intersectoral action are required to address regional based differences in health status.\(^{(118)}\) By only increasing existing services, this limits the potential and success of interventions.\(^{(118)}\) To effectively reduce health disparities, the barriers that influence access have to be identified and addressed.\(^{(118)}\) Strategies for this key area focus on developing integrated planning, service delivery and evaluation mechanisms to encourage collaboration at the local, regional, state and federal levels.\(^{(11)}\)
Organisational development
Leadership is required to promote commitment in addressing health inequities within organisations, within the communities and with other sectors to build capacity. (118) The health service has a fundamental role to play in driving this change. (118) Efforts to reduce health disparities must become more central to the core business of NSW Health therefore, strategies for this key focus area concentrate on ways to facilitate organisational development and capacity building to improve equity promoting practices within the systems and infrastructure of NSW Health. (11)

Resources for long term reduction in health inequities
As health inequities develop across the life course and are intergenerational, strategies for dealing with associated outcomes depend on establishing realistic resourcing and time frames. (11) Traditionally, it has been difficult to sustain interventions that reduce inequities because these strategies are long term and often unlikely to demonstrate immediate gains therefore, value for investment. (11) The evidence shows that a long term focus on health investment and sustainability is necessary in reducing health inequities and closing the gap between those with the best and poorest health. (11)
SECTION 4: Conclusion

Life circumstances are shaped by the physical, social, cultural and economic environment in which individuals and families live and work and greatly influence health and wellbeing throughout the life course. (7-10, 17)

Health is fundamental in building human capabilities, that is, health influences the range of things people can do or be in life. (46) Every human being should have the opportunity to lead a long and healthy life, to be knowledgeable, to have access to resources needed for a decent standard of living and to be able to participate in the life of the community. (46) Without these basic necessities many choices are simply not available and many opportunities in life remain inaccessible to many population groups. (46) In our society not everyone has the same opportunity to enjoy life’s benefits, some are more equal than others. (46)

The term Equity is not the same as equality; inequities are inequalities that are judged to be unfair. (180) Equity in health status refers to the attainment of the highest possible level of physical, psychological and social wellbeing for all people. (180) Inequities in health are inherently unfair, unnecessary, affect everyone and are largely avoidable. (180)

Health inequities cannot be adequately explained by health behaviours and risk factors alone but result from a combination of a multitude of factors. (22, 30, 32) There is growing evidence in the literature that the determinants of health go beyond individual genetic endowment, lifestyle behaviour and the health care system to the more pervasive forces in the physical, behavioural, social and economic environments. (83)

The best health care system in the world, alone, will not improve health and wellbeing. (162) The main factors that shape health and life span are the ones that affect society as a whole. (162) Therefore, in order to improve health and reduce inequities in health status, it is important to identify and fully understand the factors that influence health. (12) Globalisation, government policies, poverty, working and housing conditions, homelessness, access to health care services, availability of clean water, nutritious food and proper sanitation facilities; educational and economic opportunity, individual lifestyle factors, social stress, coping skills and resiliency, early childhood experiences, gender, culture and ethnicity are all factors which determine health. (83)

As well, there are other psychosocial factors that have a powerful impact on health, such as the level of control an individual has over home and work environments; perceptions of fairness; levels of social support experienced; and the level of family, community cohesion and trust that exists between individuals and social institutions. (12) How well a person copes with life experiences influences their risk of disease. (12)

The connection between socioeconomic position and health is one of the most consistent findings in health equity research. (8) People who are better educated, have professional occupations, have higher incomes and live in less socioeconomically deprived neighbourhoods are more likely to enjoy better health and live longer than those who have no qualifications, are unemployed or in low skilled jobs, earn less and live in disadvantaged
neighbourhoods. (8) Societies which exclude groups based on income, socioeconomic status, race or ethnic background have higher crime rates, more violence and higher rates of depression and stress than more equitable societies. (93) According to the literature, health disparities are evident not only between lower and higher socioeconomic groups, but exist as a gradient across the socioeconomic spectrum: health status improves as you progress up the socioeconomic ladder whether measured by income, occupational grade or educational attainment. (21)

Inequities in health do not impact just on the disadvantaged, but also exist among those who have attained relatively high levels of socioeconomic position. (8) Health inequities affect the entire social hierarchy. (21) If interventions address only those at the bottom of the social class system, inequities will continue to exist. (167, 175, 178)

Both theory and evidence suggest that the size of the gains that might be made by reducing inequities is impressive. (118) How well we understand the determinants and how they individually impact on health will greatly influence the strategies adopted to reduce inequities. (118) Action to address health inequity is concerned with creating equal opportunities for health. (118) It requires more than the provision of health services and recognises that many of the opportunities for improving health lie outside the health system. (118)

Action to decrease inequities of health involves changes from within and from outside the health system. (12) Equity must be approached holistically. (181) A comprehensive multi-sectoral and multifaceted approach is needed that works towards positive change. (181) Action to improve health must be conducted in the context of economic, social and human development. (181) More needs to be done than just describing the problem, we need to identify action that can be taken to reduce inequity. (181)

How interventions are targeted will determine the impact on outcomes. (139) Focussing on upstream factors is likely to result in the greatest impact on population wide differentials and it is where financial investment will be smaller, the results bigger and the payoff longer. (139, 162) Unfortunately these types of societal level changes are the most difficult to implement and the most politically sensitive. (139) Interventions directed at midstream factors might benefit the groups or communities that are targeted but are unlikely to reduce inequity on a national level. (139) They are likely to improve psychosocial health or result in behaviour change but they are not likely to alter the social and economic conditions. (139) Interventions which target only micro factors may improve individual health however, are not likely to impact in any discernable way at a national level. (139) The investment will be larger, the results smaller and the payoff shorter. (139) Turrell et al (2002) have stressed the importance of focusing simultaneously on all three fronts. (139)

As many of the determinants of health lie outside the health care system, it is essential that health works effectively across organisational boundaries in partnership with local authorities, the voluntary and business sectors to involve local people in developing and providing services and to contribute actively to social and economic regeneration, in total a shared responsibility of health. (8, 118)
Whatever the intervention, programs or projects designed to impact on reducing health inequities should:

- include a realistic time frame for the intervention;
- include a sufficient period for researching;
- engage the community;
- be evidence based;
- include sufficient time for program development prior to implementation; and
- include sufficient resourcing and funding. (118)

Priority should be given to building healthy communities and healthy workplaces, strengthening the wide range of social networks for health, and increasing people’s capabilities to lead healthy lives. (182) Accountability tools such as environmental, social, economic and health impact assessments need to analyse the impact of all government and non-government actions on the wellbeing of communities. (182)

At the government level, what is counted and measured reflects a society’s values and determines what makes it onto policy agendas. (162) The Gross Domestic Product (GDP) is often cited as the main indicator of national and economic wellbeing, unfortunately, it counts all economic activity as a gain and makes no distinction between activity that brings benefits or causes harm. (162) Consequently crime, pollution, accidents, sickness, wars and natural disasters, cigarette sales, medical treatments for smoking and obesity related diseases and fast food sales all contribute to increasing the GDP. (162) Therefore, far more accurate indices for measuring quality of life and wellbeing are needed to track changes in the key factors that affect health. (162)

Throughout the course of history, there have been two great public health revolutions; controlling infectious and non-communicable diseases. (162) According to Romanow (2003) the third great revolution is about moving away from an illness model to a model that encompasses all the factors that determine health: one that prevents illness, promotes a holistic sense of wellbeing and provides opportunities for all individuals to lead productive and fulfilling lives. (162)
EQUITY-FOCUSSED Tips for Staying Healthy (162)

- Don’t be poor. If you can stop. If you can’t, try not to be poor for long as rich people live longer than poor people and are generally healthier at every stage of the life course.

- Don’t have poor parents. Pick your parents well. Make sure they nurture your sense of identity and self esteem and surround you with interesting stimuli.

- Own a car.

- Graduate from high school and go onto college or university. Health status improves with your level of education.

- Don’t work in a stressful, low paid manual employment in which you have little decision making authority or control.

- Don’t live in damp, low quality housing.

- Be sure to live in an environment where you trust your neighbours and feel that you belong.

- Practise not losing your job and don’t become unemployed.

- Live in quality housing, but not next to a busy street, in an urban ghetto or near a polluted river.

- Learn how to fill in complex government application forms.
SECTION 5: References


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APPENDICES

Appendix 1: The Acheson Report(8) and 10 Solid Facts(10) Recommendations

The well-known text *The Solid Facts*, edited by Richard Wilkinson and Michael Marmot (1998) was produced for the World Health Organization to summarise in simple terminology the evidence on the key social determinants of health, in a form that can be used by policy makers and the general public. It describes 10 solid facts as the evidence on which to base public health recommendations and was then utilised by Sir Donald Acheson (1998) in the *Independent Inquiry into Inequalities in the Health Report*, commissioned by the UK Government in order to provide recommendations about how to go about reducing inequities in health.

The Acheson Report produced 39 recommendations that can be used to guide action.(8) Below is a summary of 27 of Acheson’s recommendations, as they fit within Marmot and Wilkinson’s “solid facts”.

- **Social Gradient**
  - Recommendation 1. Evaluate policies
  - Recommendation 2. Reduce inequities in women and children
  - Recommendation 3. Reduce income inequities (through tax and benefit systems)

- **Stress**
  - Recommendation 9. Improve quality of jobs and reduce psychosocial hazards
  - Recommendation 21. Reduce poverty in families
  - Recommendation 23. Promote social and emotional support for families
  - Recommendation 24. Prevent suicide amongst young people
  - Recommendation 35. Reduce psychosocial ill health in young women and those caring for children

- **Early Life**
  - Recommendation 2. (as above)
  - Recommendation 4. Education resources to assist the disadvantaged
  - Recommendation 5. Quality preschool education
  - Recommendation 6. Health promoting schools

- **Social Exclusion**
  - Recommendation 10. Improve availability of social housing
  - Recommendation 13. Reduce fear of crime and violence
  - Recommendation 27. Promote material wellbeing for older children
  - Recommendation 32. Development of services for ethnic groups
Work
Recommendation 9. (as above)

Unemployment
Recommendation 8. Improve opportunities for work and ameliorate health consequences of unemployment

Social Support
Recommendation 23. (as above)
Recommendation 29. Maintenance of independence and mobility in older people
Recommendation 35. (as above)

Addiction
Recommendation 22. Improve health and nutrition of women of child bearing age and their children
Recommendation 26. Promote healthier lifestyles
Recommendation 34. Reduce mortality from accidents and suicide in young men

Food
Recommendation 7. Improve nutrition provided at schools
Recommendation 20. Increase availability and accessibility of food to supply adequate and affordable diet
Recommendation 22. (as above)

Transport
Recommendation 14. Development of quality transport system
Recommendation 15. Encourage walking and cycling
Recommendation 16. Reduce use of cars
Recommendation 17. Reduce traffic speed
Recommendation 18. Concessionary fares to pensioners and disadvantaged groups
Appendix 2: The Role of Health Promotion in Reducing Health Inequities

In the 1980s, at the first International Conference on Health Promotion, two major documents were released globally which were to innovate health promotion practice: *The Ottawa Charter* and *Achieving Health for all: A Framework for Health Promotion.*

*The Ottawa Charter* highlights the many factors which determine health, such as peace, shelter, education, food, income, a stable eco-system, sustainable resources, social justice and equity and that to reduce health inequities and improve health outcomes, these social, environmental, political and economic factors must be addressed by building healthy public policy, creating supporting environments, strengthening community action, developing personal skills and reorienting the health service. The charter acknowledges that these prerequisites are not achievable through the health sector alone, rather, a coordinated, intersectoral approach is required across government and non-government sectors, including the media.

*Achieving Health for All: A Framework for Health Promotion* called attention to three key health promotion challenges:

- reducing health inequities;
- increasing the prevention of disease; and
- enhancing the capacity to cope with chronic disease and disability, including strategies for addressing these challenges.

According to these founding documents, health promotion principles should play an integral role in the development of strategies to reduce health disparities across the population. Unfortunately, health promotion practitioners have not been particularly successful in addressing inequities and improving health outcomes across socioeconomic groups. The reasons for this are varied and can be linked to the types of programs conducted, the groups targeted, outcomes measured, funding, issues, time constraints and evaluation practices.

- **Modern health promotion practice**
  
  **A focus on downstream programs**
  
  In the past, health promotion practice has more often than not, addressed the outcome (behaviour) rather than the cause. This has meant focusing on downstream programs, which are designed to promote behavioural change, encouraging people to adopt a healthy lifestyle as a means of improving health. Consequently many health promotion interventions have failed to make a difference because they have not addressed the broader determinants of health and have focussed on singular intervention approaches rather than on multifaceted and multilevel approaches.

  **The target group**
  
  Health promotion campaigns have generally focussed on health education messages, such as mass media campaigns or information sessions aimed at influencing and changing health-
related behaviour and lifestyles. Unfortunately these strategies have been proven to be ineffective in reaching lower socioeconomic groups and program impact has generally seen improved outcomes in middle or higher socioeconomic groups rather than among those with the greatest need.

King and Whitecross (1999), refer to this factor as the cultural bias of health promotion. There is often a moral undertone associated with such programs: that healthy lifestyles are perceived as morally good. This results in a blame the victim mentality as the focus is directed towards individual risk factors and individual responsibility rather than on the broader determinants of health. Evidence suggests that this impacts on health status by increasing differentials between socioeconomic groups, as the more disadvantaged groups are often unable to act on the health promotion message while the higher socioeconomic groups, who have greater access to resources and more control over their immediate environment, are more able to respond to the message, resulting in more visible positive outcomes within these groups.

The setting of goals and targets
It has been argued that the focus of setting health goals and targets within health promotion practice rather than on measuring differences in health status, has been detrimental in addressing health inequities. Health outcomes are based on disease categories and tend to translate into single indicator measures of prevalence or incidence across populations and are then used to drive policy directions. According to Romanow (2003) quality of life and wellbeing indices are better measures for how well a population is doing. The practice of setting goals and targets often fails when implementing health promotion programs across lower socioeconomic groups because the behaviour is addressed rather than the cause of the problem.

To date, wide scale health promotion strategies to address inequities have not been implemented on a scale that would lead to measurable population wide changes. Health promotion programs have tended to target individuals or small groups therefore, the overall impact of reducing health inequities across the population has been minimal.

Funding requirements
There has been great demand on health promotion practitioners to justify their activities as funding sources increasingly demand evidence that initiatives give value for money and that future savings in health and other social costs will offset the investment in prevention strategies. Health promotion funding is generally across short timeframes, not long enough to show favourable outcomes in reducing health disparities as such outcomes generally take years and/or decades to become evident.

Evaluation practice
Measuring the effectiveness of health promotion action has proven difficult. Some argue that health promotion has concentrated more on evaluating the evidence and the evaluation process itself rather than evaluating the effectiveness of interventions and what actually works in reducing health inequities. Establishing evidence not only requires that measures of effectiveness are relevant to the intervention but that the evaluation research
method is also appropriate. (163) The debate regarding how to evaluate rather than what to evaluate has often taken precedence. (163)

According to the literature, there lacks clear guidelines as to what health promotion interventions are effective in reducing inequities in health. (40) Inadequate infrastructure and policy priorities which focus on health and economic outcomes, has often impacted on the quality of health promotion interventions and evaluation design. (40) The focus on immediate outcomes and the setting of goals and targets has been to the detriment of effectively measuring health promotion interventions. (40)

- The challenge

Health promotion has been described as a process, the purpose of which is to strengthen skills and improve the capacity of groups or communities to take action to act collectively and exert control over the factors that determine health. (181) Correspondingly, effective health promotion interventions should support people to adopt and maintain healthy lifestyles by creating supportive living and working environments. (181)

The WHO report, Reducing Inequalities in Health – Proposals for Health Promotion and Action (1999) provides a framework for health promotion action directed at reducing inequities. (65) The report advocates strongly for including health promotion principles in programs targeting health inequities and recommends the inclusion of measuring and monitoring health determinants and equity targets in planning health promotion programs. (65) The report suggests that health promotion should tackle the root causes of inequities in health and accept that these causes include broad, structural, social and economic factors and go beyond individual lifestyles and health care. (65) Given the strong evidence regarding the benefits of early childhood investment, healthy child development may provide an important policy and program venue for addressing the environmental, social and economic determinants of health in a holistic and long term manner. (186)

According to its conceptual framework, health promotion should play a definitive role in designing, implementing and evaluating interventions to reduce disparities in health across the population. (12) For this to occur, the following factors need to be reconsidered.

Intervention Design

There is no uniform approach to reducing health inequities. Large scale population-based implementation offers the best opportunity to make an impact. (186) Health promotion programs should include a broad mix of interventions aimed at empowering people to make healthy choices and at creating environments that provide equitable access to the underlying determinants of health. (186)

Health promotion’s focus should be on what makes people healthy and address lifestyle and the social environments in which people live as they both affect the health and quality of life of populations. (182) Health promotion should move beyond isolated interventions focussing on separate issues and diseases and move to integrated efforts to address the full range of factors and conditions that affect people’s health. (12) The multi dimensional nature of
disadvantage and associated health issues indicates the need to provide clusters of interventions rather than rely on single strategy interventions.(40)

Upstream or macro level approaches are needed, interventions intended to help people maintain or improve health before it is compromised.(31) The focus should be on the social, cultural, environmental and economic factors which impact on individuals’ lives and strategies should combine personal support and initiatives to address these underlying social, economic and environmental factors.(40)

Programs to reduce inequities must be long term to allow sufficient time for the benefits of organisational and environmental changes to flow into measurable health benefits.(12) It is not realistic to expect to measure changes in health disparities in the short term and goals and outcomes must reflect this.(12) Health promotion practice should take into account not only the nature of interventions but also the target groups and the environment in which the intervention is implemented.(40)

**Leadership**
Health promotion can play a major role in advocating for the social determinants of health, however, to do so, needs strong support at local, state and federal levels regarding commitment, advocacy, resource and program support.(186) Health promotion should play a major role in bringing partners together and establishing partnerships across sectors to inform interventions designed to reduce health disparities.(186)

**Evaluation**
Further investigation and validation of health promotion strategies is needed to strengthen the evidence base supporting health promotion as a major player in reducing health disparities.(186) Health promotion needs to focus on mediating factors to understand the relationship between socioeconomic factors and health status as this type of evidence provides practitioners with information regarding where to invest and focus interventions.(31) Health promotion needs to generate evidence of effectiveness in interventions designed to reduce health disparities.(31)

**Settings**
Interventions should take place at the local level where people live and work and so would target schools, workplaces and neighbourhoods.(186) Health promotion should focus on the community rather than the individual as broad-based community development and regeneration approaches are powerful tools for improving equity in health at the local level, when they are supported and implemented correctly.(40)

Given the evidence already documented on what works in reducing health inequities, health promotion practice can play a major role in reducing health inequities by adopting a population health based approach. As shown in Table 8, a population health approach is a comprehensive mix of strategies and interventions that focus on the inter-related conditions and factors that influence the health of populations over the life course.(26) It addresses the underlying range of individual and collective factors that determine health such as the social, economic, and physical environments, personal health practices, individual capacity and coping skills, human biology, early childhood development and health services.(26)
Table 8: Summary Table of Population Health Key Elements (26)

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<tr>
<th>Key Element</th>
<th>Actions</th>
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<td>1. Focus on the Health of Populations</td>
<td>1.1 Determine indicators for measuring health status</td>
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<td>1.2 Measure and analyze population health status and health status inequities to identify health issues</td>
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<td>1.3 Assess contextual conditions, characteristics and trends</td>
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<tr>
<td>2. Address the Determinants of Health and Their Interactions</td>
<td>2.1 Determine indicators for measuring the determinants of health</td>
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<td>2.2 Measure and analyze the determinants of health, and their interactions, to link health issues to their determinants</td>
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<td>3. Base Decisions on Evidence</td>
<td>3.1 Use best evidence available at all stages of policy and program development</td>
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<td>3.2 Explain criteria for including or excluding evidence</td>
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<td>3.4 Generate data through mixed research methods</td>
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<td>3.5 Identify and assess effective interventions</td>
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<td>3.6 Disseminate research findings and facilitate policy uptake</td>
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<td>4. Increase Upstream Investments</td>
<td>4.1 Apply criteria to select priorities for investment</td>
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<td>4.2 Balance short and long term investments</td>
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<td>4.3 Influence investments in other sectors</td>
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<td>5. Apply Multiple Strategies</td>
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<td>5.2 Take action on the determinants of health and their interactions</td>
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<td>5.3 Implement strategies to reduce inequities in health status between population groups</td>
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<td>5.4 Apply a comprehensive mix of interventions and strategies</td>
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<td>5.5 Apply interventions that address health issues in an integrated way</td>
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<td>5.6 Apply methods to improve health over the life span</td>
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<td>5.7 Act in multiple settings</td>
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<td>5.8 Establish a coordinating mechanism to guide interventions</td>
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<td>6. Collaborate Across Sectors and Levels</td>
<td>6.1 Engage partners early on to establish shared values and alignment of purpose</td>
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<td>6.2 Establish concrete objectives and focus on visible results</td>
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<td>6.3 Identify and support a champion</td>
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<td>6.4 Invest in the alliance building process</td>
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<td>6.5 Generate political support and build on positive factors in the policy environment</td>
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<td>6.6 Share leadership, accountability and rewards among partners</td>
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<td>7. Employ Mechanisms for Public Involvement</td>
<td>7.1 Capture the public’s interest</td>
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<td>7.2 Contribute to health literacy</td>
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<td>7.3 Apply public involvement strategies that link to overarching purpose</td>
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<td>8. Demonstrate Accountability for Health Outcomes</td>
<td>8.1 Construct a results-based accountability framework</td>
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<td>8.2 Ascertain baseline measures and set targets for health improvement</td>
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<td>8.3 Institutionalize effective evaluation systems</td>
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<td>8.4 Promote the use of health impact assessment tools</td>
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<td>8.5 Publicly report results</td>
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The goal of a population health approach, as is the goal of any program designed to reduce inequities, is to maintain and improve the health status of the entire population and to reduce inequities in health status between population groups.(15) The target of the intervention then moves away from individual behaviours and communities at risk, to strategies that encompass a total population within a given environment, the settings for every day life.(182) The strategic objective becomes strengthening of resources for health.(182)
The benefits of a population health approach extend beyond improved health outcomes and are the same for any evidence based intervention designed to reduce health inequities. (25) A healthier population makes more productive contributions to overall societal development, requires less support in the form of health care and social benefits, and is better able to support and sustain itself over the long term. (25) Actions that bring about positive health also bring wider social, economic and environmental benefits for the population at large and include a sustainable and equitable health care system, strengthened social cohesion and citizen engagement, increased national growth and productivity, reduced expenditure on health and social problems and overall improved social stability, wellbeing and improved quality of life. (15)

Considerable policy and infrastructure support will be needed to support the reorientation of the health promotion workforce to achieve a greater balance between action on the major causes of morbidity and mortality and associated behavioural determinants; and wider social and environmental determinants of health at the local, regional and state levels. (187) Strong intersectoral partnerships whereby organisations come together and adopt a combined approach sharing values, goals and resources is vital for this to occur. (187)

Health promotion has the capability to influence not only health behaviours, but more importantly, the underlying determinants of health. (25) Health promotion should play a driving role in developing and implementing effective programs that cause health outcomes rather than focussing on the health outcome itself. (25) Health promotion practice should focus on reducing inequities in health by adopting more upstream approaches, changing the focus of evaluation practice and advocating strongly for long term funding of programs with top down support. (15)
Appendix 3: Why Target Early Childhood Development to Reduce Health Inequities?

"To strengthen our economy for the future and the liveability of our communities, we must provide the best possible developmental opportunities for the next generation.

We can turn away from this challenge and hope that our helping systems - schools, social and health services will be able to cope even though they tell us they are having increasing difficulty meeting the demand. We can hope that children will grow out of behaviour and learning problems that were set in early life even though evidence suggests that many of them will have great difficulty doing so and will not reach their full potential.

We can put more money into policing and correctional services although that will be expensive and unlikely to make a huge difference.

Or we can take a major leap into the future, just as we did when we had the chance to provide safe drinking water and immunise all children against diseases that have taken a terrible toll in infancy for centuries. When science provided us with the tools- inoculation against polio, smallpox, diphtheria and other scourges of childhood we used them. We used them to protect individual children and society as a whole. We have new knowledge today. We must seize the opportunity to use that knowledge to benefit all children.

We believe the priorities and choices are clear."(14)
There is growing evidence from a variety of fields including mental health, education, criminology, child health and public health, that early childhood is a critical period in the life cycle. The early years are critically important as the quality of early childhood influences both the quality and prosperity of the society in which children live and impacts on health outcomes in adult life. Inequities in early childhood have the potential to affect lifelong physical, social, mental, emotional and cognitive development.

As shown in Figure 13, programs that enhance early child development are a fundamental investment, which result in a healthy, competent population that can cope with, and contribute to society.

**Figure 13:** A summary of outcomes demonstrated to be associated with positive early childhood interventions – including immediate and long term benefits for children, parents and the wider society

A poor early start compounded by a poor life course, has the greatest negative effect on health, behaviour and learning. Violence, illness, malnutrition, limited play-based learning and poor socialisation opportunities during the early years, profoundly affect learning ability, behaviour and physical and mental health throughout the life course. Therefore, positive early intervention can alter the lifetime trajectories of children born poor or are deprived of the opportunities for growth and development that are available to those more fortunate.
As the early years of child development and family functioning present an opportunity for positive intervention that cannot be retrieved at a later time, early intervention should be part of the overall solution, part of a coordinated, multi-strategic approach to reducing disparities in health. It can never be too early to intervene, but it can easily be too late.

There are many potentially beneficial interventions aimed at reducing inequities in health and targeting adults and older people. However, those interventions with the best chance of reducing future inequities in mental and physical health relate to parents, mothers and children. Oldenberg et al (2000) agree and suggest that given the increasingly compelling evidence regarding the early years and its impact on long term social, mental and physical health, intervention efforts should be strongly focussed on the first years of life.

Kaplan (2000) believes that reducing inequities in health requires social and economic multilevel strategies as well as strategies that invest in children. McCain and Mustard (1999) recommend that to improve performance in our knowledge-based economy and to improve competence and coping skills across the population, all governments should invest in quality early childhood development programs across all social classes. Keating and Hertzman (1999) support McCain and Mustard’s recommendations. They believe that the evidence and knowledge-base to support large scale investments in early child development interventions is more than sufficient and that large scale investments are vital to improving overall population health.

Why should societies invest in early child development?
It has been documented that the establishment of population based early childhood programs will improve the overall quality of the population and reduce inequities in health. The early years are critical for establishing the foundation for future literacy development, early mathematical capabilities, competency in literacy, science and positive behavioural outcomes. Inadequate and inappropriate social and emotional experiences in the early years can compromise a child’s ability to bond and imitate and can result in a host of economic and social problems including juvenile delinquency, teenage pregnancy and social violence later on in life.

Early child development is a human rights issue
Children have a right to live and develop to their fullest potential. The United Nation’s Convention on the Rights of the Child includes the rights to a healthy development. Under-investment in children and their mothers, especially those in poor households and with little education, is a major factor driving inequity within and between nations.

Early child development influences human development outcomes
Human development is the overarching objective for most international and multinational development programs. It considers the impact of education, health including nutrition, social development and growth on a nation’s economic growth and development and is greatly influenced by the quality of early childhood development. Early childhood development and human development are closely linked through four critical pathways: education, health, social capital and equity. The quality of these pathways influences economic growth which will influence human development as can be seen in Figure 14.
Investing in well executed and well targeted early childhood programs is the natural starting point for initiating quality human development programs. Effective early childhood programs stimulate improvements in education, health, social capital and equity and have both immediate and long term benefits for children. According to van de Gaag (2002), investments in early childhood development programs are, in many ways, investments in the future of a nation.

Effective early childhood intervention programs have been associated with a wide range of positive early child development outcomes. As can be seen in Table 9, improvements in early childhood outcomes lead to improvements in adult outcomes which lead to positive societal and human development outcomes.

Table 9: Pathways linking early childhood development and adult outcomes to positive social and human development outcomes

<table>
<thead>
<tr>
<th>Benefits of ECD</th>
<th>Education</th>
<th>Health</th>
<th>Social capital</th>
<th>Equality</th>
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<tbody>
<tr>
<td>For children</td>
<td>Higher intelligence, improved practical reasoning, eye and hand coordination, hearing and speech, reading readiness; less grade repetition and dropout; increased schooling</td>
<td>Less morbidity, mortality, malnutrition, stunting, child abuse; better hygiene and health care</td>
<td>Higher self-concept; more socially adjusted; less aggressive; more cooperative; better behavior in groups; increased acceptance of instruction</td>
<td>Reduced disadvantages of poverty; improved nutritional status, cognitive and social development, and health</td>
</tr>
<tr>
<td>(long-term)</td>
<td>Improved height and weight; enhanced cognitive development; less infections and chronic diseases</td>
<td>Higher self-esteem; improved social competence, motivation, acceptance of norms and values; less delinquency and criminal behavior</td>
<td></td>
<td>Equality of opportunity, education, health, and income</td>
</tr>
<tr>
<td>For society</td>
<td>Greater social cohesion; less poverty and crime; lower fertility rates; increased adoption of new technologies; improved democratic processes; higher economic growth</td>
<td>Higher productivity; less absenteeism; higher incomes</td>
<td>Improved utilization of social capital; enhanced social values</td>
<td>Reduced poverty and crime; better societal health; increased social justice; higher sustainable economic growth</td>
</tr>
</tbody>
</table>

ECD: Early child development; HD: human development.
Pathways linking early child development programs to human development outcomes

Education

The importance of early child development on subsequent educational performance and the role of education in economic and human development is well documented. (39) The rapid development of the brain in utero during the early months of life greatly influences a child’s physical, mental and social development and babies who receive proper care and stimulation during this time, will be more ready to enter school on time and learn. (39)

Studies have shown relationships between early child development and improvements in IQ, practical reasoning, eye and hand coordination, hearing, speech and reading readiness and longitudinal studies have linked positive early child development with reductions in grade repetition and dropout, higher school performance, higher school enrolment and increased probability of progress to higher levels of education. (13, 14, 39)

The World Bank and Institute of Applied Economic Research analysis of Brazilian preschool programs (2001) identified that attendance at preschool has a positive and significant effect on the average years of schooling ultimately attained with each additional year of preschool correlating to approximately a half year increase in schooling attained. (192) The study also showed a positive and statistically significant effect on the probability of completing a certain level of education by a specific age with rates for grade repetition reduced by 3-5 percentage points for each additional year of preschool. (192) Reduced repetition increases the efficiency of schooling, decreases the costs of schooling and reduces social stigma. (39)

Education is closely linked with adult income and employment and consequently economic growth. (39) Public benefits from higher education include greater ability to adopt new technologies, better functioning of democratic processes, lower fertility rates and lower crime rates. (39) Education is a great equaliser, providing all children with a fair chance to succeed in life only if ALL children have equal opportunities to take advantage of education. (13)

Health

The links between health and nutrition in the early years of life and adult health status are well established. (39) Early childhood development programs have been linked to decreased mortality and morbidity rates for children through improved nutrition, immunisation and through the provision of basic health care services for mothers and children, such as vision, hearing and developmental screenings. (39) Early childhood development programs have been linked to a decline in malnutrition and stunting and so therefore, are often used as a key vehicle for improving the health of severely malnourished children. (39) They have also been associated with improved personal hygiene and health care and fewer instances of child abuse. (193) Improved health during early childhood is associated with better health in adulthood, having been linked to longer life expectancy, better weight and height measures, higher productivity, less absenteeism from work and higher incomes, when compared against those with poor health throughout childhood and adulthood. (39)
Social benefits
Documented social benefits of early childhood intervention programs include less aggressive and better group behaviour, more positive acceptance of instructions from parents, higher self concept and more socially adjusted individuals. Documented longer term outcomes include improved self esteem, social competence, motivation levels, acceptance of cultural norms and values and less criminal behaviour and delinquency.

Recent studies on antisocial and violent behaviour in youth clearly point to the preschool period as being one of the most crucial stages for positive behaviour change. Intervention at this stage may have longer lasting effects than intervention later in life with studies showing that intervention in the first three years of life provides the best opportunity to address risk factors for later offending in adolescence and adulthood.

Equity
Intergenerational poverty is a major cause for persistent poverty, inequitable income distribution, street children and increased violence and crime. The cycle of disadvantage is often associated with the failure to provide for children and meet their developmental needs. Consequently, disadvantaged children are more likely to experience intellectual and emotional delay, are less able to learn and often fail in school, repeating grades and eventually dropping out. As unskilled youth with scarce market skills, most obtain work in poorly paid jobs with some engaging in better paid illicit activities. Unfortunately, this cycle has a tendency to self perpetuate throughout the generations.

Early childhood interventions that focus on mothers and children appear to have the potential to make the greatest impact across the population in reducing health inequities. According to Keating and Hertzman (1999), without equity of opportunity for children it is not possible to foresee having a healthy competent population at all socioeconomic levels. Without this it will be difficult to sustain economic growth in the future and to establish the basis for tolerant, democratic, sustainable civic societies.

Early child development influences economic productivity
Society benefits economically from improved early child development as the conditions for early childhood set health risks for adult life which have major effects on economic growth. Greater access to education and health resources for all children regardless of socioeconomic status results in greater equal opportunity which, in turn, leads to higher employment and income opportunities and greater productivity in later life. Childcare programs not only show long term educational and income benefits for the child, but the provision of childcare programs also allows parents to work thereby increasing the immediate availability of a potential labour force.

The World Bank and Institute of Applied Economic Research in 2001, conducted an analysis of early childhood education in Brazil evaluating amongst other outcomes, its effect on future earning capacity for different age cohorts. The analysis revealed that attendance in preschool had a positive effect on future earnings and contributed to a 7% minimum increase in potential lifetime income for children whose parents had only four years education and up to a 12% increase in future earning capacity for children of illiterate parents.
Investing in early childhood development programs can lead to long term reductions in the costs of and later needs for social welfare programs, remedial school programs, health care and judicial and criminal services.\(^{39}\) In some instances, generated savings to governments have well exceeded the actual cost of conducting the early childhood programs.\(^{74}\) Cost-benefit analyses of specific early child development programs have shown that savings to government well exceed program costs, with at least $7 saved for every $1 spent on early child development programs.\(^{74}\) Early child development programs have been shown to generate at least four types of significant savings to the government through:

- increased tax revenues due to higher employment;
- decreased welfare outlays;
- decreased expenditure for education, health and other services eg: special education, emergency department visits and refuge accommodation; and
- lower criminal justice expenditure on arrests, adjudications and incarcerations.\(^{74}\)

Most program savings are not realised for years, accumulating over the life of the participants.\(^{82}\) Costs saved by governments in early childhood programs are relatively high for high risk population groups.\(^{82}\) The longer the timeframe to show effect, the greater the chance that savings generated by the program will outweigh program costs.\(^{74}\) Savings will increase if programs include the mother and assist them to become more employable.\(^{74}\)

The critical stages for brain development start in-utero, continuing up to age three and, at a slower rate, up to age 10.\(^{14}\) Unfortunately, most government expenditure for health, education, income support and social services occurs later on in life as illustrated in Figure 15.\(^{194}\) However, according to the evidence, it makes better sense financially to invest during the early years when critical brain development takes place, thereby reducing long term social and economic costs to societies.\(^{14}\)

**Figure 15: Critical stages of brain development and government investment (194)**

The economic benefits of investing in early childhood development are great for both society and individuals.\(^{14}\) Well executed and well targeted early child development programs are initiators of human development as they stimulate improvements in education, health, social capital and equity that have both immediate and long term benefits for the children participating in the programs and for society overall.\(^{14}\) Focusing on this life course stage is likely to result in the greatest health benefits for current and future generations.\(^{139}\)
Evidence for the importance of early childhood development

**Animal studies**

Studies with rats, mice and monkeys have shown that the circumstances of early life influence brain development and that this early development affects behavioural, learning, health and memory later in life. For example, data from rat studies have shown that rat pups who are involved with their mothers and given enriched animal cages with toys to play with, have more neurons and more neuron connections and so perform better on rat competency tests than rat pups denied quality nurturing and play.

Other studies have shown that rat pups licked intensively by their mothers in early life, develop better regulatory control in terms of less elevated sterols and faster returns to baseline sterol levels, providing a more balanced response to stimuli in respect to learning, behaviour problems and health pathways. Another study by Francis et al (1999) cross fostered pups from mothers that groomed and licked intensely with mothers that were poor lickers and groomers. The results showed that regardless of the biological mother, pups placed with good mothers developed better in respect to learning, behaviour problems and health pathways, developed similar nurturing tendencies to their adopted mother and showed better memory and cognitive functions as they aged.

Studies of monkeys, found that temperament may be largely the result of a young monkey’s home life. Monkeys classified as genetically vulnerable (hyperactive to stress or challenge) and raised by non-nurturing mothers as they aged, showed increased anxiety and depressive behaviour, excessive alcohol consumption when given access to alcohol, increased impulse aggression and violent behaviour, poor exploratory patterns and high circulating sterol levels. Females expressing these characteristics tended to be poorer mothers. In studying the biological pathways in these monkeys, researchers found high sterol levels in response to mild stress, high resting sterol levels and low brain serotonin levels. When these offspring were taken away from their mothers and placed with more nurturing mothers, the high risk infants became secure and playful in their exploratory patterns. As adults they rose to the top of the social hierarchy, had robust immune responses, better regulatory sterol pathways and normal brain serotonin levels, with the females becoming very nurturing mothers. This study showed that in animals, genetic tendencies can be dramatically modified by early experiences.

**Human studies**

Evidence from international childhood longitudinal studies supports results from animal studies that biological embedding is a contributing factor in establishing pathways that influence learning, behaviour, physical and mental health throughout life. For example, British Birth Cohort Study data has shown that girls raised in homes with serious family and parental discord ran increased risks of mental health problems as adults. Other studies have found that women from families with significant frequent conflict during their early years had increased risks of depression and other mental health problems in adult life. Family discord was also associated with later antisocial behaviour.

A recent study of Romanian children adopted into Canadian families, compared children adopted shortly after birth to those adopted after spending many months or years in...
Researchers found abnormal cortisol levels in the children adopted who had spent longer time in orphanage care, levels similar to children who had experienced traumatic events in early life. These children received minimal custodial care and displayed significant behavioural problems, poor attachment to care givers, and lower IQs than children adopted at earlier ages. The longer the children remained under orphanage care, the poorer the outcomes and the greater the number of problems they experienced. A similar study of Korean orphans adopted into American homes showed that children adopted soon after birth had higher IQ scores than children who had spent considerable time in orphanages. Those who were well nourished when adopted had higher IQ scores, emphasising the importance of nutrition in the early years.

Another study examined the relationship between males’ early life experiences, behaviour in the school system and delinquency and violence in later years. The study showed that children who, at school entry, showed oppositional behaviours, physical aggression and hyperactivity, were more likely to become delinquent as teenagers. A review of longitudinal studies of the antecedents of youth antisocial behaviour and criminal activity found that repeated criminal activity was often connected to disruptive behaviour during the preschool period.

**Early childhood programs**

Early childhood intervention programs occur during the prenatal to preschool/kindergarten age and attempt to maintain or improve quality of life by providing the best possible foundations for future health, academic and social functioning.

Early childhood programs differ widely in their goals, their service delivery strategies, the ages of the children they serve, the family members they target and the risk factors used to select program participants. They can range from interventions targeting the child, parents and/or family; they can be home or centre based and can cover a range of services aimed at improving educational achievement and health status.

Child focused programs include both preschool style and childcare programs designed to promote child development and improve children’s readiness to succeed in school. Family focussed programs work with the family to enhance or supplement the support given by family, friends and relatives. They aim to involve parents in their child’s development and to strengthen parenting skills in the belief that changes in parents will help to create, sustain and improve positive outcomes for the children.

Parenting programs can provide knowledge, information, skills, support and understanding to assist in raising children, benefiting the parent, child and family as a unit. Parenting programs have been identified as effective strategies in the prevention of child abuse, neglect and criminal behaviour. They have been associated with improving physical and mental health outcomes, enhancing educational outcomes and strengthening individual, family and community functioning thereby improving overall health.

A number of studies in developed and developing countries have explored the effects of programs on learning, behaviour and health in later life. Systematic studies of Swedish early intervention programs have been conducted since the 1960s. One study, which followed a
sample of 128 children born in 1975 to low to middle income urban households during the first 12 months of life, revealed that children attending good early child development centres showed higher social skills, greater verbal ability and were rated as more persistent and independent, less anxious and more confident than children who did not participate, and had higher cognitive abilities when tested at age 13. (205)

The Canadian National Longitudinal Study for Children and Youth (1994-1995) assessed the verbal and mathematical skills of children (aged 4-5 years) for all social classes. (80) A clear gradient emerged when plotted against socioeconomic status, with children in low socioeconomic groups showing poorer performances. (80) Although 10% of children in higher socioeconomic groups also did poorly, most children not doing well in comparison to the rest of Canada were middle class children. (80) As children throughout socioeconomic levels were performing poorly, further analysis revealed that the quality of parenting programs and care giving was more the determining factor in performance than income. (80)

Similarly, recent studies of literacy in OECD countries show that for all countries, level of literacy is a gradient when plotted against socioeconomic measures such as parents’ level of education. (206) The studies showed that literacy in later life is related to verbal skills or language development in early life, with results showing a high percentage of middle class children not achieving their potential. (206)

It appears that countries with high literacy performance and fairly flat gradients tend to have high quality preschool programs involving parents. (14) Cuba has invested in mothers and children in the early years for decades and has a high literacy performance for all its population regardless of social class. (39)

A German study (1987) evaluating whether the provision of preschool opportunities increased later school success, revealed that attending preschool did improve children’s readiness for school and promoted their educational success. (207) A retrospective Japanese study (1975) of 4,000 fifth graders addressing the issue of whether early child intervention was associated with higher scores on national achievement tests, found that children that attended preschool had higher test scores then those that did not attend. (208) Similarly, a nine year Singapore study of three to six year olds revealed that preschool experience better prepared children to handle academic tasks in elementary school and improved children’s skills at sharing and cooperating. (209)

Across the world, comprehensive evaluations have been conducted on the effectiveness of a variety of established early childhood programs. Overall, the evidence gained from these evaluations has shown that effective early childhood development programs have a greater impact on positive outcomes later in life including:

- gains in emotional or cognitive development for the child;
- improved parental/child relationships;
- improved educational process and outcomes for the child;
- increased economic self sufficiency initially for parent and later for child through greater labour force participation, higher income, lower welfare usage;
- decreased criminal activity levels;
- improvements in health related indicators such as child abuse;
• improved maternal reproductive health and maternal substance abuse;
• improved parenting and family functioning; and
• decreased family breakdown and out of home care. (74, 177)

Favourable benefits which have been measured for mothers include:
• better parent/child relationships;
• improved educational attainment and labour force participation;
• decrease in welfare utilisation and criminal behaviour; and
• overall better health outcomes. (74)

In conclusion, there is growing evidence from a variety of fields, including mental health, education, criminology, child health and public health, that early childhood is a critical period in the life cycle and impacts greatly on health and other outcomes in later life. (139) The experiences of early childhood have the potential to affect lifelong physical, social, mental, emotional and cognitive development and are associated with the adoption of health promoting and health risk behaviours in adult life and, therefore, have a major effect on economic growth. (139)

The economic benefits of investing in early childhood development programs are great for both society and individuals. (14, 74) Well executed and well targeted early child development programs are initiators of positive human development as they stimulate improvements in education, health, social capital and equity and have both immediate and long term benefits for the children participating in the programs and for society overall. (210) Early childhood development programs that comprehensively address children’s basic needs, such as health, nutrition, emotional and intellectual development, foster the development of capable and productive adults. (13) It is recommended in the literature that mothers and children should be the focus of policy and intervention efforts to reduce socioeconomic inequities. (139) The argument is not nurture versus nature, the issue is how the two combine to results in positive or negative child developmental outcomes. (13)

Targeted programs that reach only children at risk or in the lower socioeconomic groups, will miss a very large number of children in need of support in the middle and upper socioeconomic groups, resulting in less positive overall outcomes later on in life. (14) According to Keating and Hertzman (1999), without equity of opportunity for all children, it is not possible to foresee having a healthy competent population at all socioeconomic levels. (13) Without this it will be difficult to sustain economic growth in the future and to establish the basis for tolerant, democratic, sustainable civic societies. (13)

According to the literature, early childhood interventions have the potential to make the greatest impact across the population in reducing health inequities and are likely to contribute the greatest health benefits for current and future generations. (139) Therefore, societies and governments have an obligation to the future to devise systems, develop policies and support interventions that ensure effective parenting, support good early child development and that take into account the social and economic factors that influence health. (14) Investing or not investing in early child development will have pervasive and long lasting effects on the developmental health of the population. (13)
Appendix 4: Risk and Protective Factors’ Impacts on Childhood and Life Course Wellbeing Outcomes

(29, 71, 211-214)

<table>
<thead>
<tr>
<th>RISK FACTORS</th>
<th>PROTECTIVE FACTORS</th>
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<tbody>
<tr>
<td><strong>Family Factors And Social Factors</strong></td>
<td><strong>Supportive caring parents</strong></td>
</tr>
<tr>
<td>Single parent / absent father</td>
<td>Family harmony and stability / secure and stable family</td>
</tr>
<tr>
<td>Young maternal age (teenage mother)</td>
<td>Small family size / spacing siblings &gt; 2 years</td>
</tr>
<tr>
<td>Post natal depression / other parental mental illness</td>
<td>Responsibility within the family (for child or adult)</td>
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<td>Family instability, stress, conflict or violence</td>
<td>Supportive relationships with other adults</td>
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<td>Large family size / rapid successive pregnancies</td>
<td>Strong family income and morality</td>
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<td>Social isolation</td>
<td>Consistency of primary carers</td>
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<td>Negative interaction / parental discord</td>
<td>Nurturing environment</td>
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<tr>
<td>Antisocial role models in childhood</td>
<td>Good maternal health and wellbeing</td>
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<td>Long term parental unemployment</td>
<td>Healthy lifestyle / awareness and use of health services</td>
</tr>
<tr>
<td>Poor supervision and monitoring of child</td>
<td>Competent stable care</td>
</tr>
<tr>
<td>Harsh or inconsistent discipline</td>
<td>Positive attention from both parents</td>
</tr>
<tr>
<td>Drug and alcohol misuse / parental tobacco smoking</td>
<td>Positive communication between parent and child</td>
</tr>
<tr>
<td>Lack of parenting knowledge / stimulation of child</td>
<td>Father involved in parenting</td>
</tr>
<tr>
<td>Lack of sensitivity, warmth and affection</td>
<td>Mother’s education and competence</td>
</tr>
<tr>
<td>Parental criminality / abuse or neglect</td>
<td>Immunisation completed</td>
</tr>
<tr>
<td>Separation from / rejection of child</td>
<td></td>
</tr>
<tr>
<td>Low parental involvement in child’s activities</td>
<td></td>
</tr>
<tr>
<td>Very low level of parental education</td>
<td></td>
</tr>
<tr>
<td><strong>School Context</strong></td>
<td><strong>Positive school climate</strong></td>
</tr>
<tr>
<td>School failure</td>
<td>Pro-social peer group / sense of belonging</td>
</tr>
<tr>
<td>Deviant peer group</td>
<td>Responsibility and required helpfulness</td>
</tr>
<tr>
<td>Bullying / peer rejection</td>
<td>Opportunities for success / recognition of achievement</td>
</tr>
<tr>
<td>Poor attachment to school</td>
<td>School norms regarding violence</td>
</tr>
<tr>
<td>Inadequate behaviour management</td>
<td>Social cohesion</td>
</tr>
<tr>
<td>Lack of social cohesion</td>
<td></td>
</tr>
<tr>
<td><strong>Life Events and Situation</strong></td>
<td><strong>Meeting significant person (mentor)</strong></td>
</tr>
<tr>
<td>Divorce and family breakup / death of family member</td>
<td>Opportunities at major life transitions</td>
</tr>
<tr>
<td>War / natural disasters</td>
<td>Economic security</td>
</tr>
<tr>
<td>Frequent relocations</td>
<td>Good physical health</td>
</tr>
<tr>
<td>Poverty / economic insecurity / unemployment</td>
<td></td>
</tr>
<tr>
<td>School transitions</td>
<td></td>
</tr>
<tr>
<td>Physical illness and impairments</td>
<td></td>
</tr>
<tr>
<td><strong>Community Factors</strong></td>
<td><strong>Supportive social relationships and networks</strong></td>
</tr>
<tr>
<td>Socioeconomic disadvantage</td>
<td>Participation in community activities</td>
</tr>
<tr>
<td>Poor housing conditions / high population density</td>
<td>Family friendly work environments and culture</td>
</tr>
<tr>
<td>Neighbourhood violence / crime / poor behaviour norms</td>
<td>Strong cultural identity and pride</td>
</tr>
<tr>
<td>Lack of support services</td>
<td>Access to support services</td>
</tr>
<tr>
<td>Social or cultural discrimination</td>
<td>Connectedness</td>
</tr>
<tr>
<td>Isolation / lack of social cohesion</td>
<td></td>
</tr>
</tbody>
</table>
RISK FACTORS

HAVE NEGATIVE OR POSITIVE IMPACTS ON...

PROTECTIVE FACTORS

CHILDHOOD WELLBEING OUTCOMES

Physical Wellbeing
- Length of gestation
- Birthweight
- Ability to thrive
- Genetic factors
- Health as infant
- SID syndrome
- Accidental injury

Developmental Wellbeing
- Quality of parental bonding / attachment
- Cognitive development
- Speech / language development
- Social development
- Emotional development
- Development of problem solving skills
- Development of independence, self help skills

Psychosocial Wellbeing
- Attention span / hyperactivity
- Ability to control emotions
- Self esteem
- Coping skills
- Sociability / social skills
- Impulsivity / self control
- Locus of control / explanatory style
- Choice of peer group

Academic Wellbeing
- Attitudes towards school / education
- School attendance rate
- Level of participation in school activities
- Academic achievement level
- School leaving age

INCREASING OR DECREASING THE LIKELIHOOD OF...

LIFE COURSE WELLBEING OUTCOMES

Social Risk Factors
- Poverty
- Low social status
- Dangerous work
- Polluted environment
- Natural resource depletion
- Discrimination (age, race, sex, disability)
- Steep power hierarchy within workplace and community

Psychosocial Risk Factors
- Isolation / alienation
- Lack of social support
- Poor social networks
- Low self esteem
- High self blame
- Low perceived power / control
- Loss of meaning / purpose
- Abusive relationships
- Delinquency / criminal behaviour
- Anxiety
- Depression
- Suicide

Behavioural Risk Factors
- Smoking
- Excessive alcohol consumption
- Illicit drug use
- Poor nutritional intake
- Inadequate physical activity
- Poor hygiene
- Overweight / obesity
- Early / unsafe sexual activity
- Teenage parenthood

Physiological Risk Factors
- Excessive release of stress hormones
- Impaired glucose tolerance
- Proteinuria
- High blood pressure
- High cholesterol
- Compromised cardiovascular functioning
- Increased risk of cancers
- Chronic illness