Community Centred Health Promotion and Prevention in an Australian Context

Victoria (Vicky) Totikidis

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Psychology, College of Arts,
Victoria University, Melbourne, Australia.

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Abstract

Chronic diseases have increased dramatically in Australia and around the world over the past decade, causing pain, suffering, disability, psychosocial problems, early mortality and economic and public health crisis. However, many chronic diseases and conditions could be prevented with better evidence based and community based health promotion strategies. Guided by a philosophy of idealism, the aim of this thesis was to develop a community centred health promotion strategy to assist the improvement of health and the prevention of chronic disease in an Australian context. More specifically, the research was concerned with exploring the potentiality of statistical or epidemiological evidence and community collaboration as pathways to chronic disease prevention and improvement of health at an individual, community and system level. The research utilised a praxis paradigm and action research design over three stages. Stage One included in depth quantitative analysis of health and epidemiological data and addressed the question: What is the current evidence/knowledge about health status, determinants and inequalities in Victorian communities and the broader Victorian and Australian context? Stage Two involved qualitative participatory action research methods to engage a small group of community members from the Brimbank region of Melbourne (Victoria, Australia) in the community governance of health promotion and disease prevention. The questions addressed were: What are the benefits of community based health promotion and prevention? What ideas for health promotion action does the community have to offer? Stage Three involved a minor evaluation of the strategy as a whole and addressed the question: In what ways, can health evidence and community involvement in health promotion contribute to better health outcomes? Stage One identified various determinants that impact on health status and result in inequalities. Stage Two revealed six major benefits for community based health promotion and prevention and generated a number of useful ideas for health promotion action in the community. Stage Three showed positive evaluations by the participants and identified numerous indicators of success of the health promotion strategy as a whole.

Student Declaration

"I, Victoria Totikidis, declare that the PhD thesis entitled *Community Centred Health Promotion and Prevention in an Australian Context* is no more than 100,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work".

Signature: Date:

Dedication

This thesis is dedicated to my father and mother, John and Sevasti Ficior. My father came to Australia as refugee from communist Romania after the Second World War and my mother migrated from Greece a few years later. As a child, mum completed her primary school education before undertaking agricultural work in the local farming village, while dad worked as a child servant in his country and only had the opportunity to complete a grade three education. Still, both learnt to read and write in their native languages and to speak and understand several other languages, including a considerable amount of English. They taught us (my sister and two brothers) so much about life through their amazing and sometimes tragic stories and their wisdom. Mum told me of a time when the snow was so deep and the food so scarce, that all they had to eat was bread and onions. Dad told me of a time when he almost died of starvation after being wrongly accused of espionage after crossing the Romanian border and being detained in a communist prison for two years. So, thank you mum and dad for giving me the opportunity to have not only food and health but also freedom and an education!

Acknowledgements

Firstly, I would like to acknowledge the National Health and Medical Research Council (NHMRC) for awarding me a Public Health Training (Allied Health Professional) Postgraduate Research Scholarship (405101). This scholarship gave me the unique opportunity to embark on this thesis and apply my interests, skills and knowledge of community and health for the potential benefit of the community. I am also indebted to several people who supported my initial application and thereby helped me win the scholarship. They include: Ms Heather Gridley, Victoria University (VU), for her encouragement; and Dr Andrew Ellerman, Chair of the Tobacco Issues Committee, The Cancer Council Australia Manager, Quit, South Australia and Professor Jenny Sharples, Coordinator of the Wellness Promotion Unit, School of Psychology, VU, for their comments on the feasibility, originality and quality of the proposed project. Jenny has also been there with me for the long haul as my primary Supervisor, and I am grateful to her for reading and commenting on my thesis and for all the support and advice she has given me over the years. For a short time (2010-2011), Professor Kerry Bennett, the former Research Director, Australian Community Centre for Diabetes (ACCD), Faculty of Health, Engineering and Science, VU, was also my Supervisor. I would like to thank Kerry for her careful reading of earlier parts of my thesis, for her encouragement and for giving me the opportunity to work in diabetes prevention with the talented ACCD staff and research team in 2010-2011. Although not listed in name, I would also like to thank the VU administrative and research staff who kindly assisted me during my studies. I especially want to thank Arlene, Cecilia, Chi, Kim, Tien, Tina and Victoria for their participation in the CHIC program and for their wonderful ideas and commitment to health in the community as well as the children, parents and staff of St Albans East Primary School and all the people who engaged in the CHIC activities and celebration. Finally, I wish to thank my friends and family for their patience and my husband Sam and parents John and Sevasti Ficior for their love.

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Abbreviations

Action Research	AR
Australian Bureau of Statistics	ABS
Australian Community Centre for Diabetes	ACCD
Australian Institute of Health and Welfare	AIHW
Burden of Disease	BOD
Canadian Institute for Advanced Research	CIAR
Community Based Health Interventions	CBHIs
Community Based Research	CBR
Community Centred Health Promotion and Prevention	CCHPP
Community Health Evidence Base	CHEB
Community Health Information Collaboration	CHIC
Culturally and Linguistically Diverse (CALD)	CALD
Department of Human Services	DHS
Disability Adjusted Life Year	DALY
Divisions of General Practice	DGPs
Health Evidence Network	HEN
Integrated Health Promotion	IHP
Local Government Area	LGA
Mobilizing for Action through Planning and Partnerships	MAPP
National Association of County and City Health Officials	NACCHO
National Health and Medical Research Council	NHMRC
National Health Care Partnership	NPHP
National Health Priority Action Council	NHPAC
National Health Priority Areas	NHPA
Participatory Action Research	PAR
Primary Care Partnerships	PCPs
Socio Economic Index for Areas	SEIFA
Statistical Local Area	SLA
Victorian Health Promotion Foundation	VicHealth
Victoria University	VU
World Health Organisation	WHO

PART ONE: INTRODUCTION AND LITERATURE REVIEW

1	

Chapter 1: Introduction to Community Centred Health Promotion and Prevention

I look forward to a time when community members are informed and empowered in matters relating to their complete wellness[1]; when healthy lifestyles are valued and the magic of food to heal and transform lives is realised; when equity in health is achieved; where food production is socially responsible; where people live healthily into old age; and where the resources for prevention are strong and the need for treatment has lessened.

1.1 Background and Justification for the Research

The 20th century is often characterised as a time in which considerable medical and public health advances occurred. These have included immunisation, antibiotics, improved medical knowledge, health care and treatments, technological advances, lower rates of communicable diseases, increasing life span, improved standard of living and access to food. However, populations around the world do not enjoy these advances equitably and new challenges have emerged. Some of the major public health challenges for the 21st century include preventing the rising tide of chronic or non-communicable diseases, addressing health determinants and inequities and promoting health and overall wellness through better public health strategies, information and community education.

This thesis, *Community Centred Health Promotion and Prevention in an Australian Context*, is centred on the promotion of good health and the prevention of chronic diseases and other preventable conditions at a local community level, while being mindful of the problems and priorities in the broader Australian health system. The

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[1] The term wellness in this context refers to holistic health as exemplified in the WHO definition of health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (World Health Organization, 1946). The community psychology definition of wellness as a positive state brought about by the satisfaction of personal, relational, and collective needs of individuals and communities (Prilleltensky, 2005) is also relevant in the present context.

phrase ‘health promotion and prevention’ in the title may sound incomplete but is used in this way to denote a more holistic approach to prevention. That is, although the major focus of this thesis is on the prevention of chronic diseases, other preventable conditions such as mental health conditions, obesity, injuries, accidents, suicide and death are also covered in some way in this thesis. The research will be discussed in greater detail following a general overview of the current chronic disease crisis and some of the reasons why further research and action in this area is needed.

There has been an increase in the prevalence of chronic diseases and conditions over the past few years. This problem has been recognised by the Australian government and by many other governments and organisations around the world. According to Jong-wook Lee the former Director General of the World Health Organisation (WHO) in the global report - Preventing chronic diseases: a vital investment: “The lives of far too many people in the world are being blighted and cut short by chronic diseases such as heart disease, stroke, cancer, chronic respiratory diseases and diabetes” (WHO, 2005c, p. vi). In summary, deaths due to chronic diseases were projected to increase by 17% by 2015. Moreover, of the projected 64 million people expected to die in 2015, 41 million (64%) will die of a chronic disease – unless urgent action is taken. Several common modifiable risk factors explain the large majority of chronic diseases, including unhealthy diet, physical inactivity and tobacco use. The report also reviews various effective interventions including laws, regulations, tax and price initiatives; improving the built environment, advocacy, community, school and workplace based interventions, screening, clinical prevention, disease management, rehabilitation and palliative care (WHO, 2005c).

At the time of writing this thesis, Australia’s approach to health improvement and chronic disease prevention centred around eight National Health Priority Areas (NHPAs). According to Australia’s national health and welfare statistics agency - the Australian Institute of Health and Welfare (AIHW), the NHPAs were developed in response to the *Health for All in the 21st Century* global strategy for health reform (2008b). The initial NHPAs in 1996 consisted of cardiovascular health, cancer control, injury prevention and control and mental health with diabetes mellitus added in 1997, asthma in 1999, arthritis and musculoskeletal conditions in 2002 and obesity in 2008 (AIHW, 2008b). The NHPAs were selected for focussed attention by the Australian government because they make a significant contribution to the burden of illness and injury and can be modified to improve health and reduce the burden of disease (AIHW, 2005b).

According to a study by the AIHW (2006), chronic diseases (including cancers) were responsible for more than 80% of the burden of disease and injury in 2004-2005; and that chronic diseases are common with 77% of Australians having at least one long term chronic condition. Chronic conditions affect both young and old, with 10% of children aged 0–14 years affected by three or more long-term conditions and this percentage increasing to 80% in people aged 65 years and over. Chronic diseases are not only a drain on the health system, accounting for 70% of the total health expenditure (AIHW, 2006) but cause pain, suffering, disability, social exclusion and early mortality. Many people are at risk of developing chronic diseases that may be prevented with good nutrition, exercise and lifestyle. For example, the report showed that more than 85% of adults are not consuming enough vegetables, almost 50% of adults are not consuming enough fruit, one in two adults are not undertaking a sufficient amount of physical activity, around 21% of adults are smoking tobacco and 54% of adult Australians are either overweight or obese (AIHW, 2006).

Whilst there are currently many commendable health promotion and disease prevention initiatives in Australia, these statistics reveal that there is an ongoing need for more and varied efforts towards improving community health[2] and wellness and preventing chronic diseases.

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[2] The term community health is used here in a general sense to refer to the health of a community, population group or the public. It can refer to the Australian or Victorian community or to a local community such as a suburb or local government area. Community health can be measured by various indicators such as health status, inequalities, hospitalisations, morbidity and mortality.

1.2 The Wellness Ideal

It has been said that the “power to change things rests on a vision of what things could be like, and a criticism of the world as it is” (Burton & Kagan, 1996). Both of these elements (vision and criticism) are contained in the opening paragraph (or epigraph), which is referred to as the wellness ideal or eidos in this thesis. Eidos as originally proposed by Plato, is an abstract term that is close in meaning to an image, idea, ideal state, form or essence. Eidos can also be defined as a guiding image, principle or abstract ideal associated with one’s approach, view of the world and view of knowledge (Cavanagh, 2008a, 2008b). An eidos stimulates the researcher’s engagement in inquiry into a research problem and can form the basis for research questions and methodology (Cavanagh, 2008b).

Chronic disease is not just an individual or community problem – it is a systemic problem. The wellness eidos reflects some of the systemic problems in the Australian health system as well as some possible solutions. The Australian health system[3] includes the health workforce as well as health policies, practices, assumptions, resources and infrastructure. Australia has a good health system by world standards but like many other countries is still more ‘reactive’ than ‘proactive’ and ‘preventative’. Health information to the public is sparse and has traditionally been in the hands of health professionals and governments. The health system thereby encourages dependency and communities have very little control over their own health. Although Australians enjoy higher life expectancies than people living in many other countries around the world, more needs to be done in terms of promoting health and reducing inequities in health, mortality, chronic diseases and disability from preventable and

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[3] The Australian health system includes: 1: The Australian government with the primary role of developing broad national policies, regulation and funding. 2. State and Territory and Local governments who are responsible for the delivery and management of public health services and for maintaining direct relationships with most health care providers, including regulation of health professionals and private hospitals. 3. Private practitioners including general practitioners, specialists and consultant physicians. 4. Profit and non-profit organisations and voluntary agencies (Commonwealth of Australia, 2009). In summary, the Australian health system includes the health workforce as well as health policies, practices, assumptions, resources and infrastructure.

avoidable causes. If this thesis could be summed up in just five words, one could say that it is about 'health and health system improvement'. Yet, as health and health systems are both enormous topics and health improvement is an enormous task requiring concerted effort by many people, it can only be said that this thesis makes a small contribution towards that ideal.

Many elements contained in the present eidos are central to this thesis. These include the concepts of information and empowerment for community members, wellness, equity, the importance of healthy food and lifestyles, the ideal of maintaining good health into old age and the need for a greater emphasis on the prevention of illness and disease. Some of these topics will be discussed throughout various parts of the thesis, including the wellness eidos, which will be revisited and explained in greater detail in the Theoretical Discussion in Chapter 4.

Various models and ideas have been developed to clarify the scope, underlying assumptions and complexities of this thesis with the wellness eidos representing only one unfolded part of the whole. The model shown in Figure 1 further clarifies the wellness approach taken in this research.

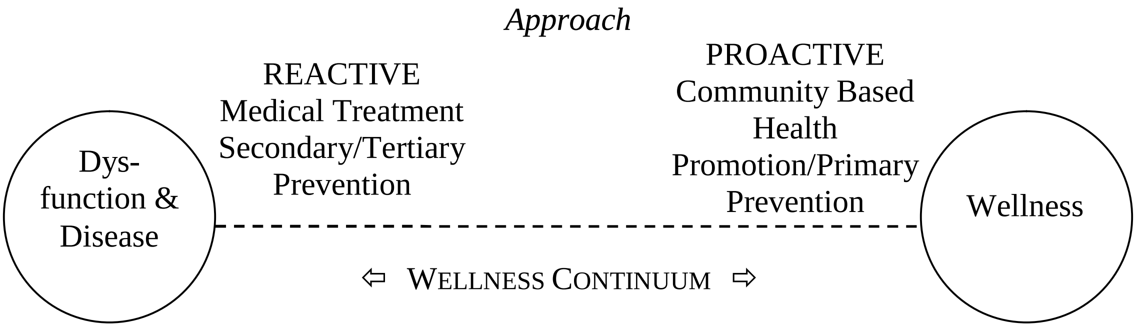

Figure 1. The wellness continuum and reactive and proactive prevention approaches.

Adapted from "Understanding community wellness from a multicultural perspective," by V. Totikidis, (2003), Unpublished Masters Thesis.

The model in Figure 1 acknowledges Emory Cowen's definition of wellness as "the positive end of a hypothetical continuum - an ideal we should strive continually to approach" and his criticism that we tend to focus on only one of the key components of prevention - the prevention of dysfunction [and disease] not on the promotion of wellness (1996, p. 246). Cowen also advocated for "a proactive approach targeted systematically toward the enhancement of psychological wellness in all people, from the start" (p.1).

The present research focuses on the right of the continuum; on a proactive community based strategy aimed at promoting health and wellness and preventing chronic disease before it occurs. The left of the continuum represents a range of vital reactive services delivered at hospitals and health centres by medical and allied health professionals to people who have already presented with some dysfunction or disease. The model implies that proactive strategies aimed at promoting health and preventing diseases at the community level (in addition to existing medical and emergency services) will improve the health of the public and ease the burden on the present health system. This proposition is supported by Marks and Hardy who suggest that "public health prevention programs can, with real societal and political will, substantially reduce or even prevent the burden of many major chronic disease conditions" (Hardy, 2004). Similarly, Harris and Mortimer (2009) noted that a major problem in Australia is that responsibility and funding for health promotion and illness prevention is fragmented and that dedicated funding is required to shift the focus of the health system to more emphasis on prevention and health promotion. Health promotion and the prevention of chronic diseases and conditions are rights, and systematic changes are needed across multiple sectors to ensure that these rights are met (Bennett et al., 2009). During the past couple of years, there has indeed been such a shift at the policy level in Victoria (this is discussed further in 2.5 of the literature review). However, it may take many years to improve health and reduce the burden of chronic disease in the broader community.

As alluded to in the title of this thesis, this research puts forward an approach called *community centred health promotion and prevention in an Australian context*. The term "community-centred" research is sometimes used interchangeably with one, "community-based" research, two, "community-wide" research, and three, "community-involved" research (Israel, Schulz, Parker, & Becker, 1998, p. 359). The first and third term applies especially to the present research, which is community-based and actively involves community members in collaborative research and health promotion and disease prevention activities. Though the goal of most action research projects would be to reach the broader community as denoted by the term "community-wide", this term may be more applicable to large well funded health promotion programs that aim to reach a whole population.

Figure 2 illustrates two broad problems in the Australian context, with which the present research is concerned. As will be discussed further in this thesis, one of these - the Growing Burden of Chronic Disease, is well recognised in the Australian context. The other – the problem of a Reactive Paternalistic System requires a more critical communitarian proposition so that the system becomes more preventative than reactive; and community led and empowered rather than controlled from the 'top down' by those in positions of power.

In this thesis, it is proposed that a proactive, preventative and empowering community centred approach is needed to tackle the growing burden of chronic disease and counter the often reactive and paternalistic approach of current health systems. Secondly, the present research design is also mindful of the broader systemic problems in the Australian context and aims to build up an evidence-base of health and epidemiological data that could be used to guide health promotion and public health activities. Epidemiology is the study of the distribution (frequency, pattern) and determinants (causes, risk factors) of health-related states or events in specified populations, and the application of findings to the control of health problems (Last, 2001).

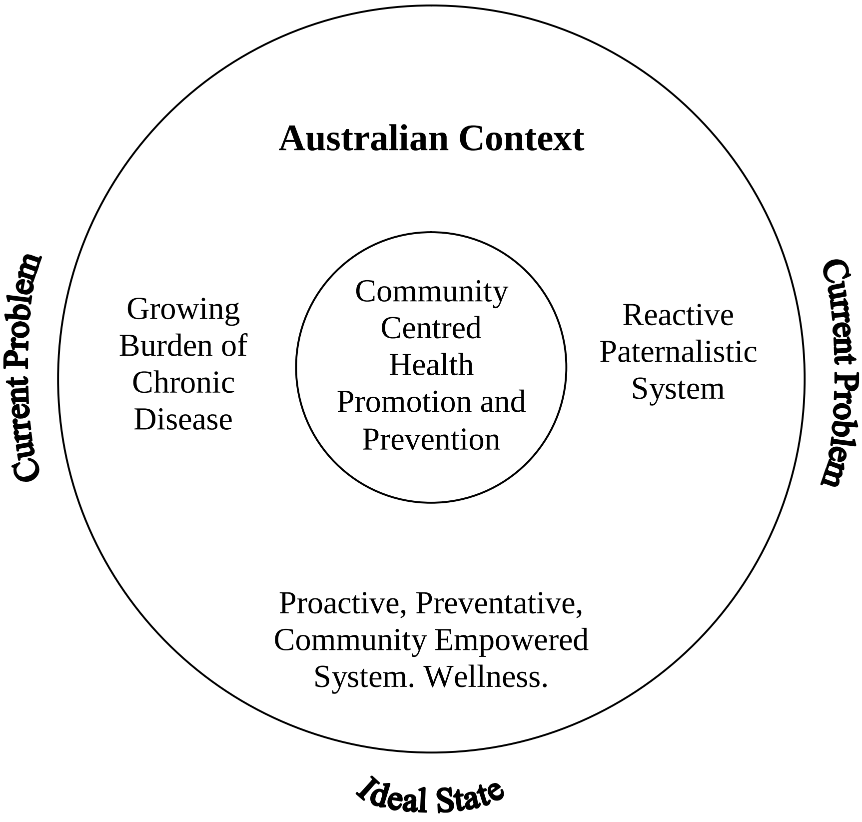

Figure 2. Community Centred Health Promotion and Prevention (CCHPP): Current problems and the ideal state.

The collection and analysis of relevant health data is essential to evidence-based decision-making by policy makers (Lucas, 2002) as well as to community based health promotion efforts. The present research design is consistent with many previous community-based health promotion models, that emphasise the importance of a diagnostic epidemiological or health needs analysis stage as well as community collaboration and evaluation (see section 2.4.1 of the literature review, for example, Bracht & Kingsbury, 1990; Green & Kreuter, 1991; Smithies & Webster, 1998; San Francisco Department of Health, 2004).

Evidence and community collaboration are common and important themes that appear in the public health and health promotion literature. The literature reveals that there has been increasing recognition in Australia and around the world of the value of citizen or community participation (also referred to as engagement or collaboration) in health promotion (E. A. Baker & Brownson, 1998; Butterfoss, Goodman, & Wandersman, 1993; Gillies, 1998; Neuhauser, Schwab, Syme, Bieber, & King Obarski, 1998; Wise & Signal, 2000; WHO, 1986). Although the concept of evidence is a contested topic, the need for a suitable evidence base for health promotion and disease prevention has also been acknowledged by the WHO (1997, 1998, 2000) as well as by many governments, researchers and health professionals around the world (Nutbeam, 1999; Skovgaard, Nielsen, & Aro, 2008; Speller, Learmonth, & Harrison, 1997). Policy making in health used to be largely intuitive but there is now increasing pressure to make decisions on the basis of evidence and sound scientific analysis (Lucas, 2002).

The approach taken in this thesis is that evidence or information about community health and about how, where and why particular health problems occur, can guide and therefore improve the effectiveness of health promotion and chronic disease prevention interventions. However, meaningful involvement in health promotion by, with and for the community is also an essential ingredient in tackling determinants of health, reducing inequalities and improving community health and wellness. Sherry Arnstein’s (1969) classic ladder of citizen participation model reminds us that citizen or community participation is not always meaningful and can be manipulative, tokenistic and disempowering. Attention to meaningful collaboration and empowerment are important in the present thesis and are taken up again in the literature review, and in the theoretical chapter, which puts forward a theory for the community governance of health promotion and prevention. Community governance in this thesis, implies community collaboration, but goes beyond it to include community building, empowerment, management, decision making, control and sharing ownership of health promotion and public health.

Although various approaches could used to explore and address the problem of chronic disease (e.g., a regulatory or social marketing approach), the perspective maintained in this thesis is that of an applied community psychologist initiating action research in the fields of public health and health promotion. Whilst the traditional focus of community psychology has been on mental health, community psychologists have a range of scientist/community practice skills to enable them to make a worthwhile contribution to chronic disease prevention in Australian communities. The coming together of 'scientific' evidence based and community based thinking is very much a part of my perspective and reflexivity as a community psychologist and is discussed further in the theoretical chapter (see 3.5 Reflexivity and Positionality).

The three fields of community psychology, public health and health promotion, are briefly explained in this introduction and further discussed in the literature review and theoretical chapter. Although the boundaries between the meaning and practice of public health and health promotion are not always clear, *public health* is rooted in medicine, has a longer history and is generally seen as the umbrella term encompassing health promotion (Naidoo & Wills, 2005). An Australian definition of public health by the National Public Health Partnership (NPHP) is that:

> Public health is the organised response by society to protect and promote health, and to prevent illness, injury and disability. The starting point for identifying public health issues, problems and priorities, and for designing and implementing interventions, is the population as a whole, or population sub-groups (NPHP, 1998, p. 1).

According to the NPHP, the scope of public health can be grouped into the three main areas of intelligence, intervention and infrastructure as described following:

> 1. Public health intelligence is involved with gathering and analysing information about the determinants of health, the causes of ill health and the patterns and trends of health and ill health in the population.
>
> 2. Public health intervention refers to developing policy, setting priorities for actions, developing plans, coordinating services, strategies and interventions aimed at prevention, protection and promotion of the health of the community, where promotion is the action taken to solve public health problems.
>
> 3. Public health infrastructure refers to the administrative, legislative and informational systems developed for making priorities, for developing policy, for funding, for

> monitoring and surveillance, for research and evaluation, for program delivery, and includes the workforce required to accomplish these tasks (NPHP, 1998).

This thesis relates to the first and second of the public health areas outlined that is, to understanding and developing public health intelligence or *evidence* as referred to in this thesis and to a public health intervention aimed at prevention, protection and promotion of the health of the community.

The focus of this thesis on community as the unit of analysis, and in context, is consistent with a community psychology approach. The principles of community control, participation, empowerment, prevention and a holistic or ecological view of health which are held in common by community psychology and health promotion also inform this research. *Health promotion* may be defined as "the process of enabling people to increase control over, and to improve, their health" and to "reach a state of complete physical, mental and social well-being" (WHO, 1986, p. 1). The World Health Organisation has been a major impetus for contemporary developments in the fields of health in Australia and in many countries around the world. A holistic view of health, human rights and the importance of community involvement, health information, equity, equality and action are embedded in the principles of the 1946 WHO constitution shown below:

- Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.
- The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.
- The health of all peoples is fundamental to the attainment of peace and security and is dependent upon the fullest co-operation of individuals and States.
- The achievement of any State in the promotion and protection of health is of value to all.
- Unequal development in different countries in the promotion of health and control of disease, especially communicable disease, is a common danger.

- Healthy development of the child is of basic importance; the ability to live harmoniously in a changing total environment is essential to such development.
- The extension to all peoples of the benefits of medical, psychological and related knowledge is essential to the fullest attainment of health.
- Informed opinion and active co-operation on the part of the public are of the utmost importance in the improvement of the health of the people.
- Governments have a responsibility for the health of their peoples, which can be fulfilled only by the provision of adequate health and social measures (WHO, 1946, p. 1).

Community psychology is located largely in psychology, but also in mental health, public health, psychiatry, politics, anthropology, history, archaeology, environmental studies, and other fields (Pretorius-Heuchert & Ahmed, 2001). Community psychology consists of a broad set of values, practices, principles and theories that guide the discipline. These include a community development and community building perspective, the ecological analogy, a proactive approach, psychological sense of community, respect for diversity, citizen participation, social justice, prevention, collaboration, wellness, empowerment, emancipation, praxis, a critical perspective and community strengths (E. Cowen, 1991; Dalton, Elias, & Wandersman, 2007; Duffy & Wong, 1996; Fox, Prilleltensky, & Austin, 2009; Levine & Perkins, 1987; Orford, 2007; Rappaport, 1981; Sarason, 1973). Community psychologists seek to understand and enhance the quality of life for individuals, communities and society through collaborative research and action (Dalton, Wandersman, & Elias, 2001).

The term community is a variable and multifaceted construct that is used hundreds of times throughout this thesis to refer to such things as a branch of psychology, a research approach, a health promotion target, a collective vs individual and a bottom up vs top down approach. The most important aspect of community, however, is that it is about people and place. This is illustrated in the following definitions of community as “a group of people living together in one place, especially one practicing common ownership” and “all the people living in a particular area or place” (Stein, 1967; Cited in Sorenson & Goldsmith, 2008, p. 19) (e.g., local, state, nation, world). Both meanings – ‘people and place’ are implied in this research.

Having traced the general essence of what this thesis is about, the remainder of this introduction provides an overview of the aims, research questions, stages, methods and structure of the thesis.

1.3 Overview of Research Aims, Questions, Stages and Methods

This research was designed with the broader ideal of assisting the improvement of health and preventing chronic disease and mortality in Australia. The formal overarching aim of the research was therefore to develop a community centred health promotion strategy to assist the improvement of health and the prevention of chronic disease in an Australian context. In particular, this thesis was concerned with exploring the potentiality of statistical or epidemiological evidence and community collaboration as pathways to chronic disease prevention and improvement of health at an individual, community and system level.

The research utilised mixed methods (quantitative and qualitative) and an action research design over three research stages with each stage consisting of primary aims and research questions and further specific or operational aims and questions. The primary research aims pertaining to each stage are illustrated in the model in Figure 3 and the associated research questions are discussed following.

Stage One is referred to as Community Health Evidence Base (CHEB). It involved an in depth quantitative analysis of health and epidemiological data and addressed the question: What is the current evidence/knowledge about health status, determinants and inequalities in Victorian communities and the broader Victorian and Australian context?

Stage Two is referred to as the Community Health Information Collaboration (CHIC) and involved qualitative participatory action research methods to engage a small group of community members from the Brimbank region of Melbourne (Victoria, Australia) in the community governance of health promotion and disease prevention. Stage Two addressed the questions: What are the benefits of community based health promotion and prevention? What ideas for health promotion action does the community have to offer?

Stage Three involved an evaluation of the strategy as a whole and addressed the question: In what ways, can health evidence and community involvement in health promotion, referred to here as community centred health promotion, contribute to better health outcomes?

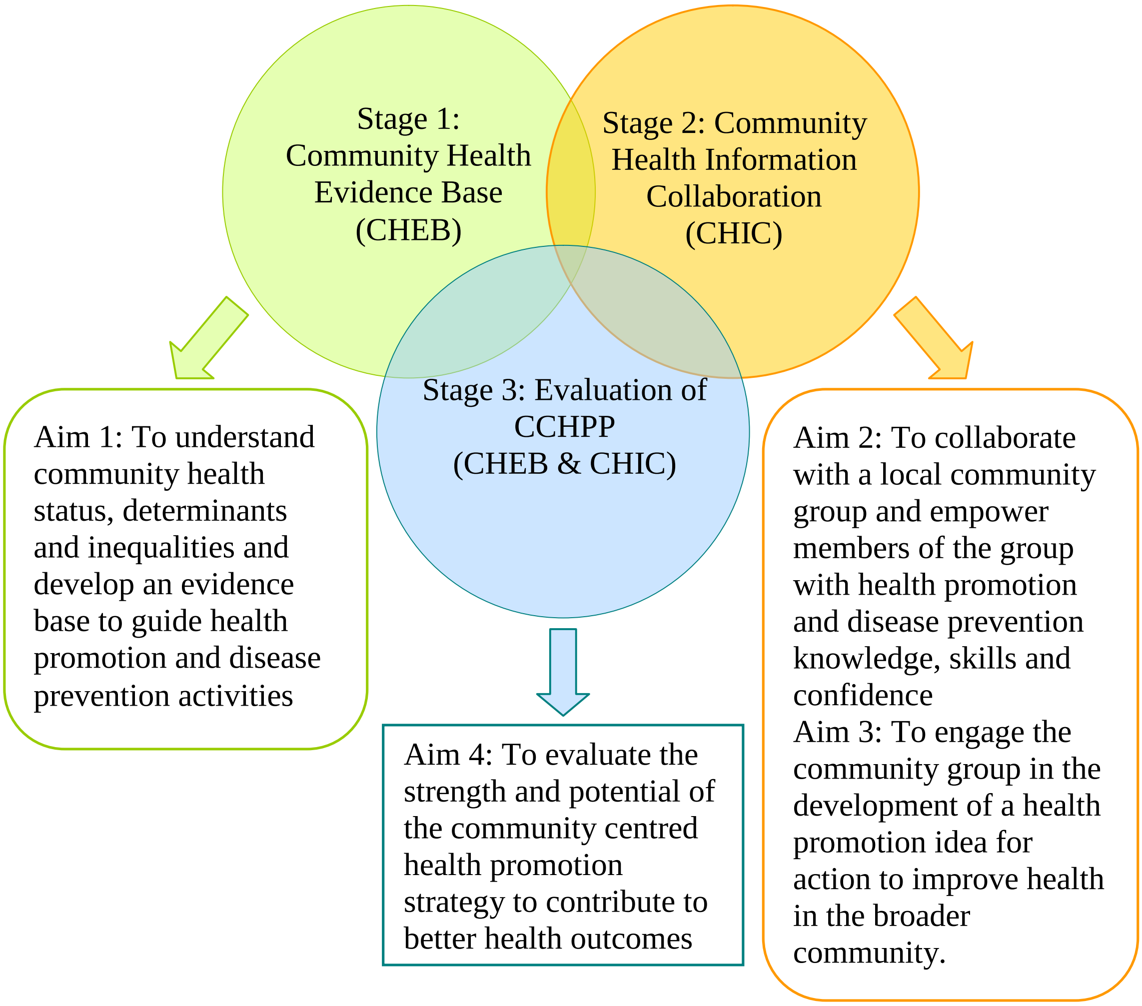

Figure 3. Community centred health promotion and prevention stages and aims.

Consistent with Stein's definition of community as people and place introduced in the previous section, the reach of the statistical analysis in Stage One (see Figure 3) is broad and covers the Australian, Victorian state and Victorian local community levels (place). On the other hand, the community collaboration in Stage Two involves a small group of participants from the Brimbank community in Melbourne, Victoria, Australia (group). This strategy or approach is about the scientist/community practitioner or action researcher having a systemic understanding while acting locally to improve community wellness; or what is often referred to in community psychology as ‘micro-level and macro-level’ of inquiry, intervention and analysis (Dokecki, 1992). Community members also need to be aware of ‘systemic’ health issues in order to be empowered to action, although this understanding does not need to be as ‘systematic’ as that of the action researcher or of government.

This research aligns with action research in a number of ways. Firstly, action research pursues “action (or change) and research (or understanding) at the same time” (Dick, 1999b, p. 1). Secondly, action research is a participatory approach often used by activists who wish to engage clients as co-researchers; and that allows simultaneous change and understanding between researcher and research participants (Dick, 1999b). Thirdly, action research is also more critically reflective than practice and is a useful way of doing research for practitioners wishing to improve understanding of their practice (Dick, 1999b). These and other action research characteristics apply to the present research design.

Although this research involves quantitative and qualitative methods, which are respectively associated with positivist and interpretive research paradigms; this thesis aligns with a praxis research paradigm, which according to O’Brien is epistemologically closer to action research than either a positivist or an interpretive research paradigm (1998). Praxis can be basically defined as reflection and action upon reality in order to transform it (Freire, 1993). The praxis reality (the reality that could ideally be transformed) in this thesis is the problem of chronic disease and the paternalistic, reactive and disempowering public health system, as shown previously in Figure 2. Praxis is discussed further in various parts of this thesis.

In the present context, action research is further defined as a method that combines research with community based or community development practice. As a form of research, questions about scientific inquiry, ethics, procedure, rigour, observation, reflection, documentation and dissemination therefore come into play to a greater extent than what might be expected in community development practice alone. Similarly, questions about community involvement, empowerment, emancipation, praxis and the broader benefits for participants and community may come into play to a greater extent than what might be expected in research alone. The action research method is discussed further in the methods chapter.

1.4 Thesis Structure

This final part of the introduction will assist the reader to understand the structure and purpose of the major parts of the written thesis. This thesis consists of four major parts and seven chapters as outlined in Box 1.

Box 1. Four major parts of the thesis

Part One: Introduction and Literature Review Chapter 1: Introduction to Community Centred Health Promotion and Prevention Chapter 2: Review of Selected Health Literature and Policy	**Part Two: Theories and Methods** Chapter 3: Theoretical Discussion Chapter 4: Methodology
Part Three: Research Findings Chapter 5: Results of Stage One: Community Health Evidence Base Chapter 6: Results of Stage Two and Three: Community Health Information Collaboration and Evaluation	**Part Four: General Conclusions, Recommendations and Closing Comments** Chapter 7: Conclusions, Recommendations and Closing Comments

This introductory chapter provided a synopsis of the research problem to be investigated and the aims, theories and methods that drive the research. Table 1 shows the structure and purpose of Chapter Two. This chapter is divided into an introductory section (2.1), six substantial reviews on themes of relevance to this research (2.2-2.7) and each with further sub-themes (see middle column), and a summary (2.8).

Table 1

Structure and Purpose of the Literature Review in Chapter Two

Section/Theme	**Sub-theme**	**Description/Purpose**
2.1 Overview of Literature Review		Brief overview/introduction to the literature review
2.2 History and Meaning of Public Health and Health Promotion	2.2.1 Public health and health promotion	Reviews historical and present issues and debates of the two major fields implicated in this research. Outlines definitions and principles of public health and health promotion
	2.2.2 History of health promotion discourse	
2.3 The Concept of Evidence in Public Health and Health Promotion	2.3.1 Evidence based health promotion	Reviews and explores the origins and meaning of evidence in public health and health promotion and highlights the important role of evidence for decision making.
	2.3.2 Evidence for decision making	
2.4 An Integrated Model of Evidence for Public Health and Health Promotion	2.4.1 Theme: Determinants of health	Selectively reviews three key themes (determinants, inequalities and community health status) that appear in the literature and proposes new understanding of evidence through the development of a model that can be used to guide the collection of evidence.
	2.4.2 Theme 2: Community health status	
	2.4.3 Theme 3: Health differences: Disparities, inequalities and inequities	
2.5 Review of Community Based Health Intervention Literature	2.5.1 Community based health interventions	Outlines principles in CBHIs, explores various models and demonstrates importance of empowerment and evaluation which are relevant to understanding the second and third stage of this research, respectively
	2.5.2 Community empowerment in health	
	2.5.3 Models of community based health promotion	
	2.5.4 Evaluation of community health interventions	
2.6 Community Empowerment in Health	2.6.1 Empowerment definitions and debates	
	2.6.2 Models of empowerment	
2.7 Health in an Australian Context	2.7.1 Australian government initiatives	Acknowledges various government system wide policies/initiatives that contribute to health improvement and disease prevention.
	2.7.2 Victorian government initiatives	
2.8 Looking Back and Looking Forward to a New Approach	Provides a summary of some of the key topics covered in the literature review and an introduction to the Community Centred Health Promotion and Prevention research design.	

As shown next in Table 2, the theoretical chapter is divided into five themes. The main purpose of this chapter is to disclose and discuss the underlying theories and assumptions guiding the thesis and to contribute new theoretical insights. Following the Theoretical Discussion is the Methodology chapter, which consists of a discussion on the action research and mixed methods approach and an explanation of the three main methods and stages employed in the research (CHEB, CHIC, and evaluation). The CHEB research stage is a sizable part of the thesis and forms the first results chapter while the results and reflections arising from the CHIC program and evaluation are presented in the second results chapter. Further discussion and conclusions about the research as a whole can be found in the final chapter.

Table 2

Structure and Purpose of the Theoretical Discussion in Chapter Three

Theme	**Description/Purpose**
3.1 Introduction to the Theoretical Discussion	Introduces key assumptions and concepts used in the chapter, including epistemology, ontology, paradigm and theoretical conceptual framework.
3.2 Idealism and The Wellness Eidos	A short verse that presents (in somewhat abstract philosophical terms) a health system problem and the ideal and encapsulates the broad essence/essential elements of the thesis. Associated with Plato’s philosophy and theory of ideals or forms, which is also discussed.
3.3 Wholism and Ecology	Discusses the various holisms and ecological theories that guide the present research. The systems theory of David Bohm is introduced.
3.4 Communitarianism, Praxis and Community Governance	Discusses and defines theses concepts in relation to the present thesis with especial reference to the thought of Paulo Freire and Ignacio Martín-Baró.
3.5 Theoretical Framework	A model for the Community Governance of Health Promotion and Prevention. A theory/ diagrammatic map of the research that connects the research methods with hypothesised/idealised pathways, impact and outcomes is illustrated and developed in this section.

Chapter 2: Review of Selected Health Literature and Policy

2.1 Overview of Literature Review

The topic of health has a vast multi-disciplinary body of literature associated with it. In addition, there are numerous health policies which impact on the health of Australians including those developed at the global level by the World Health Organisation and locally in Australia at the national and state levels. Due to the enormity of the topic of health, the present review is selective rather than comprehensive. The literature review is divided into six parts, which includes this introductory section, four broad parts or themes as listed following (2.2-2.7) and a summary section (2.8).

- History and Meaning of Public Health and Health Promotion (2.2)
- The Concept of Evidence in Public Health and Health Promotion (2.3)
- An Integrated Model of Evidence for Public Health and Health Promotion (2.4)
- Review of Community Based Health Intervention Literature (2.5)
- Community Empowerment in Health (2.6)
- Health in an Australian Context (2.7)
- Looking Back and Looking Forward to a New Approach (2.8)

The four main themes (2.2-2.7) were selected after preliminary reading of the literature in the early stages of this Doctoral period because they encompass many of the topics in the health literature and because they are of relevance to the health promotion and prevention of chronic diseases and conditions focus of this research. Each of the main parts consists of one or more sections/subsections.

2.2 History and Meaning of Public Health and Health Promotion

2.2.1 Public health and health promotion. The field of public health and the associated field of health promotion are reviewed in this section in order to situate the present research in these broad fields of study. Some authors view public health and health promotion as more or less the same, with others making a clear distinction, or criticising the former as being too bio-medically oriented and not incorporating the social determinants of health. Various texts are reviewed in this section to explicate the meanings of these terms, highlight the surrounding debates and draw attention to the principles of public health and health promotion with which this thesis aligns.

One of the essential differences between public health and health promotion is that the latter is of more recent origin than the former. According to Lawson and Bauman (2001) ancient Chinese, Egyptian, Greek and Roman were aware of public health issues, including the association between health, health status and the need for good water and food. The modern health movement began in Germany and France in the 1700s, with an emphasis on ‘health promotion’ emerging in the early 1970s as a response to increases in chronic diseases such as cancer, ischaemic heart disease and stroke (Lawson & Bauman, 2001).

Naidoo and Wills (2005) have stated that public health and health promotion have very different origins and antecedents but are seen as being complementary and overlapping areas of practice in the modern world. With its roots in medicine, public health is often the “senior partner” or the “umbrella term” encompassing health promotion (p.viii). However, health promotion has also had a unique influence on public health through principles of community involvement and empowerment, working across boundaries and in partnerships, and through its emphasis on the structural causes of health inequalities (Naidoo & Wills, 2005).

The following comprehensive definition of public health developed by Winslow, a professor of public health at Yale University in the 1920s, had a strong impact on directions, debates and conflicts among professionals in public health (O'Connor-Fleming & Parker, 2001).

> … the science and art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social

> machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health (Winslow, 1920, p. 3).

According to O'Connor-Fleming & Parker (2001) and articulated earlier by Ashton and Seymour, (1988) public health work in Europe and North America since the 18th century has consisted of three phases. The first phase referred to as “Public health and environmental change” (O'Connor-Fleming & Parker, 2001, p. 12) began in response to high mortality and morbidity rates among people living in poverty in industrialised cities in Northern Europe following the Industrial Revolution. This movement focused on improvements in housing, sanitation, safe water and food supplies and lasted until the 1870s (O'Connor-Fleming & Parker, 2001). The second phase referred to by the authors as “Individualism and State Involvement” (p. 12) was more individualistic and was influenced by germ theory and advances in immunisation and vaccination. This phase was also characterised by greater state involvement in and provision of medical and welfare services. The third phase referred to as the “Therapeutic Era” (p. 12) dates from the 1930s onwards but became increasingly challenged in and leading up to the 1970s. O'Connor-Fleming and Parker noted that this era was characterised by greater hospital based services and a scientific approach that focussed on individual pathology and therapies. They also claimed that the approach was a biomedical reductionism that gave little thought to the broader impact on health such as social problems, working conditions or poverty.

Another account of the evolution of public health has been offered by Awofeso (2004). Awofeso described six approaches to public heath practice beginning in ancient times to the contemporary “new public health” era as summarized below.

- Health protection, mediated though societies’ social structures - (antiquity–1830s)
- Miasma control - the sanitary movement - (1840s–1870s)
- Contagion control - (1880s–1930s)
- Preventive medicine - (1940s–1960s)
- Primary health care - (1970s–1980s)

- Health promotion - the “new public health” (1990s–present)

A statement of purpose and a set of core functions associated with Public health in Australia appear in the following text (National Health Care Partnership (NHCP), 2000). These were developed following surveys with public health practitioners and leaders and were endorsed by the Australian Health Ministers Advisory Council in 2000 (NHCP, 2000).

> **The Purpose of Public Health**
>
> The art and science of public health practice in Australia today seeks to improve health and well-being through approaches that focus on whole populations. Priorities are to reduce disparities in health status between social groups and to influence the underlying social, economic, physical and biological determinants. Public health practice informs and empowers individuals and communities, and creates healthy environments through the use of evidence-based strategies, best practice and quality improvement approaches, and effective governance and accountability mechanisms.
>
> **Core Functions**
>
> 1. Assess, analyse and communicate population health needs and community expectations
> 2. Prevent and control communicable and non-communicable diseases and injuries through risk factor reduction, education, screening, immunisation and other interventions
> 3. Promote and support healthy lifestyles and behaviours through action with individuals, families, communities and wider society
> 4. Promote, develop and support healthy public policy, including legislation, regulation and fiscal measures
> 5. Plan, fund, manage and evaluate health gain and capacity building programmes designed to achieve measurable improvements in health status, and to strengthen skills, competencies, systems and infrastructure
> 6. Strengthen communities and build social capital through consultation, participation and empowerment
> 7. Promote, develop, support and initiate actions which ensure safe and healthy environments

> 8. Promote, develop and support healthy growth and development throughout all life stages
> 9. Promote, develop and support actions to improve the health status of Aboriginal and Torres Strait Islander people and other vulnerable groups (NHCP, 2000, p. 3)

The statement of purpose and core functions is a relatively recent accomplishment in the history of public health and health promotion and therefore reflects many of the principles arising from the health promotion movement. This includes a holistic approach to health, concern for disparities, vulnerable groups and community empowerment and various other pertinent issues. These will be better understood following a review of the history of health promotion discourse in the next section.

2.2.2 History of health promotion discourse.

Multiple histories combine to form the present time

The opening verse above acknowledges that many actors, organisations and disciplines have contributed to the health promotion movement. In this section a broad account of the events shaping the history of health promotion is provided. Focus is placed on the work of Dr Thomas McKweown, a professor of social medicine; the 1974 Lalonde report; and an important series of conferences organised by the World Health Organization.

McKeown’s historical approach involved reviewing the medical evidence on disease and mortality in England and Wales in the eighteenth and nineteenth centuries. In a series of articles beginning in 1955 and continuing to the late 1970s, McKeown argued that population growth and decreases in mortality were not due to medical interventions but to environmental improvements, health related behaviours, nutrition and better economic and social conditions (McKeown, 1979; McKeown & Brown, 1955; McKeown, Brown, & Record, 1972; McKeown & Record, 1962). McKeown (1973) stated that the major contributions to the improvement of health in England and Wales were due to smaller family sizes (a behavioural change), increase in food supplies and a healthier physical environment (environmental influences) and specific preventive and therapeutic measures (cited in Lalonde, 1974).

McKeown’s ideas have sparked much controversy and criticism over the years (Colgrove, 2002; E. Grundy, 2005). Nonetheless, he has also been credited for developing and popularising the “notion of determinants of health” (Glouberman & Millar, 2003, p. 1) and leading to “a broader understanding of the factors outside of biomedical science and medical care” (Millar, 2002, p. 1).

It has been noted that “health promotion was first articulated by Hubert Laframboise in the widely circulated Lalonde report of 1974” (Glouberman & Millar, 2003, p. 1). The Lalonde report has been described as an “epochal report (drafted mainly by two career civil servants, Hubert Laframboise and D. D. Gellman, under the direction of Marc Lalonde, the then Minister for National Health and Welfare), … [that] has shaped public health policy in Canada and many other countries” (eNotes.com LLC, 2006). The first chapter of the Lalonde report consists of a discussion on how the traditional view of the “health field” is associated with the popular belief that the “level of health” is equal to the “quality of medicine” (Lalonde, 1974, p. 11). Coupled with this is the belief that public health and individual care is the responsibility of the “public health physician, the medical practitioner, the nurse and the acute treatment hospital” (Lalonde, 1974, p. 11). In the second chapter, the limitations of the traditional view are demonstrated by reference to the historical approach (advanced particularly by Dr Thomas McKeown); and by means of analysing statistics on illness and death.

The Lalonde report included an analysis of statistics on the health of Canadians including mortality (causes and years lost), hospital morbidity, and various self imposed and environmental risks. According to the report:

> When the full impact of environmental and lifestyle has been assessed, … there can be no doubt that the traditional view of equating the level of health in Canada with the availability of physicians and hospitals is inadequate. Marvellous though health care services are in Canada in comparison with many other countries, there is little doubt that future improvements in the level of health of Canadians lie mainly in improving the

> environment, moderating self imposed risks and adding to our knowledge of human biology (Lalonde, 1974, p. 18).

The Lalonde report included a conceptual framework known as the Health Field Concept consisting of the elements of human biology, environment, lifestyle and health care organization. It further outlined five major strategies and 74 proposals that were to be undertaken by the Canadian government. Although the report cannot be reviewed in much more detail here, chapter nine on the topic of science versus health promotion is especially relevant to the present thesis because it specifies areas for action and fuels the evidence debate. The authors criticized the scientific method as too “uncertain” and argued that action on Canada’s health problems needed to be taken even if complete scientific evidence was not available. The debate around the meaning of evidence and evidence-based practice is discussed further in section 2.3 of this thesis (The Concept of Evidence in Public Health and Health Promotion).

The World Health Organization has advanced many prominent ideas and principles of health promotion through various documents on health promotion and a string of international health conferences beginning in the late 1970s. These conferences furthered the principles of social ecology, equity and public involvement espoused in the 1946 WHO Constitution and included the first international conference on primary health care, Alma Ata, Russia, September, 1978 and the first to the sixth WHO global health promotion conferences held from 1986 (in Ottawa, Canada) to 2009 (in Nairobi, Kenya).

The need for urgent action by all governments, health and development workers, and the world community, to protect and promote the health of all people of the world (WHO, 1978) is expressed in the opening paragraph of the Declaration of Alma Ata. The principles of the 1946 WHO constitution are reaffirmed and expanded on in the Declaration. This includes the need for a holistic vision of health to be carried forward by social and economic sectors in addition to the health sector, equality between and within countries and the right of individuals and communities to participate in health planning and implementation. In addition, the Declaration had a stronger emphasis on government responsibility for health. This included the call for the provision of adequate health and social measures, the formulation of national policies, strategies and plans of action to support primary health care and the attainment by all peoples of the world by the year 2000 of an acceptable level of health through fuller and better use of resources (e.g., less spending on armaments/military).

The first international conference on health promotion was held in Ottawa, Canada in 1986. This built on the progress of the Alma Ata conference and resulted in a charter for action to achieve health for all by the year 2000 (WHO, 1986). According to the definition offered in the charter:

> Health promotion is the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well-being (WHO, 1986, p. 1).

Several prerequisites for health were recognised in the charter as the fundamental conditions and resources for health. These were: peace, shelter, education, food, income, a stable eco-system, sustainable resources and social justice and equity (WHO, 1986). Five health promotion actions were also advanced in the charter:

- Build Healthy Public Policy
- Create Supportive Environments
- Strengthen Community Action
- Develop Personal Skills
- Re-Orient Health Services

The second international conference on health promotion was held in Adelaide, Australia in 1988 culminated in the: Adelaide recommendations on health public policy

(WHO, 1988). Previous WHO principles and recommended actions around the key topics of healthy public policy (which acknowledges the value of health and ensures equity, access and development) and accountability for health (which moves beyond health care and seeks partners in the policy process) were acknowledged in this document.

Several areas for immediate action were identified at the Adelaide conference, including: supporting the health of women; food and nutrition; tobacco and alcohol; creating supportive environments; developing new health alliances and commitment to global public health. The first of these recognised women as primary health promoters all over the world as well as the need for participation, equity and access to information networks and funds for women. The right to self-determination in health, especially for women of ethnic, indigenous and minority groups and the right of women to be partners in the formulation of healthy and culturally relevant policy was emphasised. A shift in perspective from the basic needs and services called for in the Ottawa charter to a more specific and affirmative focus on the rights of women and minorities is evident.

The third international conference on health promotion was held in Sundsvall, Sweden in 1991 (WHO, 1991, pp. 2-3). This conference drew strongly on the theme of Supportive Environments for Health, which originated from the WHO Health for All strategy and the previous health promotion conferences. The Sundsvall statement named four aspects of supportive environments. These were the social, political and economic dimensions and the “need to recognize and use women's skills and knowledge in all sectors – including policy-making, and the economy” (pp. 2-3). The statement also contained a “call for action” urging the formation of broad alliances towards the goal of “Health for All” and to addressing poverty and inequities and a widening gap in health both “within” and “between” countries (p. 1). Two further themes outlined in the statement were a global perspective recognising the inter-relationships between people and their health with the earth and total environment and the need for global accountability. Valuing women, addressing inequities between groups and environmental and global influences on health were strong themes at this conference. Of particular relevance to the present research, there was also strong recognition of the importance of community based organisations, led especially by women, community participation, education and empowerment and community action.

The “Third European Conference of Effectiveness: Quality Assessment in Health Promotion and Health Education, held in Turin in September 1996” (Davies & Macdonald, 1998, p. Preface) was also influential in the history of health promotion. Some of the concerns raised at the conference included the need for health promotion to justify itself in the face of scarce resources and to ensure quality and effectiveness, with the event impacting on the future direction of quality improvement and evidence based practice internationally (Davies & Macdonald, 1998). Interestingly, the notion of ‘evidence’ which was not mentioned in the Ottawa charter, Sundsvall statement or Adelaide recommendations, seems to have taken centre stage at the next two conferences possibly as a result of such discourses on evidence as expressed at this European conference.

The fourth international conference on health promotion was held in Jakarta, Indonesia in 1997. The ensuing Jakarta Declaration on Health Promotion into the 21st Century consisted of the prerequisites of health previously named in the Ottawa charter. Several additional items were also added which included social security, social relations, empowerment of women, social justice and the recognition that poverty is the greatest threat to health (WHO, 1997). These prerequisites were also referred to as ‘determinants’ of health which coincides with the increasing interest in determinants historically (see section 2.3.2 of this thesis for a detailed discussion on determinants of health). The concepts of determinants and evidence are taken up again in later parts of this thesis and form a significant part of the first stage of the research.

As shown following passage, the increasing interest in ‘evidence’ in the field of health promotion was also reflected in the declaration.

> There is now clear evidence that:

- Comprehensive approaches to health development are the most effective. Those which use combinations of the five strategies [see review of Ottawa charter above] are more effective than single track approaches
- Settings offer practical opportunities for the implementation of comprehensive strategies. These include mega-cities, islands, cities, municipalities, and local communities, their markets, schools, workplace, and health care facilities
- Participation is essential to sustain efforts. People have to be at the centre of health promotion action and decision-making processes for it to be effective
- Health learning fosters participation. Access to education and information is essential to achieving effective participation and the empowerment of people and communities (WHO, 1997, p. 4).

The last two points of the declaration are integral to the second stage of the present research and to this research as a whole. For example, the phrase *community centred health promotion* in the title of this thesis similarly means that people have to be at the centre of health promotion action and decision-making processes for it to be effective. Moreover, the second stage of the research with community members similarly assumes that health learning, education, information, empowerment and effective participation are inextricably linked. These links will be discussed further in the theoretical chapter of this thesis.

In the year following the Jakarta conference, the *World Health Assembly Resolution on Health Promotion* (WHO, 1998) furthered the new emphasis on evidence (see item 6) when it confirmed that the priorities set out in the Jakarta Declaration were to:

- Promote social responsibility for health
- Increase investments for health development
- Consolidate and expand partnerships for health
- Increase community capacity and empower the individual in matters of health
- Strengthen consideration of health requirements and promotion in all policies
- Adopt an evidence-based approach to health promotion policy and practice, using the full range of quantitative and qualitative methodologies (WHO, 1998, p. 2).

In comparing again, the fourth point on community capacity and empowerment and last of point on evidence are particular themes of interest in the present research design.

The fifth international conference on health promotion, Health Promotion: Bridging the Equity Gap was held in Mexico City, Mexico, in the year 2000. This conference consisted of a five day technical programme and a two day ministerial programme (WHO, 2000). The technical programme was structured around the six themes introduced in the Jakarta Declaration and confirmed in the World Health Assembly Resolution. These themes were discussed in the previous paragraph and will not be discussed in detail again here. However, it is important to note that one of these themes – "Evidence Base for Health Promotion" was "a source of considerable debate throughout the conference" (WHO, 2000, p. 8). According to the report, many participants felt that traditional scientific/medical definitions of evidence were too limiting and that appropriate measures and indicators on the determinants of health were required. Coinciding with this uncertainty about the concept of evidence, only one paper on the topic was presented. The paper: *Strengthening the Evidence Base for Health Promotion* (McQueen, 2001) is discussed in section 2.3 (The Concept of Evidence in Public Health and Health Promotion) of this thesis.

The sixth international conference on health promotion was held in Bangkok Thailand, in 2005. A major outcome of the conference was the Bangkok Charter for Health Promotion in a Globalized World (WHO, 2005a). The Charter identified strategies, commitments and pledges "required to address the determinants of health in a globalized world through health promotion" and affirmed that "policies and partnerships to empower communities, and to improve health and health equality, should be at the centre of global and national development" (WHO, 2005a, p. 1).

The seventh and most recent international conference on health promotion was held in Nairobi, Kenya in October 2009. The conference was organised and conducted around the five tracks of community empowerment, health literacy and health behaviour, strengthening health systems, partnerships and intersectoral action and building capacity for health promotion. The first two tracks are of most relevance to this thesis and are briefly described here.

- Track 1: Community empowerment - Community empowerment refers to the process of enabling communities to increase their assets and attributes and build capacities to gain access, partners, networks and/or a voice, in order to gain control over their lives (WHO, 2009a).

- Track 2: Health literacy and health behaviour - Health literacy is critical to empowerment and has been defined as the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health (WHO, 2009b).

The WHO conferences have raised attention to a number of important principles and issues in health promotion. Some of these principles and issues have been built into this thesis, including attention to evidence, determinants of health, health equality/equity, collaboration, health literacy, education and information, empowerment of communities and a holistic/ecological perspective. This section therefore serves as a rationale for the present research and demonstrates that sound health promotion principles have been employed in this research. The relationships between these principles will become clearer in other parts of the literature review and in the theoretical, results and discussion chapters.

2.3 The Concept of Evidence in Public Health and Health Promotion

This section provides a review of concepts, models and measures related to the two essential areas of relevance in the first stage of this research - evidence based health promotion and determinants, inequalities and community health status. It may be recalled that the first stage is a quantitative stage concerned with developing a Community Health Evidence Base and that the primary research question guiding the first stage was: What is the current evidence/knowledge about health status, determinants and inequalities in Victorian communities and the broader Victorian and

Australian context? Even so, the concept of evidence, as will be shown in this review, is also applicable to qualitative community based research and health promotion activities, and in particular, in the evaluation of such activities.

2.3.1 Evidence based health promotion. Public health and health promotion researchers and practitioners often discuss and debate the concept of evidence based health practice. Evidence based health practice has its origins in evidence based medicine and can be traced back to mid 19th century Paris (Tones & Green, 2004). Evidence based medicine is rooted in five linked ideas according to Davidoff, Haynes, Sackett and Smith (1995):

1. Clinical decisions should be based on the best available evidence
2. The clinical problem, rather than habits or protocols, should determine the type of evidence to be sought
3. Identifying the best evidence means using epidemiological and biostatistical ways of thinking
4. Conclusions derived from identifying and critically appraising evidence are useful only if put into action in managing patients or making health care decisions
5. Performance should be constantly evaluated (Davidoff et al., 1995).

Professor Archie Cochrane, a Scottish epidemiologist, has been a leading figure in the evidence-based practice movement as advanced in his book - *Effectiveness and Efficiency: Random Reflections on Health Services* (Cochrane, 1972). According to the Royal Society of Medicine (2006), Cochrane was the first person to clearly set out the importance of randomised controlled trials (RCTs) in assessing the effectiveness of treatments. Cochrane’s work also lead to the development of an international organisation committed to tracking down, evaluating and synthesising RCTs in all areas of medicine known as the Cochrane Collaboration. Currently, the Cochrane Collaboration consists of a library of reliable evidence in health care including a database of systematic reviews of healthcare interventions. Cochrane reviews explore the evidence for and against the effectiveness and appropriateness of particular treatments such as medications, surgery or education and are designed to assist doctors, patients, policy makers and others in their decisions (The Cochrane Collaboration, 2009).

Literature on the topic of evidence based health reveals that it is a debated and controversial topic, particularly in the area of health promotion. With its origins in medicine, the notion of evidence-based health lends itself more easily to bio-medical or clinical approaches and can have different meanings to public health and health promotion practitioners. One of the reasons for this might be because real world community based research and health promotion cannot be controlled in the same way as experimental or medical research conducted in a laboratory. Harvey Fineberg from Harvard University's School of Public Health, made some informative distinctions between medicine and public health (cited in Partners in Information Access for the Health Workforce, 2006). These included that public health differed to medicine in its primary focus on populations rather than individuals; and in its emphasis on prevention, health promotion and the whole community rather than on diagnosis, treatment and the whole patient (Partners in Information Access for the Health Workforce, 2006).

Health evidence at a basic level is about what works to improve health and prevent disease, yet the differences highlighted above suggest that the nature of evidence in medicine is not the same as evidence in public health and health promotion. Jenicek (1997) explained that while public health has always been more evidence based than other health sciences, one of the greatest challenges of the evidence based approach is in the domain of health promotion. The latter's broad emphasis on enabling individuals and communities to increase control over the determinants of health is undoubtedly much more difficult to measure than a single disease or health problem (Jenicek, 1997).

In an early discussion paper on this debate, Speller, Learmonth and Harrison (1997) pointed out that although a sound evidence base to promote health was urgently required, efforts were unlikely to succeed for three reasons. These were: one, "lack of consensus about the nature of health promotion activity, two, lack of agreement over what evidence to use to assess effectiveness and three, divergent views on appropriate methods for reviewing effectiveness" (p. 361). They noted that health promotion methods can include "awareness raising campaigns, provision of health information and advice, influencing social policy, lobbying for change, professional training, and community development – often in combination in complex interventions. However, health promotion is rarely judged on its effectiveness in all these areas" (p. 361). Some of the issues noted were the need for qualitative research methods and process evaluation, the importance of looking beyond individual behaviour change and immediate change and the difficulty of assessing an intervention among a range of other socioeconomic and cultural factors (Speller et al., 1997). Similar issues need to be considered in the present context when evaluating the second stage of the research with community members.

Green and Tones (J. M. Green & Tones, 1999) suggest that the debate around evidence relates to the question of "what is systematic health promotion research and what constitutes evidence" and the historical tradition toward positivist, bio-medical research (p. 133). They raise the issue of type one and type two error. The first type is related to claiming change for an intervention even though classical experimental control of variables is not possible in health promotion work. The second type is related to failing to identify change because of the inadequacy of the measure. Green and Tones solution is a 'judicial' approach through evaluation of multiple proximal (near in time to the change) and distal (far in time to the change) indicators of success and effectiveness. This approach reflects the multidimensional nature of health promotion and a holistic view of health (J. M. Green & Tones, 1999). Proximal and distal determinants are discussed further in the determinants of health section of this thesis.

Nutbeam (1999) argued that there was a real difficulty in applying evidence based principles such as those of the Cochrane Collaboration to health promotion. He recommends that three main issues should be considered in developing evidence of effectiveness in health promotion. The first is clarity about the meaning of 'effectiveness' and aims to achieve 'best practice' in health promotion. Nutbeam identifies immediate measures of effectiveness (short term changes) as those that include changes in individual skills and knowledge or lead to social action and changes in social norms following educational or community mobilization/development interventions. Other short term changes include changes in policy or organizational practices (Nutbeam, 1999). Longer term changes in the determinants of health can flow from shorter term ones and include change in individual health behaviours and socio-economic and environmental conditions (Nutbeam, 1999). These short and long term changes coincide with Green and Tones (1999) approach to evaluating multiple proximal and distal indicators of success and effectiveness.

The second consideration proposed by Nutbeam (1999) is that the intervention has a reasonable chance of success and incorporates the following needs:

- Plan on the basis of an analysis of epidemiological, behavioural and social research on interventions and changes in determinants of health and health outcomes
- Develop intervention programmes that are informed by a relevant and established theory
- Create the necessary conditions for successful implementation of a programme. (e.g., ensuring public and political awareness of the issue and the need for action; developing capacity for programme delivery, through training of health personnel; and securing resources for implementation and sustainability of a programme)
- Ensure that the intervention programme is of sufficient size, duration and sophistication to be detectable above the ‘background noise’ of more general changes in society (multiple intervention methods are more likely to be successful than relying on single methods).

The third requirement is that the intervention guides the research method and not vice versa (Nutbeam, 1999). Nutbeam pointed out some of the shortcomings of systematic reviews and randomized control trials and sees ‘evaluation’ as the way to establish evidence of effectiveness in health promotion. He also states that the most compelling evidence of effectiveness comes from studies that use both quantitative and qualitative research.

The core of the evidence debate according to Tilford (2000) has been around two main issues: “the kinds of evidence to be sought in establishing the effectiveness of health promotion and the appropriate methodologies for use in developing such evidence” (p. 1). The dissemination and implementation of evidence by decision makers are also frequently discussed. Methodological debates involve arguing for and against positivist and interpretivist approaches to knowledge; and more recently strong defence of the former, or rejection of the former and support for alternative approaches such as interpretivist, constructivist or critical (Tilford, 2000). Some of the developments arising from this debate have included recognition of the need for triangulation and acknowledgment that the measurement of empowerment, community participation and development of healthy alliances, is more complex than measuring changes in health knowledge and health behaviours (Tilford, 2000).

The evidence debate consists of a range of opinions from those who believe that “health promotion will fall or rise based on its ability to demonstrate in a scientific way that it is an effective field” to those who believe that the very word evidence is inappropriate to the field of health promotion (McQueen, 2001, p. 261). McQueen explains that the notion of evidence is a western idea, tied up with logical positivism and the idea that meaning can only ascertained via rigorous observation and experiment. However, even anthropological or sociological approaches, are not free of western biases and interpretations of evidence and alternatives from developing countries are still not readily accessible (McQueen, 2001). Such issues were strongly debated at the fore mentioned Mexico conference.

According to McMurty (2002) there are two components of the evidence base that are critical for health promotion efforts. These are:

- evidence that characterises the linkages between the determinants of health and health status
- evidence about the effectiveness of interventions (McMurty, 2002).

McMurty is more supportive of the second type of evidence claiming that reasonable success of the first has been achieved whereas developing evidence of effectiveness has been difficult. However, it could be argued that both types of evidence are relatively weak at present. In Australia for example, governments have tended to invest in the measurement of "disease rather than determinants and inequities" (Keleher & Murphy, 2004, p. 101). Information about *which* diseases are the most prevalent is essential but represents only a fragment of the whole picture without information about *how, where and why* these diseases they occur.

McMurty's ideas are of interest in the present research because they assist one to distinguish between different types of evidence. Following from his ideas, a tripartite model that further illustrates two types of evidence in community health interventions has been developed by the present author and is shown in Figure 4.

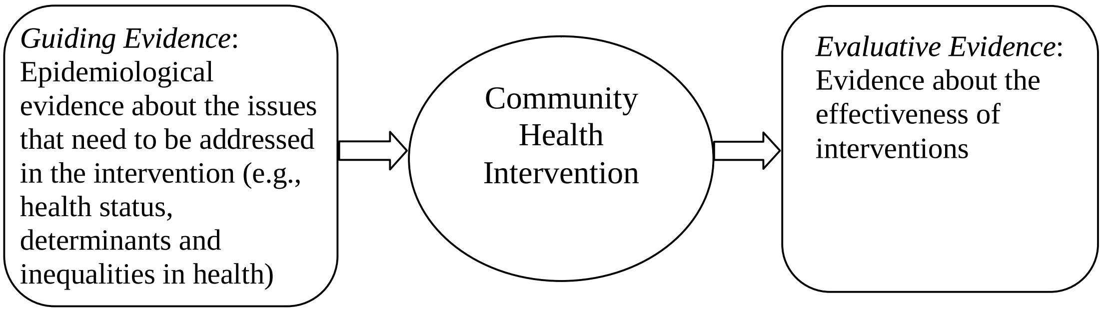

Figure 4. Guiding and evaluative evidence in community health interventions.

The first type of evidence (described as determinants of health and health status by McMurty) in the model can be thought of as *guiding* evidence (left) about the issues that need to be addressed in an intervention while the second type is more *evaluative* (right). In this context, an intervention (shown in the middle part of the model) refers to a community based health promotion intervention but the model is applicable to other forms of health intervention as well. For example, a nutritional therapist might envisage an 'intervention' as the administration of a new diet plan. Although both guiding and evaluative evidence are relevant to the present research, the use of the term evidence in the present work refers to the first type of evidence in the model and coincides with the first quantitative or epidemiological stage of this research. Nevertheless, the second and third stage of the research with community members (whether quantitative or qualitative) can also contribute to evidence about the effectiveness of the health promotion intervention and guide further community based health interventions in a cyclic fashion. This cycle is discussed further in the methodology chapter.

The guiding and evaluative evidence model can be compared with various literatures on evidence based public health/health promotion and three examples of its utility in this respect are offered following. In the first example, Frommer and Rychetnik (2003) draw attention to the intervention and evaluation components of evidence based public health in their model of evidence-based public health. The authors (Frommer & Rychetnik, 2003, p. 59) name eight types of public health interventions as outlined below:

- Policies of governments and non-government organisations
- Laws and regulations
- Organisational development initiatives
- Community development initiatives
- Education of individuals and communities
- Engineering and technical developments
- Service development and delivery
- Communication, including social marketing

There are some similarities between Frommer and Rychetnik's model and the present research design. These include support of community development initiatives and education of individuals and communities as valid public health methods on which to draw evidence. This relates to the second stage of the present research and the intervention (middle) part of the model. There is also a strong focus on evaluation, which concurs with the notion of evaluative evidence. Nonetheless, Frommer and Rychetnik's model does not consist of an epidemiological or guiding evidence component.

Frommer and Rychetnik (2003) also name several steps which lead to the determination of evidence as shown in their diagram which has been replicated in Figure 5. Evidence in this model is the end point of a public health intervention and evaluation.

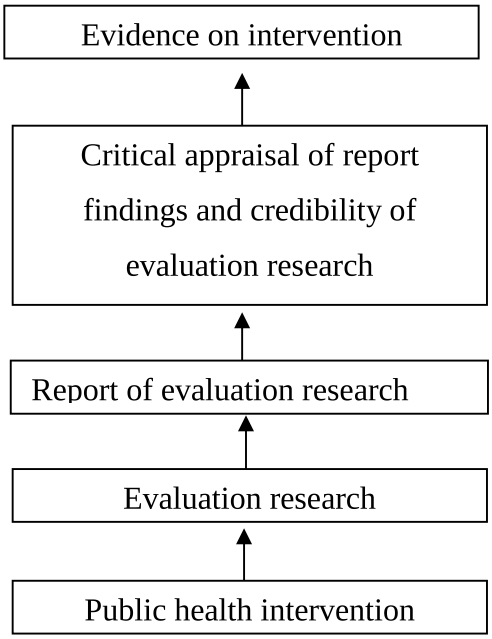

Figure 5. The connection between an intervention and evidence on that intervention.

Reprinted from “From Evidence-Based Medicine to Evidence-Based Public Health”, by Frommer, M., & Rychetnik, L. (2003), in V. Lin & B. Gibson (Eds.), Evidence-based health policy: problems & possibilities (pp. 56-69). Copyright 2003 by Oxford University Press.

Alternatively, Kelleher’s notion of evidence base for population health is closer to the ‘guiding evidence’ of the model presented earlier in Figure 4. According to her: “effective population health is modeled on an evidence base derived from two main sources of data: the measurement of health status and risk factors, such as burden of disease (BoD) studies; and by analysis of the determinants of health” (Keleher, 2004, p. 100). It should also be noted that Keleher implies various types of determinants and not just social determinants.

Raphael’s (2000) ideas on evidence in health promotion can also be compared to the guiding and evaluative evidence model shown in Figure 4. His statement that “health promoters require credible evidence to identify relevant determinants of health, choose activities to promote health, and then evaluate the effectiveness of these chosen activities” (2000, p. 355) is a close fit to the three part model of evidence proposed in this thesis.

2.3.2 Evidence for decision making. Many authors have stressed the value of evidence for decision making in their conceptualizations of evidence based practice. For example, in his discussion of epidemiology, evidenced-based medicine and evidence-based public health, Jenicek (1997) notes that the evidence base approach is essential at the two levels of problem solving and decision making, in all health sciences, including medicine, nursing and public health. Similarly, in the area of evidence based health care, Jadad and Haynes (1998, p. 2) state that “understanding and application of the basic principles of evidence based health care may help decisions makers overcome the barriers that hinder adequate utilization of information as part of health care decisions”.

The value of evidence for decision making is also at the heart of Rychetnik, Hawe, Waters, Barratt and Frommer’s (2004, p. 538) definition of evidence based public health which highlights : “(1) the use of a particular type of evidence to inform public health decisions; and (2) an emphasis on clear reasoning in the process of appraising and interpreting that evidence”. The authors also state that public health evidence is derived from a variety of science and social science research and evaluation methods using an informed, explicit and judicious approach. Seen in this light, the guiding and evaluative evidence described in the model are also different types of evidence that can inform public health decisions if developed with rigour.

According to Lomas (1997) evidence based decision making is a phenomenon of the 1990s brought about by researchers and a culture of accountability and increasing expectation for formal ‘research evidence’ in the decision making of politicians, bureaucrats, clinicians and industry. However, there is a need for researchers and decision makers to better understand each others roles and establish ongoing channels of communication and exchange (Lomas, 1997).

Problematic issues have also been illuminated by Brownson, Gurney and Land (1999) in their article on evidence based decision making in public health. While recognizing the accomplishments of public health during the 20th century such as increased life expectancy due to the provision of “safe water and food, sewage treatment and disposal, tobacco use prevention, injury prevention, [and] control of infectious diseases through immunization" they also stress the need for continuing improvement through evidence based strategies (Brownson et al., 1999, p. 86). They note a distinction between the ideal, that "public health practitioners always incorporate scientific evidence in making management decisions, developing policies and implementing programs" and the reality, where decisions are often based on "anecdotal evidence" (p.87).

Policy is a form of decision making that is often mentioned in the evidence based health literature (Lin, 2004; Lin & Gibson, 2003; Pawson, 2002; Petticrew, Whitehead, Macintyre, Graham, & Egan, 2004). A problem often discussed in this literature is that although evidence can potentially lead to better decision making and policy, there is often a gap that is difficult to bridge. The "know-do" gap between knowledge and policy, research and action, evidence based measures and practice, scientific advances and their application, is recognised around the world and is also often discussed in relation to the broader fields of knowledge management and knowledge translation (WHO, 2005b, p. 1). These fields are related to the concept of evidence as proposed in this thesis but have a greater focus on the best use, maintenance and dissemination of knowledge over time and not just on the development of the evidence base.

Lin (2004) states that the difficulty in transferring research evidence into policy, can be attributed to the different "worlds" [worldviews] of researchers and policy makers and is associated with many other contradictions. Lin names and discusses ten major contradictions that need to be addressed when attempting to bridge public health research and health promotion policy (see Table 3).

The guiding evidence to be developed in the first stage of this thesis aims to bridge some of the gaps and address some of the contradictions between public health research/health promotion policy. For instance, the availability of an easy to understand, credible, and well integrated evidence base may reduce the systematic bias that occurs when policy-makers look for and use data for their evidence based decision-making (see contradiction five in Table 3). Such an evidence base can assist public health sector management to move towards greater accountability, transparency, setting quantifiable objectives/targets and performance monitoring, as described in the fifth point; and provide the foundations for public administration and policy-making, as described in point nine.

Table 3

The Ten Major Contradictions in Public Health Research/Health Promotion Policy

Contradiction	**Summary**
1. Evidence from public health research versus evidence for health promotion policy-making	Data needs to encompass both community and individual levels. Methodological certainty about the causes of ill health and what interventions work should be balanced with knowledge derived from stakeholder consultations.
2. Evidence from fundable public health research versus evidence not gathered for policy-oriented research	"Understanding how social, economic, and cultural environments influence health and well-being is vital to effective health promotion policy" (p. 180). Yet, funding tends to support biomedical and epidemiological research rather than social and qualitative research, resulting in more short-term cross sectional research.
3. Evidence from health promotion programs versus evidence for policy-making	Continuous and longitudinal research and summative evaluation may be more useful to policy makers. However, many health promotion programs are funded on a short term, time limited basis and are often conducted on a small scale, without systemic documentation or evaluation.
4. Responsibility for health promotion programs or healthy public policy	"International discourse on health promotion policy, … accepts that effective health promotion depends on the development of healthy public policy" (p. 181). Yet, at present, health promotion policy is mainly a matter of marginal expenditure for small health programs with responsibility for health promotion policy seldom vested at the highest level of the bureaucracy.
5. Decision-making – evidence-based or a matter of organizational Epistemology	Public sector management places emphasis on accountability, transparency, setting quantifiable objectives and targets and performance monitoring (Boston et al. 1996). While this is conducive to evidence based decision-making, "organizational epistemology" (Dery, 1984) means that systematic bias occurs in the way that policy-making bodies look for and use data.
6. Decision-making and organizational culture – learning organizations vs the "doing" organizations	Health policy making organisations do not necessarily exhibit 'organizational learning', which, is needed for quality improvement and acquired through feedback and making adjustments based on that learning. Rather the need to control the policy agenda, ensure successful implementation of policies within the electoral cycle and "getting things done" (however mundane) are the primary concern of these organizations.
7. Information uncertainty or value uncertainty	Health promotion policy is highly value laden and is not necessarily done on a scientific basis. Research is needed to improve rigour in decision making but its capacity to provide certainty with respect to values is limited.

(Table 3 continues)

(Table 3 continued)

Contradiction	**Summary**
8. Managerialist reforms or improving accountability	Managerialist reforms and evidence based policy can make policy decision-making more transparent and has the potential to improve accountability of the policy-makers. However, complex and eclectic evidence may be improperly understood by most. The challenge is to find ways to make researchers, managers and policy makers accountable.
9. Knowledge management in public administration – positivist or constructivist/interpretive approach	The policy process will entail a fluid movement of ideas emerging and shifting as they are debated across policy networks as well as a constant search for new ideas and approaches, and for new intellectual foundations for public administration and policy-making.
10. Convergence or reclaiming the territory	Similar language used by both researchers and policy makers in recent years appears to suggest a convergence of worldviews between the "two communities" but may instead be a way of reclaiming the territory. Lin discusses in relation to Focault's notion of "government rationality" which holds that power and knowledge are closely connected and that public health was a tool of government in the 18th century. Still, Lin suggests that power is also about mentalities and contributions and goes beyond positions, calling for both researchers and policy makers to reflect on their roles and contributions.

Note. Adapted from "From Public Health Research to Health Promotion Policy: On the 10 Major Contradictions", by V. Lin. (2004). Social and Preventive Medicine. 49(3), 179-184.

In this section, the origin of the evidence based practice movement was traced, the main issues in the evidence debate were highlighted, and the importance of evidence for decision and policy-making was discussed. It was demonstrated that some of the debate revolves around definitions of and methods used to derive evidence; and as demonstrated by Lin (2004), around differences between research and policy imperatives. A new model on guiding and evaluative evidence in community health interventions was also presented. The model provides a useful framework for comparing and clarifying the two the types of evidence commonly discussed in the literature.

Evidence is important to a range of stakeholders and settings, including public health managers and policy makers as well as researchers, practitioners and community members involved in community based health promotion. A core assumption in this thesis is that guiding evidence for health promotion should include evidence on community health status, health determinants and health inequalities. Guiding evidence is important for community-based community-governed collaborations and is an essential ingredient for the targeting of health promotion and disease prevention efforts. Consistent with the famous 16th century quote by Sir Francis Bacon that ‘Knowledge is Power’, such information can educate the community about critical public health issues in their community and empower members with the evidence base for taking action and seeking funding, resources and services aimed at improving community health.

Some of the community based health literature suggests that community members need to identify their own subjective needs and agendas. Although this is a valid perspective, researchers do not enter into research as empty vessels devoid of knowledge and skills. Researchers working from a community development, applied or action research perspective should share knowledge with participants and be educators and change agents as well as inquiring scientists. It could be argued that keeping community members in the dark about the major health problems and issues in their community; and the health issues that are of interest to governments, policy makers and health promotion researchers and practitioners, is the more disempowering. For example, the present public health focus in Australia at the national level is largely on reducing the burden of disease, injury and mortality from potentially preventable and avoidable diseases. As discussed in the introduction, these include the NHPA’s: Arthritis and musculoskeletal conditions, asthma, cancer control, cardiovascular health and stroke, diabetes mellitus; injury prevention and control, mental health and obesity.

The need to address determinants and inequalities in health are also common and important themes recognised by governments, researchers and health professionals in Australia and in many countries around the world. These critical issues cannot be overlooked in community-based work either and is the justification for choosing or ‘posing’ the initial problem of chronic disease for community members to focus on in the present study. Freirean problem-posing contextualizes knowledge and “does not suggest that students have nothing to learn from established knowledge or that fundamental knowledge must be reconstructed by each group of learners” (Boyce, 1996, p. 7). In the next section, a map of the type of guiding evidence that could be collected to provide the basis for community health improvement is provided.

2.4 An Integrated Model of Evidence for Public Health and Health Promotion

In this section, a model of guiding evidence for community health promotion based on determinants, inequalities and community health status is developed[4]. As will be shown in this section, determinants, inequalities and community health status are important themes that appear in the public health and health promotion literature. Even so, there appears to be a gap in knowledge of these constructs in theoretical concert with each other and as statistical concepts. The model shown in Figure 6 was drawn during the planning stages of this thesis to provide integration to these themes, clarify the areas of interest in the present work and guide further in depth review of literature (present chapter).

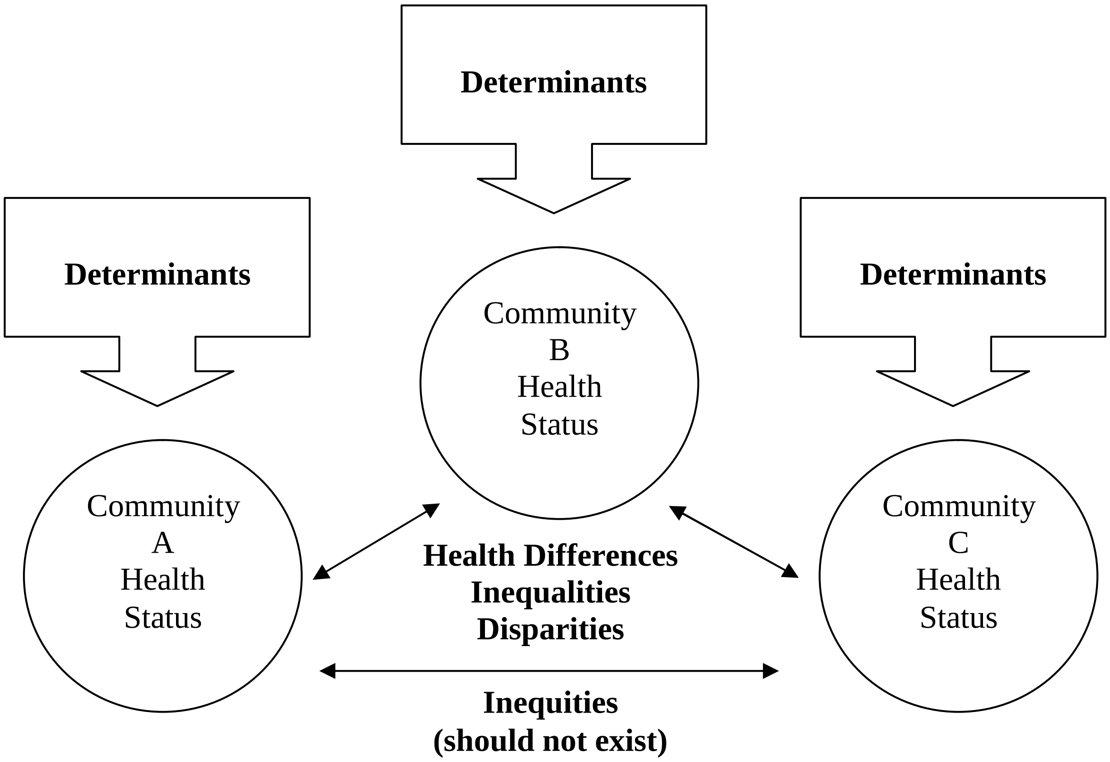

Figure 6. Determinants, inequalities and community health status: A model of guiding evidence for community health promotion.

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[4] This model and selected parts of this chapter also appear in a peer reviewed article presented at the Australian and New Zealand Academy of Management Conference (Totikidis, 2007).

The determinants, inequalities and community health status model also guides the design of the first (quantitative) stage of the research (CHEB) discussed in Chapter 5. The model shows a hypothetical example of three communities (e.g., local government areas). Each community has a health status (represented as circles in the model) that can be known to some degree and is impacted on by various determinants (see block arrows). Determinants and community health status can vary in many complex ways among different individuals, groups and communities, resulting in differences in health (see line arrows). Differences in health can also be referred to as inequalities, disparities and inequities and will be explained further in the section on health differences.

Definitions of the health themes represented in the model and further discussion appear next under the three sub-headings of determinants of health, community health status and health differences.

2.4.1 Theme 1: Determinants of health. Determinants of health can be defined as the “range of personal, social, economic and environmental factors which determine the health status of individuals or populations” (Nutbeam, 1998b, p. 6). Reidpath (2004, p. 9) states that a “determinant of health is a factor or characteristic that brings about a change in health, either for the better or for the worse”. He refers to the often used distinctions of proximal and distal determinants of health (also known as downstream or upstream factors, respectively). A proximal determinant is one that is near to the change in health status in either time or distance, or that is readily observable and directly associated with the change in health status. A distal determinant, on the other hand, is one that is distant either in time or place, or where its association with health is indirect or else difficult to assess because of other intervening factors (Reidpath, 2004).

The terminology of proximal (or downstream) and distal (or upstream) is not discussed in depth in this thesis as it is confusing and problematic and based on causal thinking rather than an ecosocial perspective (Krieger, 2008). However, in this thesis, a proximal determinant might include such factors as feeling empowered or gaining new knowledge and skills regarding healthy behaviours whereas a distal determinant might include the adoption of preventative lifestyles and the actual reduction in chronic disease. Reidpath stated that such distal changes may only be noticeable in the future, for example, when further epidemiological research is conducted. Real world research is indeed affected by intervening factors as suggested by Reidpath. For example, unlike a laboratory experiment where variables are controlled, various health promoting services, programs and policies can operate simultaneously in a community making it impossible to assess the contribution of a single program on longer-term changes in health.

As discussed in section 2.2.2, McKeown appears to have been the first person to use the term ‘determinants of health’ in his 1978-journal article entitled the same. Three articles on determinants and health entitled Psychological Determinants (Hartley, 1961), Sociological Determinants (R. Strauss, 1961) and Cultural Determinants (Mead, 1961) appeared earlier in the 1961 American Journal of Public Health. However, these related to determinants of health beliefs and behaviour rather than to broader levels involving biological, psychological, social and political determinants of health. Mckeown’s work on determinants influenced both the health promotion movement, as first articulated in the 1974 Lalonde report; and the movement to address inequalities (discussed in the following section) which grew out of the work of Fraser Mustard (Glouberman & Millar, 2003). As noted by Flower (1997), Mustard founded the Canadian Institute for Advanced Research (CIAR) in 1982 and the CIAR Program in Population Health in 1987 and inspired and contributed to the 1994 book titled: Why Are Some People Healthy and Others Not? (see Evans, Barer, & Marmor, 1994).

Widespread popularity of the term ‘determinants,’ gained in the late 1980s-1990s, following the Ottawa conference and subsequent international health promotion conferences. The 1986 Ottawa charter identified peace, shelter, education, food, income, a stable eco-system, sustainable resources, social justice, and equity as the prerequisites and fundamental conditions and resources for health. These ‘prerequisites’ were expanded on in the later conferences and were specifically referred to as ‘determinants’ at the 1997 Jakarta conference.

As will be demonstrated in this review, the literature reveals that many lists of determinants have been developed over the years. The literature also shows a number of models which guide research, discussion and action on the determinants of health. These range from social socioeconomic approaches to more holistic models which acknowledge the biological, psychological, social and environmental. This reflects the multidisciplinary effort in the area as well as the multidimensional nature of health. There has also been a historical trend away from approaches at the individual level to those also focussing on the context or environment. As Milsum (1989) reported:

> [The 1974 Lalonde report on the health of Canadians has been judged as] unduly emphasizing a lifestyle risk factor approach, by focussing on each individual accepting self-responsibility for their health attitudes and behaviours. At worst, this results in "blaming the victim", while at best it applies to only the socially advantaged part of the population, which may be largely "converted" already. In contrast, the second … [famous 1986 document "Achieving Health for All"] is seen as focussing on health promoting environments [although this approach may also undervalue some significant factors such as the deep human need for individual meaning according to Milsum]. Both approaches aim to identify the important determinants of health (Milsum, 1989, p. 235).

Evans and Stoddart (1990, 2003) have developed quite a comprehensive model that draws attention to determinants of health related to individual behaviour and biology, social and physical environment and genetic endowment. Shown in Figure 7, their model includes the economic costs of health care and the benefits for well-being and prosperity. Health care is not "free" according to the authors and constitutes the largest single industry or cluster of economic activities in all modern societies. Yet, "health care contributes to human happiness both directly and through the economic benefits of improved productivity and functioning" (Evans & Stoddart, 1990, p. 54). Evans and Stoddart state that the latter relates to an increased capacity of people to work and generate wealth and is therefore often referred to as an 'investment in health'.

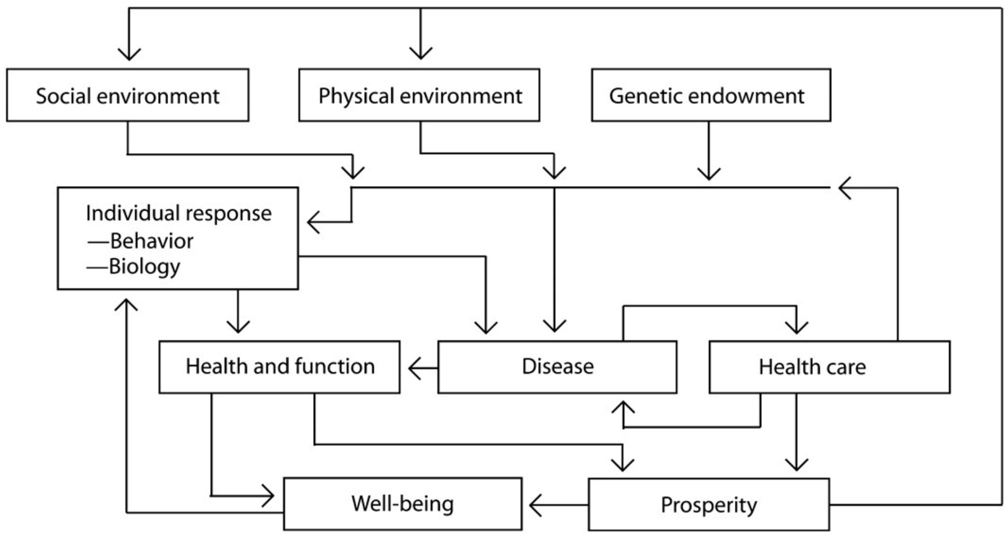

Figure 7. Conceptual framework for patterns of determinants of health.

Reprinted from “Consuming Research, Producing Policy?” by Evans, R., & Stoddart, G. (2003), *American Journal of Public Health*, 93(3), p. 372. Copyright 2001 by the American Public Health Association, Inc,.

Illustrating the complexities involved in health care, Evans and Stoddart also claim that a “society that spends so much on health care that it cannot or will not spend adequately on other health enhancing activities may actually be reducing the health of its population” (Evans & Stoddart, 1990). Although the authors do not say exactly how this is so, some of the avenues by which this might occur are through increased individual and community dependency and powerlessness. Other factors that may reduce the health of the population include lack of government funding for preventative, health promotion and capacity building/community development activities and lack of attention to wider community (e.g., crime, racism) environmental (e.g., pollution, global warming) and international (war, terrorism) issues. Proactive, preventative and participatory interventions are required to enhance the health of the society.

The population health perspective on the determinants of health advanced by Evans and Stoddart (2003) is not without criticism. For instance, Poland, Coburn, Robertson and Eakin (1998) have argued that it oversimplifies the links between wealth and health and that it focuses insufficient attention to justice and environmental sustainability or the social forces producing poverty and inequality. There is concern that:

> … the rhetoric of the determinants of health, framed in terms that health care does not produce population health, provides convenient cover for those who wish to dismantle the welfare state in the name of deficit reduction. Partly because of the absence of an explicit theoretical approach, the findings may be used politically to justify further cutbacks to health care without concomitant reinvestment in or reallocation to other sectors which might produce health such as community supports, local economic development, alternative labour policies, and social welfare programmes (Poland et al., 1998, p. 786).

In an influential study on the socioeconomic determinants of health and inequalities, Wilkinson (1997) explored the question of whether social position (relative to others) or different material circumstances such as bad housing, poor diets, inadequate heating, and air pollution (absolute material standards), was the more important in determining socioeconomic gradients in health. Wilkinson analysed data on the mortality of 300,685 white American men by median family income of zip code areas; life expectancy and gross national product per capita in Organisation for Economic Co-operation Development (OECD) countries; and income inequality and mortality among developed countries. He also invoked the concept of “epidemiological transition [which] represents a stage in economic development after which further improvements in material standards have less influence on health” (p. 593) and diseases of affluence such as coronary heart disease, stroke, hypertension, obesity, and duodenal ulcers become more common among poorer people. The major conclusion arising from the study was that “mortality in developed countries is affected more by relative than absolute living standards” (Richard G Wilkinson, 1997, p. 314). Although such an analysis was not possible in the present work, the analysis of inequalities in mortality by other available demographics such as gender, age and geographic location is one of the aims of the CHEB stage.

In another influential WHO publication known as Social Determinants of Health: The Solid Facts, Wilkinson and Marmot and various other contributors discussed the importance of ten interrelated determinants of health (1998; 2003). According to Tsouros (1998) this publication was part of a WHO campaign that called for decision makers and public health professionals to address the social determinants of health based on the evidence. The campaign aimed to broaden awareness, stimulate debate and promote action. It coincided with the launching of the renewed strategy of Health for All for the Twenty First Century, the launching of the third phase of the Healthy Cities project and the increasing commitment of a number of cities to Local Agenda 21[5]. The determinants and a summary of the "facts" are listed in Table 4.

Table 4

Social Determinants of Health: Explanation and Guidelines for Change

Determinant	**Fact**
The Social Gradient	Life expectancy is shorter and most diseases are more common further down the social ladder in each society. Health policy must tackle the social and economic determinants of health.
Stress	Stressful circumstances, making people feel worried, anxious and unable to cope, are damaging to health and may lead to premature death.
Early Life	A good start in life means supporting mothers and young children: the health impact of early development and education lasts a lifetime.
Social Exclusion	Life is short where its quality is poor. By causing hardship and resentment, poverty, social exclusion and discrimination cost lives.
Work	Stress in the workplace increases the risk of disease. People who have more control over their work have better health.
Unemployment	Job security increases health, well-being and job satisfaction. Higher rates of unemployment cause more illness and premature death.
Social Support	Friendship, good social relations and strong supportive networks improve health at home, at work and in the community.
Addiction	Individuals turn to alcohol, drugs and tobacco and suffer from their use, but use is influenced by the wider social setting.
Food	Because global market forces control the food supply, healthy food is a political issue.
Transport	Healthy transport means reducing driving and encouraging more walking and cycling, backed up by better public transport.

Note. Adapted from "Social determinants of health: The solid facts", by R. G. Wilkinson and M. G. Marmot. (2003). Copyright 2003 by the World Health Organization.

From a more medically orientated perspective, Lawson (1991) a public health and medical practitioner, discussed 16 determinants of disease, disability and injury in his book on public health in Australia. These were:

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[5] Local Agenda 21 was the global blueprint for sustainability that was agreed to at the 1992 United Nations Conference on Environment and Development (the Rio Earth Summit) (Australian Government Department of the Environment and Water Resources, 2007).

- Nutrition
- Infections
- Trauma (accidents)
- Congenital and familial problems
- Hormone dependent conditions
- Chemically induced conditions
- Radiation
- Behaviour and lifestyle
- Socio-economic status
- Geographic situation
- Age
- Gender
- Occupation and leisure
- Stress
- Culture
- Economics

In the second edition of the book mentioned above, Lawson and Bauman (2001) conceptualised determinants as multiple factors that contribute to a state of health, disease or disability and contrasted this to the 19th century unifactorial or ‘germ theory’ approach. Lawson and Bauman (2001) named nine groups of factors which affect health:

1. Population size, growth, changes, migration patterns
2. Societal values, social norms, economic growth, affluence, industrialisation
3. Clean water, air; housing; other physical environmental aspects
4. Social environment, supports, family structures
5. Infectious agents, communicable disease
6. Socioeconomic status, education level
8. Immutable factors: age, gender, ethnicity
9. Health system, services, access

However, some essential determinants appear to have been omitted from this more recent list. Firstly, ‘healthy food’ and ‘nutrition’ are not mentioned, though the authors do acknowledge that societal values influence regulations around food quality and the marketing of unhealthy foods, tobacco and alcohol (Lawson & Bauman, 2001). Secondly, behaviour and lifestyle at the individual level were also left out, possibly due to increasing criticism in a climate of social determinism. Thirdly, psychological factors such as knowledge, attitudes, affect and behaviour were also excluded.

Another more comprehensive list of determinants known as the Toronto Charter for a Healthy Canada was developed in 2002 at a conference entitled the Social Determinants of Health Across the Life-Span (Raphael & Curry-Stevens, 2003). In this Charter it was recognised that there was overwhelming evidence that the health of Canadians was profoundly affected by social and economic determinants of health, such as early life, education, employment and working conditions, food security, health care services, housing, income and its distribution, social exclusion, the social safety net, and unemployment and employment security. The Charter also recognised that Canadian women, Aboriginal people, Canadians of colour, and New Canadians were particularly vulnerable, especially in the areas of income and its distribution, employment and working conditions, housing affordability, and the state of the social safety net (Raphael & Curry-Stevens, 2003).

A later model, developed by Ansari, Carson, Ackland, Vaughan, and Serraglio (2003) has been described as a public health model of the social determinants of health which epitomises the paradigm of *eco-epidemiology*. The model (see Figure 8) names three types of social determinants that lead to observed health outcomes, and acknowledges that both health system attributes and disease inducing behaviours contribute to these determinants and outcomes.

The authors draw attention to three ‘rival’ theories that support these components known as the material, psychosocial and neo-material. With the material theory, it is proposed that it is the absolute social position of the individual which influences health status (Stronks, van de Mheen, & Mackenbach, 1998; cited in Ansari, et al. 2003). With the psychosocial theory, it is proposed that it is not the absolute social position or income which influences health, but rather the relative position/income together with the psychosocial aspects of how this relative status is perceived, which mediates between endocrine and immune system pathways and long-term health impacts (Marmot & Wilkinson, 1999; cited in Ansari, et al. 2003). In the neo-material theory, the validity of both the material and psychosocial theories are disputed and it is argued that negative exposures, lack of resources and systematic under investment in human, cultural and political-economic processes better explains the existence of a social gradient in health (Lynch, Smith, & Kaplan, 2000; cited in Ansari, et al. 2003).

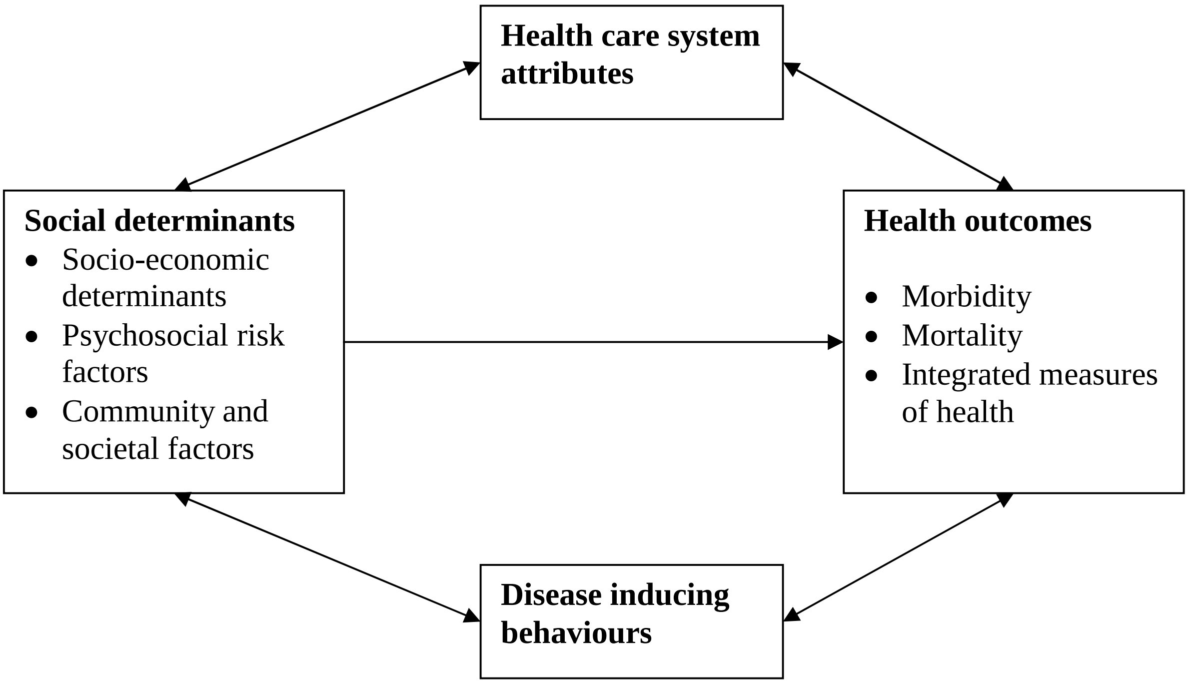

Figure 8. Public health model of the social determinants of health.

Reprinted from “A public health model of the social determinants of health,” by Ansari, Carson, Ackland, Vaughan, and Serraglio (2003), Sozial und Prventivmedizin, 46, p. 243. Copyright 2003 by Springer.

Socio-economic determinants, psychosocial risk factors and community and societal characteristics are broad terms that cover many specific social determinants as shown further in Ansari et al’s., (2003) list in Table 5.

Table 5

Public Health Model of the Social Determinants of Health

Socio-economic Determinants	**Psychosocial risk factors**	**Community and societal characteristics**
• Age • Gender • Race • Ethnicity • Education • Occupation • (Un)employment • Income • Religion • Housing - affordability, security of tenure, structure and maintenance of building, occupancy (including overcrowding)	• Poor social networks • Low self-esteem • Self-efficacy • Depression • Anxiety • Insecurity • Loss of sense of control • High physical/psychological demand • Chronic stress • Isolation • Anger/hostility • Coping • Perception/expectations	• Social networks and support structures • Social and community participation • Civic and political involvement and empowerment • Trust in people and social institutions • Tolerance of diversity • Altruism. Philanthropy and voluntary work • Poverty • Residence (urban, rural, remote) • Income inequality • Crime rate • Domestic violence • Unemployment rate

Note. Adapted from "A public health model of the social determinants of health", by Z. Ansari, N. J. Carson, M. J. Ackland, L. Vaughan and A. Serraglio (2003). *Sozial und Prventivmedizin, 48(4), p. 244.* Copyright 2003 by Birkhäuser Verlag Basel.

In summary, the review of literature on determinants of health has shown various perspectives and models that reflect the complex and multidimensional nature of health. Whilst some of these could be commended for being more comprehensive or holistic, some models could be difficult to understand by lay community members if overly technical or wordy. For this reason, a new visual model called an ecological "person in context" (Orford, 1992, p. 5) model of health determinants was developed during the course of this research (Figure 9). Many of the articles reviewed in this chapter have influenced its development yet it distinctly reflects a community psychology perspective.

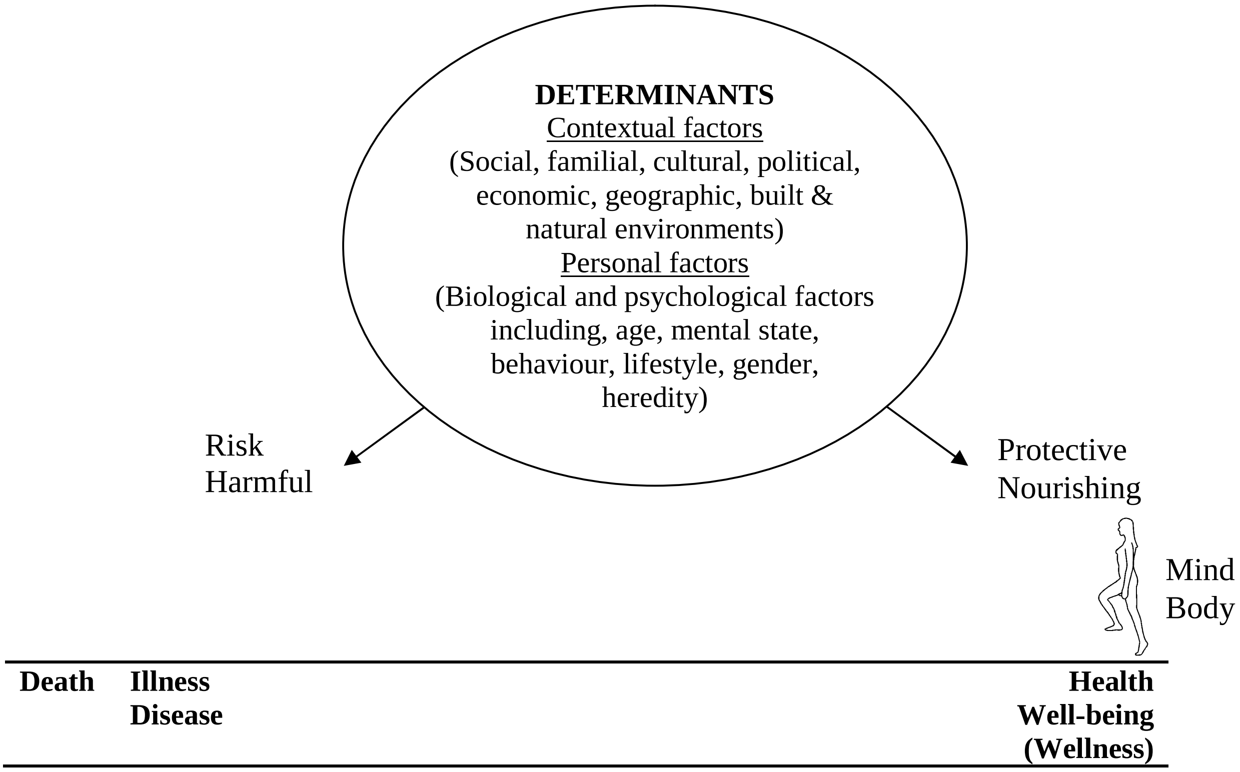

Figure 9. An ecological ‘person in context’ model of health determinants.

Embedded in the model is an acknowledgement that health and well-being is firstly about a healthy body and mind (personal factors). Furthermore, the community psychology perspective recognises that “people do not exist as independent actors but as members of social systems” (Rudkin, 2003). People live and interact in many different contexts or ecologies in their daily lives and over the course of their lifetimes. An ecological systems perspective as developed by Kelly (1966, 1968) Bronfrebrenner (1977, 1979) and others, underlies “the most basic tenet in community psychology … that in order to understand the individual we must also understand his or her social context” (Rudkin, 2003, p. 90).

There may be hundreds of personal (endogenous) and contextual (exogenous) factors which impact on individual health with only a few of these shown in the model. Some of these can be classified as risk factors while others are protective to health and wellbeing (wellness). Similarly, actions by one self or others, events, and environments, can be either harmful or nourishing for a person’s overall health and well-being.

Another important dimension is that only some determinants and health conditions are preventable and avoidable. For example, age and heredity cannot be altered.

Determinants of health are relevant to both Stage One and Stage Two of the present research. In Stage One, the term ‘determinants’ appears in the research question as one of the key subjects of inquiry and is one of the forms of evidence sought. In Stage Two, the concept of determinants of health will be introduced to community members via the ecological model developed. Addressing determinants of health through community-based interventions is another theme in the determinants literature that is of relevance to Stage Two. This is discussed further in section 2.5 on community health interventions.

2.4.2 Theme 2: Community health status. Health status is the second theme in the determinants, inequalities and community health status model developed to guide the second stage of the research. Knowledge about the current health status of individuals and communities is an essential ingredient for improving public health. As specified in the Ottawa Health for All charter, health promotion action is concerned with “reducing differences in current health status and ensuring equal opportunities and resources to enable all people to achieve their fullest health potential” (WHO, 1986, pp. 1-2). Health status has been defined as the level of illness or wellness of a population at a particular time, and can be measured through life expectancy, mortality, disability and disease prevalence rates (United States Government and the Millennium Challenge Corporation, 2007). Health status has also been defined as the level of health of an individual, group, or population as assessed subjectively by the individual or by more objective measures (Biology Online Dictionary, 2001).

As implied by term ‘community centred’ in the title of this thesis, the focus in this research is mainly on community. The term community can be defined in various ways and is sometimes the topic of debate. From the community psychology perspective, there is a distinction between relational communities, geographic communities and the more recent emergence of virtual communities, where relationships develop through technological (computer) exchanges (Rudkin, 2003). This research focuses on geographic communities, which are characterised by “people who live in a common place and share life circumstances”(Rudkin, 2003, p. 359). These categories are not mutually exclusive, however. Geographic communities are not homogenous and always consist of various sub-groups or social groups that may be termed ‘relational’ communities. Relational communities have been defined as people who “share norms and values, common goals, and feelings of identification and trust” (Rudkin, 2003, p. 359). Relational communities might include those that share special interests or indigenous, ethnic, gender or generational identity. Such communities can exist within geographic communities as well as across them.

The health status of a community can be measured by self-rated subjective reports and perceptions of health (e.g., via survey questionnaires or qualitative research) or through objective methods such as epidemiological analyses of data on mortality, morbidity and specific diseases. Specific health status measures available in Australia include self reported “overall evaluation of health” and “long term conditions” (derived from National Health Surveys), mortality, causes of death, burden of disease and health expectancies (Duckett, 2004).

Ackland and Catford (2004) mention the National Survey of Mental Health and Wellbeing in addition to the National Health Surveys as sources of reported health together with vital statistics on births and deaths (live births, perinatal mortality and mortality); health and disease registries (congenital malformations, cancer and notifiable infectious diseases registers); life expectancy; indigenous health; and burden of disease. Health services episodes of treatment such as hospitalisations, injuries, preventable admissions also offer a (“proxy”) view of health status (p.85).

Preventative services such as the cancer screening and Australian childhood immunisation registers also contribute information about health status and health system performance. Information on health behaviours (risk taking and health promoting) such as smoking, nutrition, alcohol consumption, physical activity, illicit drug use, occupation and sexual practices are also essential to understanding of health status (Ackland & Catford, 2004). One of the tasks in Stage Two was to locate and document and analyse some of these sources so as to provide a resource for action to address health status in communities.

A comprehensive assessment of community health status will include multiple measures such as those in the Mobilizing for Action through Planning and Partnerships (MAPP) initiative developed by the (American) National Association of County and City Health Officials (NACCHO, 2004). The MAPP Community Health Status Assessment has three main questions and provides 11 “core indicators” or “data elements” as listed in Table 6.

Table 6

The MAPP Community Health Status Assessment

Who are we and what do we bring to the table?	**What are the strengths and risks in our community that contribute to health?**	**What is our health status?**
1. Demographic Characteristics 2. Socioeconomic Characteristics 3. Health Resource Availability	4. Quality of Life 5. Behavioral Risk/Protective Factors 6. Environmental Health Indicators	7. Social and Mental Health 8. Maternal and Child Health 9. Death, Illness and Injury 10. Infectious Disease 11. Sentinel Events (NACCHO, 2004).

Note. Adapted from R. G. Wilkinson and M. G. Marmot (Eds.)."*Social determinants of health: The solid facts*", by R. G. Wilkinson and M. G. Marmot. (2003). 2nd ed. Copenhagen: World Health Organization.

Each of the 11 indicators consists of a definition together with spreadsheets listing the core indicators, factors or measures which should be collected (NACCHO, 1997-2000). The MAPP Community Health Status Assessment is consistent with the WHO conception of a broad view of health, as it includes many determinants (the first six indicators) as well as some of the more direct measures or indicators of health status (indicators 7-11). Health status and determinants of health both need to be examined in order to understand *health differences,* the topic of the next section.

The Australian National Health Priority Areas (NHPAs) are also indicators of health status. The current NHPAs were outlined in the introduction section and will be reviewed in detail in section 2.5 on Health in an Australian Context.

2.4.3 Theme 3: Health differences: Disparities, inequalities and inequities. Health differences makes up the third theme in the model developed to guide the collection of data in the second stage of the research. Disparities, inequalities, and inequities all refer to health differences among individuals and communities. The terms are used interchangeably throughout this section except where otherwise explained. This section traces the inequalities movement, which began in the late 1960's and shows how this movement has been carried forward by many organisations, individuals, policies and research agendas. Following this historical overview, various articles demonstrating the meaning, structure and research into inequalities are examined.

Some important well known contributions that will be discussed include the UK Whitehall studies; the Black Report (Black, Townsend, & Davidson, 1982); the Health Divide (Whitehead, 1988) and the report presented to the Independent Inquiry into Inequalities in Health, chaired by Sir Donald Acheson (Department of Health, 1998). Other important contributions include the work of the Canadian Institute for Advanced Research and the World Health Organization.

The Whitehall studies (named after a London road where many civil servants work) was the name given to two studies which had been designed to explore health disparities associated with wealth and status (grade) among civil servants. The first study involved 17,530 male civil servants, began in 1967 and continued over a ten-year period. The results indicated a steep inverse relation between grade (wealth/status) and mortality. Men in the lowest grade had three times the mortality rate from coronary heart disease, a range of other causes, and all causes combined compared with the highest grade (administrators) (Marmot, Shipley & Rose, 1984). Although, smoking and other coronary risk factors were also more common for men in the lowest grades, those differences accounted for only part of the mortality differences. Another curious finding was the inverse association between height and mortality which suggested that factors operating from early life (e.g., under nourishment) may influence adult death rates (Marmot, et al., 1984).

The second Whitehall study began in 1985 with the aim of determining what underlies the grade or social gradient in death and disease and to include women (Ferrie, 2004). Marmot (2006) reported that a total of 6,900 men and 3,414 women aged 35-55 years from 20 London civil service departments took part in the study. The main findings were that lack of control on the job was related to long absences from work and that there was no decrease in the difference in prevalence of ischemia (depending upon employment category) in the 20 years since the initial Whitehall study. The risk factor that differed most between employment categories was that smoking was higher and exercise (moderate or vigorous) less common among workers in lower status jobs (Marmot et al., 1991). Overall, the studies implied that "inequalities in health cannot be divorced from inequalities in society" and the "inescapable conclusion is that to address inequalities in health it is necessary both to understand how social organisation affects health and to find ways to improve the conditions in which people work and live" (Ferrie, 2004, p. 4).

The Black Report was the initiative of the 1970s UK Secretary of State for Social Services, Sir Douglas Black (Jenkin, 1980). In 1977, Black set up a Working Group on Inequalities in Health to "review information about differences in health status between the social classes; to consider possible causes and the implications for policy; and to suggest further research" (Jenkin, 1980, p. 31). The study examined the pattern of inequalities in relation to mortality and occupational class, gender, race and ethnicity, housing tenure, regional background plus a range of illness measures (Black et al., 1982). Like the Whitehall studies, the findings indicated that there were marked inequalities between different classes in Britain (Black et al., 1982). Mortality tended to rise with falling rank or status for both sexes and all ages; and babies and children of poorer people were 2-3 times more likely to die than children with wealthy parents. People with lower educational status and those paying rent rather than owning a home also seemed to have higher mortality rates. The findings relating to morbidity revealed that respiratory and gastric disorders, arthritis/rheumatism and injuries were above average for people in manual occupations while people in non-manual occupations had above average psychoneurotic and cardio-vascular disorders. Rates of self assessed 'limiting long-standing illness' also rose with falling socio-economic status with unskilled males and females reporting rates three times higher than professionals (Black et al., 1982).

Similar inequalities in chronic diseases and mortality are likely to exist between people living in socio-economically disadvantaged regions in Victoria or Australia.

The Health Divide, undertaken seven years after the Black report by the UK Health Education Council, represented an up-to-date review of evidence and scientific discussion on inequalities in health in an international context (Black et al., 1982). Various data on inequalities were examined and provided strong support for the conclusions of the earlier Black report (Whitehead, 1988). As Whitehead stated in her conclusion, the data on occupational class and mortality, which was extended to include ages over sixty five, showed that a substantial class gradient still persisted. Some of the specific findings were that:

- Lower occupational groups experienced more chronic and incapacitating illness and at an earlier age.
- Home owner occupiers continued to have lower rates of illness and death than private tenants, who in turn had lower rates than local authority (public) housing tenants.
- Regional differences in health in the North/South were found as well as small area differences within the regions.

The *Independent inquiry into inequalities in health,* also commonly known as the Acheson report was produced by a team of researchers from the London Department of Health. The report espoused a socioeconomic model of health and inequalities as shown in Figure 10. At the centre of the model are the fixed constitutional factors affecting a person, followed by surrounding layers which influence health but could in theory be modified (DoH, 1998). The inquiry set out to review and summarise the latest available information and evidence on health inequalities and life expectancy in England and identify trends (DoH, 1998). The second task of the inquiry was to identify priority areas for future policy development and ideas for beneficial, cost effective and affordable Government interventions to reduce health inequalities. The methods for deriving the evidence on which the conclusions rested included consultations with a wide range of experts, peer review and consideration of expert papers on inequalities. Overall, it identified a range of areas implicated in health inequalities that should be addressed in policy. These included poverty, income, tax and benefits; education; employment; housing and environment; mobility, transport and pollution; and nutrition.

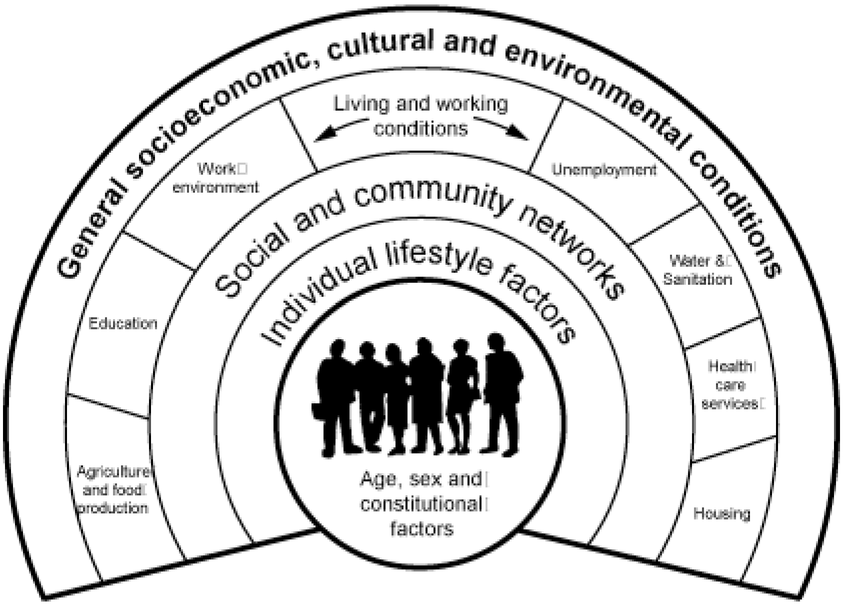

Figure 10. The main determinants of health.

Reprinted from "*Independent inquiry into inequalities in health*", by Department of Health. (1998). London: The Stationery Office.

The report also paid particular attention to the stages of the life course - mothers, children and families; young people and adults of working age; and older people, as well as to ethnic and gender inequalities. Recommendations relating to the areas above were also developed with the three regarded as most crucial listed below:

- all policies likely to have an impact on health should be evaluated in terms of their impact on health inequalities;
- a high priority should be given to the health of families with children;

- further steps should be taken to reduce income inequalities and improve the living standards of poor households (DoH, 1998).

Another well known contributor to the inequalities movement was Fraser Mustard, who founded the Canadian Institute for Advanced Research (CIAR) in 1982 and the Program in Population Health at CIAR in 1987 (cited in Flower, 1997). Fraser also wrote numerous papers on various health related issues and inspired and contributed to the 1994 book entitled: *Why Are Some People Healthy and Others Not?* Three endearing messages composed by Mustard in relation to addressing inequalities in a community were understanding, measurement and support as shown in the following text reproduced from Flower's (1997) interview with Mustard:

> UNDERSTANDING
> You need to create a framework for understanding what determines health so that you can avoid distortions of information… This knowledge base is not taught yet in universities, but it could be taught even in high schools [and] easily assimilated by kids at that age. You need to understand this information, and you need to trans[late] (sic) it into your community.
>
> MEASUREMENT
> You need to establish ways to measure where your community is, benchmarks that will tell you how well you are doing. You can involve all of your community in the task. You want to use early markers that have some predictive capacity, rather 'than just waiting until the diseases manifest. Birth weight will tell you a fair amount.
>
> A second good one is readiness to learn, which will show up as a gradient. If you plot this gradient against socioeconomic markers in your community, and find that the gradient is steep, then you have got a problem. But the nice thing about that readiness-to-learn marker is this: If you create an intervention program that your ... [community] backs, you can change the gradient within two years whereas changing the statistics in mental health and heart disease is going to take a lot longer.

> SUPPORT
> You must learn how to strategically mobilize your people to provide support to each other, particularly for the children. Do this as an "us," rather than an "us vs. them," solution (Mustard, cited in Flower, 1997, p. 7).

These messages also underlie the present research. Understanding and measurement relate to the data in first stage and to the dissemination or sharing of information with participants/community members in the second stage. The importance of prevention and readiness to learn are also worth noting. The third message ‘support’ also relates to the second stage of this research and has parallels with the collaborative, empowering and community governance approach espoused in this research.

Having presented some of the key historical milestones in the inequalities movement, the rest of this section consists of a review of selected articles from the inequalities literature. The literature in this field includes discussions on the causes of inequalities, papers concerned with defining, measuring, addressing or reducing inequalities or inequities, assessment of inequalities within and between various countries around the world, policy related issues and other specialised topics.

Although disparities, inequalities, and inequities in health all refer to differences in health or health status, there are some subtle differences between these terms. The term ‘inequities’ is sometimes used to refer to differences that should not exist whereas the terms inequalities and disparities are used more to illustrate differences which are simply there and may not necessarily be inequitable, ‘unfair’, ‘unjust’, preventable or amenable. As clarified by Whitehead:

> The term inequity has a moral and ethical dimension. It refers to differences which are unnecessary and avoidable but, in addition, are also considered unfair and unjust. So, in order to describe a certain situation as inequitable, the cause has to be examined and judged to be unfair in the context of what is going on in the rest of society (Whitehead, 1991, p. 5).

Whitehead (1991, p. 5) identified seven "determinants of health differentials" specifying that some factors such as those listed in the first column of Table 7 would not normally be classified as inequities in health.

Table 7

Factors that Determine Health Differences and Inequities in Health

Differences in health	**Inequities in health**
• Natural, biological variation. • Health-damaging behaviour if freely chosen, such as participation in certain sports and pastimes. • The transient health advantage of one group over another when that group is first to adopt a health-promoting behaviour (as long as other groups have the means to catch up fairly soon).	• Health-damaging behaviour where the degree of choice of lifestyles is severely restricted. • Exposure to unhealthy, stressful living and working conditions. • Inadequate access to essential health and other public services. • Natural selection or health-related social mobility involving the tendency for sick people to move down the social scale.

Note. Adapted from "The Concepts and Principles of Equity and Health", by M. Whitehead. (1991). *Health Promotion International*. *6*(3), 217-228.

Many of Whitehead's determinants are also covered in Starfield's (2002) ecological model shown in Figure 11. This model shows various individual and community level characteristics that influence health.

Woodward and Kawachi (2000) use the term inequality rather than inequity and have provide four arguments for reducing inequalities. One is that **inequalities are unfair** because poor health often occurs when there is unjust distribution of the underlying social determinants of health, (e.g., unequal opportunities in education or employment) (Woodward & Kawachi, 2000). The second argument is that inequalities affect everyone through "spill overs" such as the "spread of infectious diseases, the consequences of alcohol and drug misuse, or the occurrence of violence and crime" (p. 923). The third is that inequalities are avoidable and therefore amenable to policy interventions. The fourth argument is that interventions to reduce health inequalities are cost effective. For example, cervical cancer screening methods to reduce deaths and reducing inequalities will diminish the "spill over" effects on the health of the broader society.

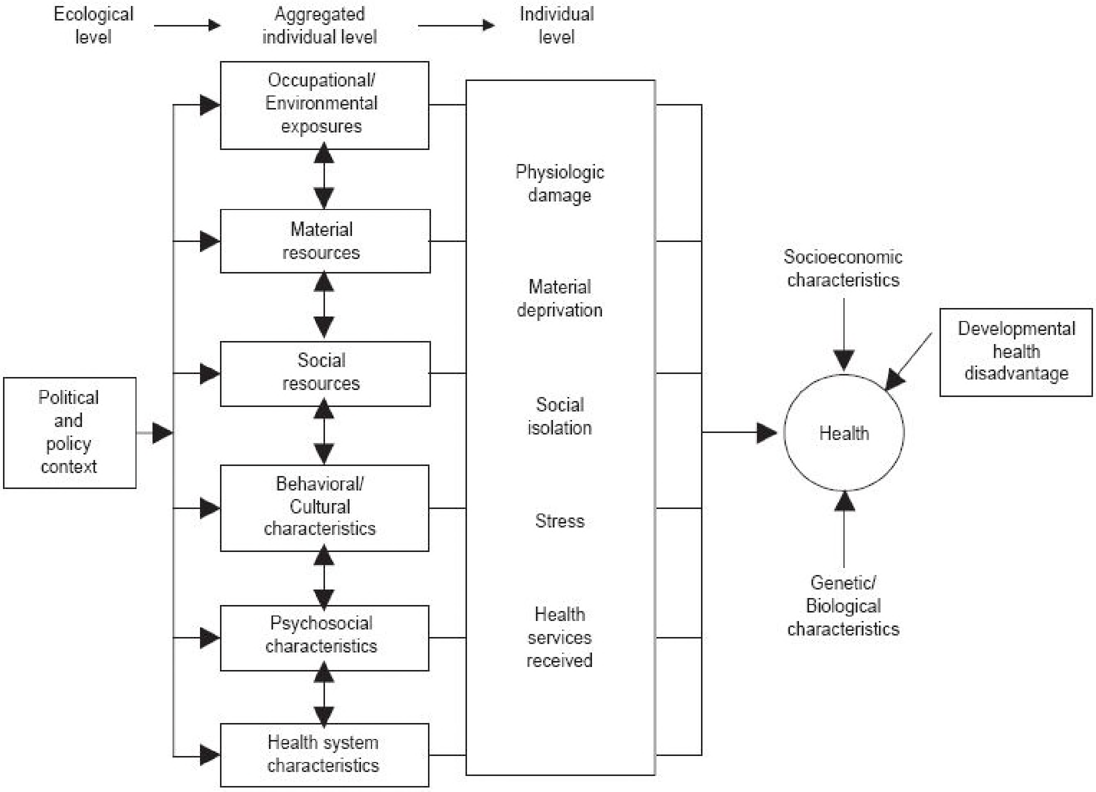

Figure 11. Factors that influence health at the individual level.

Reprinted from "Equity and Health: A Perspective on Nonrandom Distribution of Health in the Population", by B. Starfield, 2002, *Revista Panamericana de Salud Pública*. 12, p. 385.

Unlike the previous two models, Woodward and Kawachi mention education as one of the underlying factors that may lead to inequalities. Education that leads to better socio-economic status and life chances as well as health education are both vital, with the latter of particular interest in Stage Two of the present research. The presence of the political and absence of the community as partner in some of the models also needs to be highlighted. The present perspective holds that the “community as an empowered partner” (Syme, 2004, p. 1) or indeed as an *empowered leader* is essential to preventing chronic diseases and inequalities.

There is no one agreed on definition of inequity or indeed of related terms such as disparities and inequalities. Yet, as stated by Braveman (2006, p. 167) “definitions can have important practical consequences, determining the measurements that are monitored by governments and international agencies and the activities that will be supported by resources earmarked to address health disparities/inequalities or health equity".

Graham and Kelly (2004) have developed an informative diagram, which shows three popular meanings ascribed to health inequalities (see Figure 12). The determinants, inequalities and community health status model presented at the start of the section represents inequalities as 'health gaps' or differences among individuals and communities. This is based on the premise that inequalities which are sizeable (e.g., large gaps in life expectancy) and amenable to change are worthy of our attention wherever they occur (among the rich and the poor). This idea is well illustrated by Gakidou, Murray and Frenk (2000) in their argument that since health is an intrinsic part of well-being, we should be concerned with inequality whether or not it is correlated with inequality in other dimensions of well-being (e.g., social status). Even so, although we do not necessarily have to measure or know about social status to undertake health promotion and disease prevention programs, we may still choose to work with those who face multiple disadvantages such as poor health and poverty. That is, the target of our interventions may be a poor community known to have health concerns as a population group.

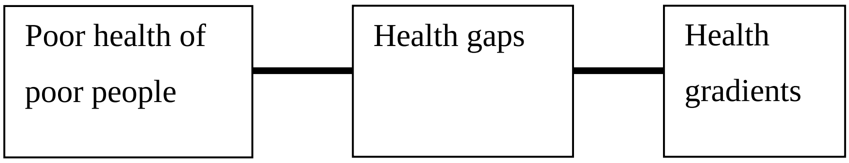

Figure 12. A range of meanings of health inequalities.

Reprinted from "Health Inequalities: Concepts, Frameworks and Policy", by H. Graham and M. P. Kelly, 2004. NHS Health Development Agency. p.7.

Braveman has been a prominent supporter of the first meaning (see Braveman, 1996; Braveman & Gruskin, 2003; Braveman, Starfield, & Geiger, 2001) in the model. Braveman and Gruskin (2003) have supported Whitehead's (1992) definition of equity as unnecessary, avoidable, unfair and unjust and have put forward an operational and measurement definition of equity in health. According to them, equity in health is "the absence of systematic disparities in health (or its social determinants) between more or less advantaged social groups” (p. 256). Therefore, health inequities put those who are already disadvantaged (e.g., those who are poor, female, or part of a disenfranchised racial, ethnic or religious group) at further disadvantage (Braveman & Gruskin, 2003).

In a similar way, Kawachi, Subramanian and Almeida-Filho (2002) made the distinction between health inequality and health inequity; with the first denoting differences, variations and disparities in the health of individuals and groups and the latter referring to inequalities that are unfair or stem from social injustice. Kawachi et al., also highlighted two related approaches commonly used to describe and assess health inequalities. One is to measure social group differences in health (e.g., by social class, race, gender, economic status, geographical characteristics, etc.) whereas the other is to measure the distribution of health status across individuals in a population. While Kawachi et al., claim that the two approaches yield complementary rather than contradictory information, they make a strong point that the first is related to the concept of inequity (as unfair and unjust) and that measuring and monitoring of this must therefore be a priority (Kawachi et al., 2002).

The social group approach is indeed the most popular approach, with Leon (2001) noting a wave of national (England) and international interest in tackling inequalities and poverty. ‘Socioeconomic’ inequalities in health are a predominant theme in the literature with many social theorists accepting that the widening gap between those with good and poor health is attributable to the widening gap between the rich and poor. Space permits only a couple of these studies to be reviewed here.

One of these, produced by Kunst and Mackenbach (1994) of the WHO, focussed on the measurement aspects of socioeconomic inequalities in health and aimed to address the first target of the Health for All strategy to achieve equity in health. According to the target: “By the year 2000, the differences in health status between countries and between groups within countries should be reduced by at least 25%, by improving the level of health of disadvantaged nations and groups" (Kunst & Mackenbach, 1994, p. iii). Unfortunately, the target is yet to be achieved.

The document outlined some of the issues relevant to policy makers and researchers and statisticians; and offered case studies on inequalities studies from four European countries. According to the advice given about measurement: “Any attempt at measuring socioeconomic inequalities in health at the national, regional or local level should start by assessing the availability of data” (p. 17). Additionally, this process should include an inventory of data available on socioeconomic inequalities in health, an assessment of the informative value of these data and, if necessary, provisions for generating new data (Kunst & Mackenbach, 1994).

Kunst and Mackenbach suggest the utilisation of registries which yield information on births, deaths, hospital admissions, mentally ill people in institutions, social security benefits, sickness absence, long-term work disability, traffic accidents as well as health interview surveys as sources of data for monitoring inequalities. Important socioeconomic measures include occupational status, level of education and income level. However, the authors also explain that each measure has limitations.

What is measured and analysed is also largely dependent on the availability of data at a system level. Some demographics are collected by agencies such hospitals, health services, death registries etc., (e.g., age and gender) while others are not (social class, economic status). On the other hand, some economic variables are collected by the Australian Bureau of Statistics (ABS) as part of Census while health data is not collected at the same time. Data from different sources are therefore unlikely to refer to the same time period and group of individuals making socioeconomic inequities in health difficult to investigate.

Another significant work addressing socioeconomic status and health in Australia was produced by Turrell, Oldenburg, McGuffog and Dent (1999) from Queensland University of Technology in association with the federally funded Health Inequalities Research Collaboration. Turrell et al., have developed a comprehensive framework of socioeconomic determinants of health that includes upstream, midstream and downstream levels and factors. This framework may be seen in Figure 13 following.

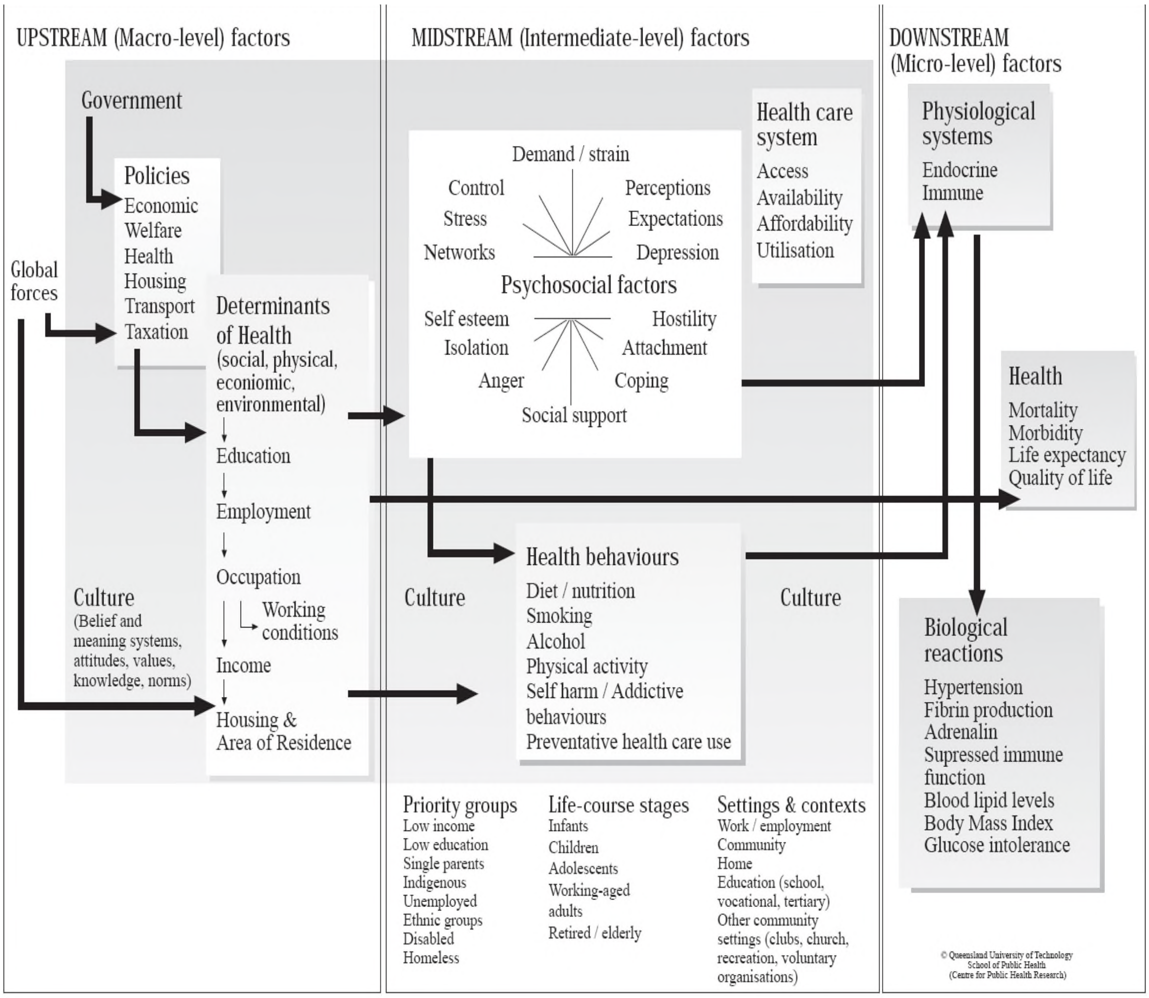

Figure 13. A framework of socioeconomic determinants of health.

Reprinted from "Socioeconomic Determinants of Health : Towards a National Research Program and a Policy and Intervention Agenda", by G. Turrell, Australia. Dept. of Health and Aged Care., Queensland University of Technology. School of Public Health. Centre for Public Health Research and Health Inequalities Research Collaboration., 1999, Brisbane: Queensland University of Technology, School of Public Health, Centre for Public Health Research.

Turrell et al's., report consisted of four objectives. These were one, to review Australian research, two, provide a profile of Australia's research capacity on socioeconomic health inequalities, three, examine policies and interventions which aim to reduce socioeconomic health inequalities, and four, make recommendations regarding the development of a national health inequalities research program and a policy and intervention agenda (Turrell et al., 1999). In regards to the first objective, the authors identified 202 Australian studies which investigated socioeconomic health inequalities. As summarised in Table 8, the studies involved five different age groups and referred to seven main health issues.

Table 8

Australian Studies which have Investigated Socioeconomic Health Inequalities

	Infants	**Children**	**Adolescents**	**Adults**	**Elderly**	**Total**
Health issues	*Number of studies in each age category*					
Mortality	12	5	0	26	5	48
Physical morbidity	12	25	4	21	2	64
Mental and psychological	1	8	4	13	1	27
Risk factors	0	5	3	12	0	20
Health behaviours	4	15	6	51	2	78
Health Services	5	7	4	23	4	43
Attitudes, knowledge and	0	3	2	23	0	28
Total (age)	34	68	23	169	14	308

Note. Adapted from "Socioeconomic determinants of health: towards a national research program and a policy and intervention agenda", by G. Turrell, B. Oldenburg, I. McGuffog, and R. Dent, (1999), p. 18-31. Copyright 1999 by Queensland University of Technology School of Public Health. Some of the studies explored more than one health issue, hence the total is greater than 202. Of the 202 studies, 35 were conducted in Victoria and six of these were state-wide (Turell et al., 1999).

Turrell et al's., (1999) report shows that the socioeconomic variables explored by the various studies included both area based and individual level data. Area level data included the Socio Economic Index for Areas (SEIFA), indicators of SES from Census data such as percent of low income families and percent of population in professional occupations and other area based indicators. The individual level data most often explored in these studies were occupation, education, income, employment status, welfare received and poverty.

Although some of the studies were not conclusive in their results, the studies provided evidence that SES impacts on health. Those occupying positions at the lower levels of the socioeconomic hierarchy fare significantly worse in terms of their health, have higher mortality rates for most major causes of death, experience more ill-health, and as analysed from health care service utilisation rates are less likely to act to prevent disease or detect it at an early stage (Turrell et al., 1999). Socioeconomic related differences in health were evident for both females and males at every stage of the life-course, with persons from low socioeconomic backgrounds experiencing poorer psychosocial health, having a worse risk factor profile and being more likely to engage in behaviours that are detrimental for long term health and well-being (Turrell et al., 1999). Contrary findings were that breast and colorectal cancer were more concentrated among people from higher socioeconomic areas (Turrell et al., 1999).

Turell et al's., (1999) review identified a number of gaps and the need for further research on socioeconomic status. This included the need for more analytic/explanatory studies (e.g., on why relationships between socioeconomic status and certain health measures exist); attention to urban/rural differences; and multi-method/multi-variate approaches, using quantitative and qualitative research designs and collection of data from a range of levels. The authors call for further research in their statement that:

> A potentially fruitful line of investigation for future inequalities research in Australia would be to develop a research program that furthered our understanding of the relationships and linkages that were identified in the framework presented earlier [see *Figure 1*3], particularly at the more mid-to upstream levels (Turrell et al., 1999, p. 88).

In a later report Draper, Oldenburg and Turrell (2004) examined inequalities in mortality in Australia by sex, geographic region, socioeconomic disadvantage, occupation, and country of birth among infants and children, young adults, working-aged adults, and older persons for the periods 1998–2000 and 1985–1987. Mortality inequalities in life expectancy, potential years of life lost, potentially avoidable deaths, age-standardised death rates, rate ratios and excess mortality were examined. Overall the results showed that rates of death were substantially higher for males, indigenous people, those living in remote and very remote regions, those living in socioeconomically disadvantaged areas, blue-collar employees, and the Australian-born with much of the burden potentially avoidable.

Actions to reduce disparities should ideally include: (1) changes in macro-level social and economic policies, (2) improving living and working conditions, (3) strengthening communities for health, (4) influencing behavioural risk factors, (5) strengthening individuals and their social networks, and (6) an improved response from the health care system and associated services (Oldenburg, McGuffog, & Turrell, 2000). Seen in relation to these actions, the present research relates especially to items 3-5 with a view to the broader macro and system level changes outlined in items 1, 2 and 6.

Attention to determinants, differences and community health status (including NHPAs) is essential to the development of a good evidence base to guide policy decisions, monitor changes in health and improve health services, and for targeted community based interventions to improve health and prevent disease. These elements were kept in mind during the development of the present statistical resource conducted in Stage One of this research and referred to as the Community Health Evidence Base.

2.5 Review of Community Based Health Intervention Literature

Community based health interventions (CBHIs) (which may also be referred to as community based health promotion) offer a promising way to tackle the growing burden of disease and mortality at a community level. This section draws together some key CBHI literature of relevance that guided and informed the community intervention and evaluation (second and third) stages of the present research. The three main themes in this section are: Community based health interventions, Community empowerment in health and Evaluation of community health interventions.

2.5.1 Community based health interventions. A variety of approaches and strategies that appear in the community health literature can be categorised under the banner of community based health interventions. Related terms that are also of relevance to the second stage of the present thesis, include community engagement, involvement, empowerment and participation, community problem solving, community based participatory research and action research, and health promotion program, collaboration and coalition. Terms such as ‘community-based research’, ‘community-wide research', 'community-involved research', and 'community-centred research' are also used, often interchangeably (Israel et al., 1998). This section provides a review of literature in this area to explicate the definitional and theoretical aspects of these concepts and to illustrate the practical work undertaken in community based health interventions. Many of the works examined in this section also serve as rationales, exemplars and guides for the second stage of research undertaken for this thesis.

Community based interventions can be described as "programs … aimed at entire populations, which are usually geographically defined, and … attempt to change health behaviour and disease risk through mass media campaigns, activation of existing organisations, or changes in the physical of sociocultural environment" (Koepsell et al., 1992, p. 32). Two other definitions that relate closely to the aims and design of the present research and provide guidance to the present thesis were put forward by Israel et al., (1998), and Baker and Brownson (1998). The first of these definitions, applying especially to public health, asserts that: "Community-based research in public health focuses on social, structural, and physical environmental inequities through active involvement of community members in all aspects of the research process" (Israel et al., 1998, p. 173).

In the second definition that relates closely to the aims and design of the present research, Baker and Brownson (1998) identified three defining characteristics of community based health promotion programs. These were that they:

> (1) use ecological frameworks that attend to individual, interpersonal, community (including social and economic factors), organizational, and governmental factors, (2) are tailored to meet the needs of individuals and communities, and (3) provide the opportunity for those affected by programs to participate in (and influence) program development, implementation, and evaluation (E. A. Baker & Brownson, 1998, p. 2).

Community based research involves collaboration between community and researchers in order to generate new knowledge or understanding about a practical community issue and to bring about change (Hills & Mullett, 2000). The defining principles of community based research are that it is a planned systematic process, is relevant to the community, requires community involvement, has a problem-solving perspective, focuses on societal change, is sustainable and is based on a participatory paradigm (Hills & Mullett, 2000).

A more specific use of the term ‘community based’ which distinguished between community based health approaches and community development is discussed by Felix, Chavis and Florin (1989) and furthered by Boutilier, Cleverly and Labonte (2000). Boutilier et al., (2000) also highlight the key differences between these two approaches in Table 9. The table refers to two quite distinct community-oriented health promotion practices that exist, the biomedical and disease prevention orientation (community based) and its more phenomenological and socially critical socio-environmental orientation (community development) (Boutilier et al., 2000). According to these authors, health promotion issues are viewed very differently from each of these perspectives with power residing with either the professional or the community in each of these modes of practice, respectively.

Such comparisons are useful for outlining the range of issues associated with community work and for clarifying one’s stance vis-à-vis the “biomedical and disease prevention orientation” and the “phenomenological and socially critical socioenvironmental orientation” (Labonte, 1993; Cited in Boutilier et al., 2000, p. 5).

However, many psychological and social phenomena, are not easily classified in such a sharp dichotomy. Instead, an overlapping and mixing of ideas and crossing of disciplinary boundaries and paradigms may be becoming more the norm among some researchers and practitioners. For example, from a community psychology perspective both individual responsibility as well as empowerment may be considered equally as the “Root metaphor”; and secondly, that the focus should be to solve problems as well as to build strengths, competence and capacity (Boutilier et al., 2000, p. 5). Thirdly, as many community problems are complex and multifaceted, the definition of problems sometimes requires engagement with various stakeholders and sources of knowledge in addition to the target community. Conversely, the community psychology perspective may be critical of decision making for the community by “Agency representatives, business leaders, government representatives, "appointed" community leaders" (Boutilier et al., 2000, p. 5) and is strongly supportive of community decision making and community governance.

Table 9

Key Differences Between Community-Based and Community Development Approaches

Issue	Community based	Community development
Community organizing model	Social Planning	Locality development; social action
Root metaphor	Individual responsibility	Empowerment
Approach/orientation	Weakness/deficit Solve problem	Strength/competence Capacity building
Definition of problem	By agencies, government, or outside organization	By target community
Primary vehicles for health promotion and change	Education, improved services, lifestyle change, food availability, media	Building community and control, increasing community resources and capacity, economic and political change
Role of professionals	Key, central to decision making	Resource
Role of participation by target community members and institutions	Providing better services, increasing consumption and support	To increase target community control and ownership, improve social structure
Role of human service agencies and formal helpers	Central mechanism for service delivery	One of many systems to respond to needs of a community's members
Primary decision makers	Agency representatives, business leaders, government representatives, "appointed" community leaders	Indigenous elected leaders
View of community	Broad, site of the problem, technically and externally defined, consumers	Specific, targeted, source of solution, internally defined subjective, a place to live
Target community control of resource	Low	High
Community member ownership	Low	High

Note. Reprinted from: "Community as a setting for health promotion" by M. Boutilier, S. Cleverly and R. Labonte (2000). In B. D. Poland, L. W. Green and I. Rootman (Eds.), Settings for Health Promotion: Linking Theory and Practice, p. 5. Copyright 2000 by Sage Publications, Inc.

Participation is central to community based health interventions. In "many ways participation has become an umbrella term for a new and more people-centred approach to development intervention" (Oakley & Kahssay, 1999, p. 5). Oakley and Kahssay have identified three distinct interpretations of people's participation, including participation as collaboration, participation as specific targeting of project benefits (including previously excluded groups by targeting benefits directly at them), and participation as empowerment. ‘Participation as collaboration’ is viewed somewhat critically by the authors who claim that governments and other agencies seek people’s collaboration to ensure the success of some program but the people may not have much involvement in the design, control or management of it. This suggests that participation and collaboration strategies vary and can offer greater or lesser degrees of community control depending on the purpose and drivers involved. Transferring ownership to communities by building up their knowledge, skills and confidence as aimed for in this thesis may be a way to create meaningful collaboration and avoid tokenism[6].

The term collaboration is generally seen as a positive endeavour. According to the Iowa community empowerment board (2001), (a US government department that aims to empower individuals and their communities to improve health and quality of life for children ages birth - 5 years and their families), collaboration involves parties who see different aspects of a problem. They engage in a process through which they constructively explore their differences and search for (and implement) solutions that go beyond their own limited vision of what is possible (Gray, 1989). Relationships evolve toward commitment to common mission, comprehensive communication and planning, pooled resources, and shared risks and products. Authority is vested in the collaborative, rather than in individuals or an individual agency.

For Berkowitz (2000), collaboration is a method “used by members of communities when developing coalitions, by organizations when doing strategic planning, and by researchers who desire the partnership of those being studied” (2000, p. 68). Berkowitz (2000, p.68) cites three definitions of collaboration as outlined following:

> 1. Organizations or members of an organization joining together to improve the success or enhance the benefit of an action through a collective effort … [from Kreuter, Lezin and Young, 2000].

---

[6] The issue of community control and decision making is central to the concept of community governance and is taken up in chapter 3.

> 2. A social change process of building relationships and sharing decision-making authority [from NACCHO, 1997].
>
> 3. Exchanging information, altering activities, sharing resources, and enhancing the capacity of another for mutual benefit and to achieve a common purpose (from Himmelman, 1994).

Berkowitz (2000) also points to several elements that contribute to the success of the collaboration:

- The collaborative is community-based and is influenced strongly by the values and beliefs of the members.
- Problems and assets are defined by data and through narrative and antidotes from community members.
- Members are selected who support the mission of the collaborative.
- Power and decision-making are shared and may vary depending on governance within the organization or community.
- Assessment and evaluation tools are user friendly.
- Goals are implemented through plans developed by the collaborative and are supported by community members (Berkowitz, 2000, pp. 68-69).

Following major reviews of partnership and participatory approaches in community based research, Israel et al., (1998) and Israel et al., (2005), respectively, identified and summarised the key rationales and principles of community based research. These provide an important guide for the present research and are shown in Table 10.

Table 10

Principles of and Key Rationales for Conducting Community-Based Research

Key Rationales	Principles
• Enhance the relevance, usefulness, and use of the research data by all partners involved • Join together partners with diverse skills, knowledge, expertise and sensitivities to address complex problems • Improve the quality and validity of research by engaging local knowledge and local theory based on the lived experience of the people involved • Recognise the limitations of the concept of a “value-free” science and encourages a self-reflexive, engaged and self-critical role of the researcher(s) variously referred to as “critical subjectivity” and “informed subjectivity” • Acknowledge that “knowledge is power” and thus the knowledge gained can be used by all partners involved to direct resources and influence policies that will benefit the community • Strengthen the research and program development capacity of the partners • Create theory that is grounded in social experience, and creates better informed/more effective practice that is guided by such theories • Increase the possibility of overcoming the understandable distrust of research on the part of communities that have historically been the “subjects” of such research • Has the potential to ‘bridge the cultural gaps that may exist’ between the partners involved • Overcome the fragmentation and separation of the individual from his/her culture and context that is often evident in more narrowly-defined, categorical approaches • Provide additional funds and possible employment opportunities for community partners • Aim to improve the health and well-being of the communities involved, both directly through examining and addressing identified needs and indirectly through increasing power and control over the research process • Involve communities that have been marginalized (e.g., race, ethnicity, class, gender, and sexual orientation) in examining the impact of marginalization and attempting to reduce and eliminate it.	1. Acknowledges community as a unit of identity 2. Builds on strengths and resources within the community 3. Facilitates a collaborative equitable, partnership in all phases of the research, involving an empowering and power-sharing process that attends to social inequalities 4. Fosters co-learning and capacity building among all partners 5. Integrates and achieves a balance between knowledge generation and intervention for mutual benefit of all partners 6. Focuses on the local relevance of public health problems and ecological perspectives that attend to the multiple determinants of health 7. Involves systems development using a cyclical and iterative process 8. Addresses health from both positive and ecological perspectives 9. Disseminates results to all partners and involves them in the wider dissemination of results. 10. Involves a long-term process and commitment to sustainability

Note. Left column from: “Review Of Community-Based Research: Assessing Partnership Approaches To Improve Public Health”. By Israel, B. A., Schulz, A. J., Parker, E. A., & Becker, A. B. 1998, Annual Review of Public Health, 19, 173-202. Right column from: “Introduction to methods in community-based participatory research for health”. Israel, B. A., Eng, E., Schultz, A. J., & Parker, E. A. 2005, In Israel, E. Eng, A. J. Schultz & E. A. Parker (Eds.), Methods in community-based participatory research for health (1st ed. ed., pp. xl, 479)., by B. A. San Francisco, CA: Jossey-Bass.

2.5.2 Community psychology and community based health interventions.

The topic of community based health interventions is also an area of interest in community psychology and forms a chapter in the Handbook of Community Psychology (Revenson & Schiaffino, 2000). In that chapter, Revenson and Schiaffino describe how community psychology, since its inception, has been at the forefront of the community mental health movement, has exhibited concern for underserved and disenfranchised populations, and has attended to social issues with ecological, empowerment and prevention frameworks. They call for community psychologists to extend their paradigms and practice to the realm of physical health.

Revenson and Schiaffino explain that community based health interventions emphasize the use of education to empower people and provide individuals with information, skills and a supportive social environment that facilitates, reinforces, and sanctions changes. They also highlight the point that: "*Achieving community wide change requires an orchestrated effort aimed at the right target groups, with culturally appropriate messages, for a sustained period of time*" (2000, p. 473; italics retained). Community based health interventions differ from medical or behavioural health interventions in terms of their philosophy, values and assumptions (Revenson & Schiaffino, 2000). One difference highlighted by the authors is that community based health interventions target populations, communities or settings and not only individual behaviour change. They refer to the Stanford Five-City Project (Farquar, Maccoby, & Solomon, 1984), a key demonstration of this approach, which focussed on the reduction of cardiovascular risk in an entire community (Revenson & Schiaffino, 2000).

Others features of community based health interventions include that the desired outcome is change on a community level, in addition to the more frequently measured behaviour change; and that they draw on individual and community strengths and emphasize healthy lifestyles as well as the reduction of risk factors (Revenson & Schiaffino, 2000). The authors further note that community based health interventions emphasize the sociocultural context, with the aim of reaching underserved segments of the population. Moreover, developers of community based intervention programs must be willing to "give them away" (Miller, 1969) as transferring ownership of programs and policies is essential to sustained change (Revenson & Schiaffino, 2000). Off course to maintain quality and prevent failure, this ‘giving away’ in a research and public health environment must be accompanied by giving away knowledge, skills and resources/funding, in addition to responsibility.

Some of these features outlined by Revenson and Schiaffino are obviously more suited to larger well resourced programs and projects. For example, the health promotion ideals of sustainability (keeping a program going over time) and breadth (reaching the entire community) would be difficult to achieve in smaller programs with limited funding. Alternatively, transferring ownership, or ‘giving away’ a program or health promotion skills and knowledge to the community, could be built in to the design of a smaller project from the outset. This philosophy underlies one of the aims of the present Community Health Information Collaboration, which is to empower participants with health promotion capabilities such as knowledge, skills and confidence.

The philosophy of community health psychology is also relevant to the present thesis. Community health psychology holds a community or public health perspective rather than an individual disease or individual treatment model (Iscoe, 1982). It can be defined as the theory and method of working with communities to combat disease and promote health (Campbell & Murray, 2004) and as “a model of prevention in psychology, directed at promoting the health and welfare of the population” (Garcia-Averasturi, 1985, p. 2). Community health psychology involves ecological (micro, meso, macro) levels of analysis, reframes problems in terms of social context and cultural diversity and focuses on wellness, prevention (early) and building competence, strengths and well-being (Murray, Nelson, Poland, Maticka-Tyndale, & Ferris, 2004; Prilleltensky & Nelson, 1997). Modes of interventions include self-help, community development and social action, where the role of the ‘client’ is an active participant who exercises choice and self-direction; and the role of the professional is a resource collaborator and scholar-activist (Murray et al., 2004). Participatory action research based on critical and constructivist assumptions, emancipatory values and social change are also important features of community health psychology (Murray et al., 2004).

2.5.3 Models of community based health promotion. Various community based health promotion models have been developed over the years in an attempt to reduce the incidence of chronic diseases. The origin of the community based health promotion model in America comes from the cardiovascular disease prevention research and demonstration projects of the 1970s-80s (Mittelmark, 1996). The projects focussed on population-based prevention so that entire communities could be assisted to reduce their levels of risk factors for heart and blood vessel diseases and early death from these highly prevalent diseases (Rose, 1992, cited in Mittelmark, 1996). Following this earlier work, Sanderson et al, (1996) have identified two basic types of models in their review of ‘effect and stage models in community intervention programmes’. Effect models relate to hypothetical causal relationships or “how it works models” while stage models outline sequences of activities or events or “how to do it” (1996, p. 143). Many of these models appear in Sanderson et al’s., review and will not be repeated here; however six popular and reputable models are summarised here as examples of how community based interventions can be initiated and managed.

The first of these is the PRECEDE/PROCEED model developed and updated by Green and Kreuter between 1968-1980s (1991). This model has been successfully used in over 960 published studies and thousands of unpublished projects in community, school, clinical, and workplace settings over the last decade (Green, 1999). As shown in Figure 14, Green and Kreuter’s model consists of five diagnostic phases (PRECEDE), an implementation phase and three evaluation phases (PROCEED) with a model of ‘how it works’ in the centre (1991).

“The goals of the model are to explain health-related behaviours and environments, and to design and evaluate the interventions needed to influence both the behaviours and the living conditions that influence them and their consequences” (Green, 1999, p. 2). The model was founded in the social/behavioural sciences, epidemiology, administration and education and has been described as a multidimensional and comprehensive model that recognises that health and health behaviours have multiple causations that must be evaluated if interventions are to be successful (McCormack Brown, 1999).

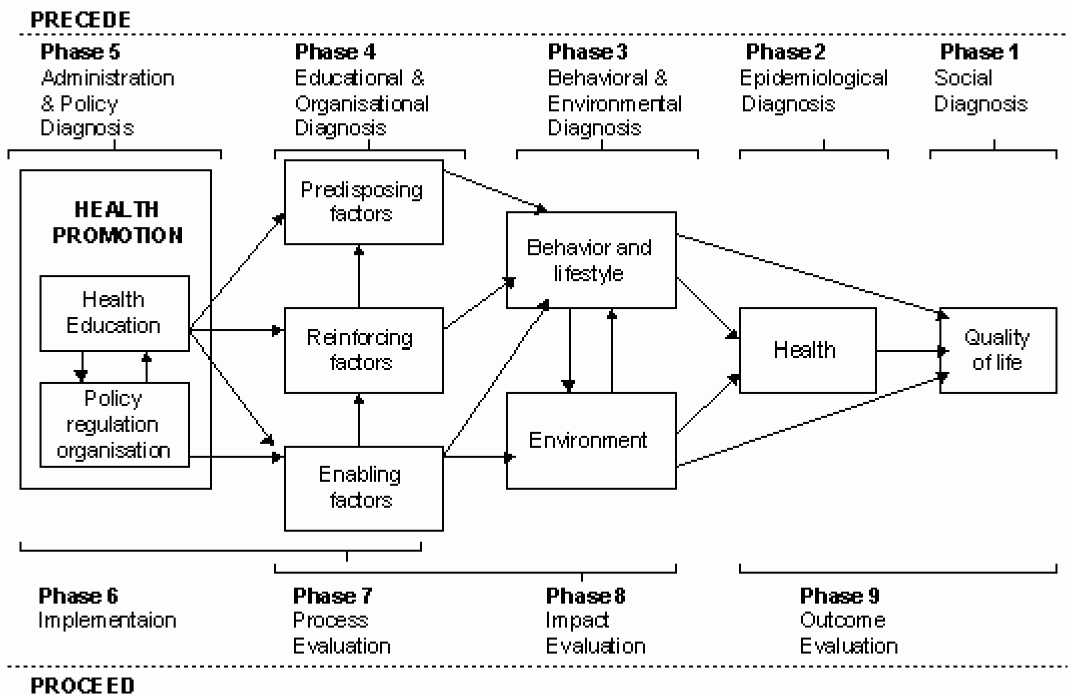

Figure 14. The PRECEDE/PROCEED model.

Reprinted from "Health Promotion Planning: An Educational and Environmental Approach", by L. W. Green and M. W. Kreuter, 1991, 2nd ed. Mountain View, CA: Mayfield Pub. Co. Cited in "Health promotion: Planning and strategies", by K. Tones and J. M. Green, 2004. London: Sage. p.112.

McCormack Brown outlines two important principles associated with the PRECEDE/PROCEED model. The first is the ‘principle of participation’ which emphasises active participation of the target group in defining priorities and goals and implementing solutions and which stems from community development theories and the empowerment education model espoused by Paulo Freire. The second principle stresses the importance of ‘environmental factors’ as determinants of health and health behaviour (McCormack Brown, 1999). Both principles are consistent with the approach proposed in this research and will be discussed in other parts of this thesis.

Phase two of the PRECEDE/PROCEED model above (epidemiological analysis) corresponds to Stage One of this thesis (Community Health Evidence Base). Many of the other elements of the PRECEDE/PROCEED model (e.g., focus on health education, behaviour, lifestyle, quality of life, environmental and predisposing, reinforcing and enabling factors) can only be assessed through direct community based intervention programs such as that proposed for Stage Two of this research (Community Health Information Collaboration). The PRECEDE/PROCEED model consists of many elements that can guide the design of a program but then again is a complex design that may be better suited to larger more well resourced programs than to small programs led by a single researcher.

Another noteworthy ‘stage’ model is Bracht and Kingsbury’s (1990) community organization model of health promotion consisting of main five stages and various key elements as summarised in Table 11 following. Once again, although this model may be more suited to a larger and longer-term collaboration, some of the key elements also apply to the research design proposed for this research thesis. For example, the key elements appearing in Stage 1 of Table 11 may be especially relevant to the present design whereas ongoing maintenance as described in Stage 4 would require further resources.

Brown’s (1991) three stage model for community action and health promotion is another useful example. Community members are involved in all three phases in this model, which appears as Figure 15. “In Phase 1, public health workers and community members assess needs and risk factors that contribute to disease or death or that reduce positive health functioning, and plan programs to deal with them” (Brown, 1991, p. 444). Phase 2 involves implementation of the health promotion program and may target high risk personal behaviours, environmental hazards or personal health related behaviours. The aim of the intervention is to reduce risk and improve health status as suggested by Phase 3.

Table 11

Main Stages and Key Elements of the Community Organization Model of Health Promotion

Stages	**Key Elements**
Stage 1: Community analysis	Define the community; collect data; assess community capacity; assess community barriers; assess readiness for change; synthesize data and set priorities.
Stage 2: Design initiation	Establish a core planning group and select a local organizer/coordinator; choose an organizational structure; identify, select, and recruit organization members; define the organization's mission and goals; clarify roles and responsibilities of board members, staff, and volunteers; provide training and recognition
Stage 3: Implementation	Generate broad citizen participation; develop a sequential work plan; use comprehensive, integrated strategies; integrate community values into the programs, materials, and messages;
Stage 4: Maintenance and consolidation	Integrate intervention activities into community networks; establish a positive organizational culture; establish an ongoing recruitment plan; disseminate results.
Stage 5: Dissemination and assessment	Update the community analysis; assess effectiveness of interventions/programs; chart future directions and modifications; summarize and disseminate results

Note. Adapted from "Community organization principles in health promotion: a five-stage model", by N. Bracht and L. Kingsbury. (1990). *Health promotion at the community level*. 66-88.

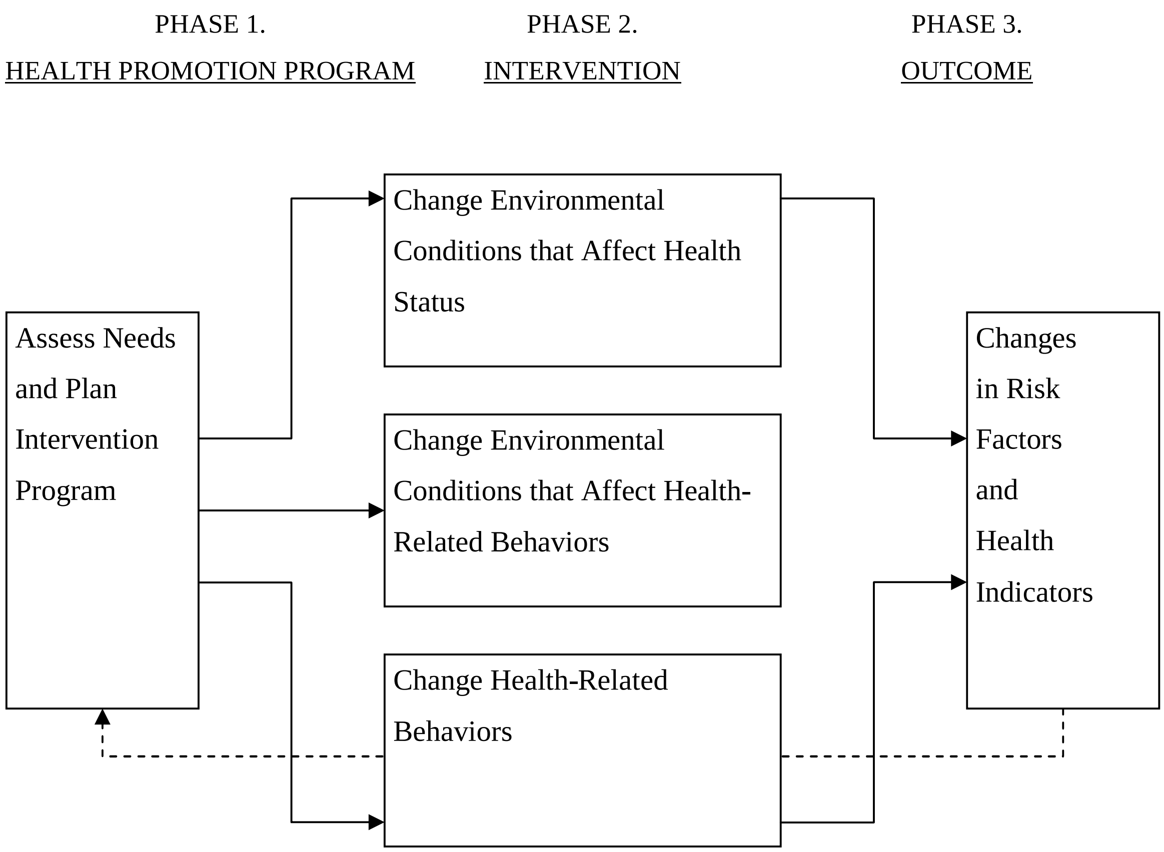

Figure 15. Model of health promotion strategies.

Reprinted from "Community action for health promotion: A strategy to empower individuals and communities", by E. R. Brown, 1991, *International Journal of Health Services*. *21*(3), p. 445.

Brown also emphasises the importance of avoiding victim blaming and giving people a greater sense of power to make changes in their lives. This model is more basic than some of the models presented in this section and could possibly be implemented in a small scale action research program such as the one proposed for this thesis. However, changes in risk factors and health indicators, as outlined in the third phase of the model suggests a comprehensive evaluation which may not be achievable in smaller scale research.

Another more basic model of community work (see Figure 16) known as the ‘collective action cycle’ also offers a way to build collective action for change and community health (Smithies & Webster, 1998). Smithies and Webster explain that the cycle begins when the community health worker creates the opportunity for individuals to come together and share their experiences on issues of importance. The worker then promotes reflection in the group by enabling individuals to listen to each other and by asking questions to draw out the similarities and differences in what they say.

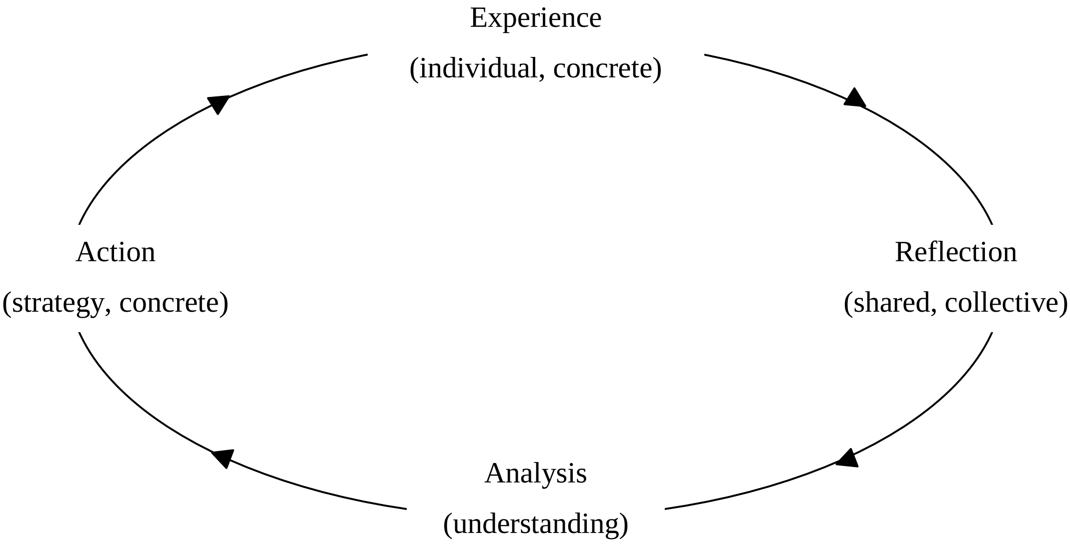

Figure 16. The collective action cycle.

Reprinted from "Community Involvement in Health: From Passive Recipients to Active Participants", by J. Smithies and G. Webster, 1998, p.93. Aldershot, England; Brookfield, Vt., USA: Ashgate.

During the analysis stage the community health worker asks lots of ‘why’ questions so that the group can come to a shared analysis of the issues discussed. In the final action phase of the cycle, the community health worker helps the group to brainstorm possible actions to deal with the issues and could involve small or larger scale action (Smithies & Webster, 1998).

Another well known strategy that involves community members in the improvement of community health and quality of life is the Mobilizing for Action through Planning and Partnerships (MAPP) (NACCHO, 2004). The MAPP model was introduced in Table 6 to outline the community health status assessment components. MAPP involves community-wide strategic planning to enable communities to “achieve optimal health by identifying and using their resources wisely, taking into account their unique circumstances and needs, and forming effective partnerships for strategic action” (NACCHO, 2004, p. 5). The benefits of the MAPP process include its capacity to:

- Create a healthy community and a better quality of life
- Increase the visibility of public health within the community
- Anticipate and manage change
- Create a stronger public health infrastructure
- Engage the community and create community ownership for public health issues (National Association of County and City Health Officials, 2004).

The first, second, third and last points in the list are relevant aims in the present research while the fourth one is an ideal to strive for in the longer term rather than something that can be achieved in a single project.

The MAPP process begins when public and private agencies designated as leaders within the community begin to organise and form partnerships with community residents (Organize for Success / Partnership Development) (see Figure 17). The second phase is the development a shared or common vision for pursuing long-range community goals (Visioning). Listed around the outer part of the diagram in Figure 17, the next phase involves four MAPP assessments of Community Themes and Strengths, the Local Public Health System, Community Health Status and Forces of Change. A list of challenges and opportunities is generated from each of the four assessments and participants then determine the most critical issues that must be addressed for the community to achieve its vision (Identify Strategic Issues).

Participants then ‘Formulate Goals and Strategies’ for addressing each of the identified issues. An important phase of MAPP is the Action Cycle where participants plan for action, implement, and evaluate. “These activities build upon one another in a continuous and interactive manner and ensure the continued success of MAPP activities” (NACCHO, 2004, p. 7).

Figure 17. The MAPP model.

Reprinted from "Mobilizing for Action through Planning and Partnerships: Achieving Healthier Communities through MAPP (a User's Handbook)", by National Association of County and City Health Officials, 2004. p.6. Washington DC: National Association of County and City Health Officials.

Another cyclical model developed by the San Francisco Department of Health (SFDH, 2004) is the Community Action Model (CAM). The CAM creates change by building community capacity and encouraging critical analysis to identify underlying social, economic, and environmental forces creating health and social inequalities. The CAM consists of five steps as outlined:

1. Train Participants: Community Action Team (CAT) members are recruited and trained to develop skills, increase knowledge and build capacity. The participants will use this knowledge and skills to choose a specific issue or focus and then design and implement an action to address it.

> 2. Do a Community Diagnosis: A community diagnosis is the process of finding the root causes of a community concern or issue and discovering the resources to overcome it.
>
> 3. Choose an Action: to address the issue of concern. The Action should be: 1) achievable, 2) have the potential for sustainability, and 3) compel a group/agency/organization to change the place they live for the well-being of all.
>
> 4. Develop and Implement an Action Plan: The CAT develops and implements an action plan to achieve their Action which may include an outreach plan, a media advocacy plan, development of a model policy, advocating for a policy, making presentations as well as an evaluation component.
>
> 5. Enforce and Maintain the Action: After successfully completing the action, the CAT ensures that their efforts will be maintained over the long term and enforced by the appropriate bodies (SFDH, 2004, p. 1).

The Community Health Evidence Base undertaken in Stage One of this doctoral research can also be referred to as a ‘community diagnosis’ as described in step two of the CAM while steps one to four steps have similarities to the design of the Community Health Information Collaboration program in Stage Two of this research. Indeed, as demonstrated, most of the models reviewed in this section have either influenced the development of the present research design or have been chosen for review because they lend support to or have similarities to the present design. In much the same way, the following section is also of relevance to the present design.

2.5.4 Evaluation of community health interventions. This section explores various meanings, methods and reasons associated with the evaluation of community based interventions or programs. The section is especially relevant to understanding the rationale and the procedures employed in Stage Three of this research.

Literature reveals that it is difficult to describe the essential characteristics of evaluation in community based health promotion programs/interventions because of the diversity of evaluation approaches. For example, evaluations are usually tailored to suit each particular program and there is no single methodology (Nutbeam, 1998b), ’magic bullet’, ‘one size fits all’ or ‘best’ standard (Judd, Frankish, & Moulton, 2001). Clearly, a small-scale community based program undertaken by a single researcher cannot be judged in the same way or using the same standards or criteria as a large scale and well funded government public health/health promotion strategy that targets a particular health condition in an entire community or population. What is evaluated and how it is evaluated also depends on the time frame (short term versus long term) of the program. Nevertheless, the literature in this field yields many examples, which can contribute to the design of an evaluation.

Program evaluation may be defined as “the systematic collection, analysis, and reporting of information about a program to assist in decision-making” (Q. E. Baker, Davis, Gallerani, Sánchez, & Viadro, 2000, p. 10). Program evaluation may include one or more of the following questions (Q. E. Baker et al., 2000, p. 12):

- What have we done?
- How well have we done it?
- Whom have we done it to?
- How much have we done?
- How effective has our program been?
- What could we do better or differently?

Including such questions in an evaluation may further contribute to empowerment by allowing program participants to reflect on their achievements and influence future program decisions. Similar questions are included in the evaluation undertaken in Stage Three of this research.

Russell-Mayhew (2006) provides an overview of the key concepts used in health promotion evaluations, including a discussion on the well known concepts of *formative, process and outcome* evaluation. “Formative evaluation is an ongoing process of collecting information to be used for further program development and improvement” (Israel, 1995; as cited in Russell-Mayhew, 2006, p.170). Formative evaluation is often contrasted with summative evaluation. Formative evaluation occurs during some stage of the program so that feedback and modifications can be incorporated into the program whereas summative evaluation aims to make a determination about the overall impact of the program once it is complete (Russell-Mayhew, 2006). Process evaluation is a way of tracking what happens during the implementation of the program, and can include questions about the extent to which it was implemented according to protocol, assessing achievements and identifying strengths and weaknesses, and measuring the activities, quality and reach of the program (Russell-Mayhew, 2006). Outcome evaluation aims to determine the relationship between a program and an outcome and measure changes such as knowledge, attitudes, behaviours (Russell-Mayhew, 2006). Nevertheless, this type of evaluation is difficult because of the effect of other events that may impact on a particular program (Russell-Mayhew, 2006). The evaluation conducted in the present research consists of elements of all three types of evaluation and is discussed further in the method and results sections.

Some of the other key concepts put forward by Russell-Mayhew (2006) are described in The operationalisation of ‘community’ is central to evaluation, and past evaluations in the health promotion literature reveal three main approaches to community (Hawe, 1994). One is “community as ‘lots and lots of people’ or “community as population” which is concerned at reaching as many people as possible and making best use of scarce program resources (p. 200). This approach consists of outcome evaluation aimed at summing up changes made by individuals and assigning a “proportional change result for the population” (p. 200). The second approach follows from the first and is referred to as a ‘giant reinforcement schedule’ or community as setting, which acts to support and maintain individual behaviour change. The approach is characterised by collaboration with organisations, groups and key individuals who have the capacity to translate health messages in the local culture and attention to community organization principles and community ownership.

Table 12 and include attention to meaningful opportunities for involvement, building capacity, a holistic view of health and empowerment.

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Table 12

Evaluation Should be in Keeping with the Principles and Practice of Health Promotion

Health promotion action is:	**Therefore, evaluation should:**
Participatory	provide meaningful opportunities for involvement of stakeholders in all stages of planning, implementation and evaluation
Focused on utility	be judged by its actual use
A process (not a singular event)	involve both process and outcome information to understand both impact and how and why a program works
Aimed at building capacity	enhance capacity of individuals, communities, organizations and governments and build on the strengths and resources in the community
Community focused	feature measures for the population and environment and methodology that is appropriate beyond an individual focus
Holistic	reflect the multidimensional nature of health
Multi-strategy	use a wide range of qualitative and quantitative methods
Multi-disciplinary	be open to standards and methods from a number of disciplines through collaborative partnerships
Empowering	not only measure change but also be used to facilitate change

Note. Reproduced from "Key Concepts From Health Promotion Evaluations: What Psychology Needs to Know", by S. Russell-Mayhew, (2006). *International Journal for the Advancement of Counselling*. 28(2), p.177.

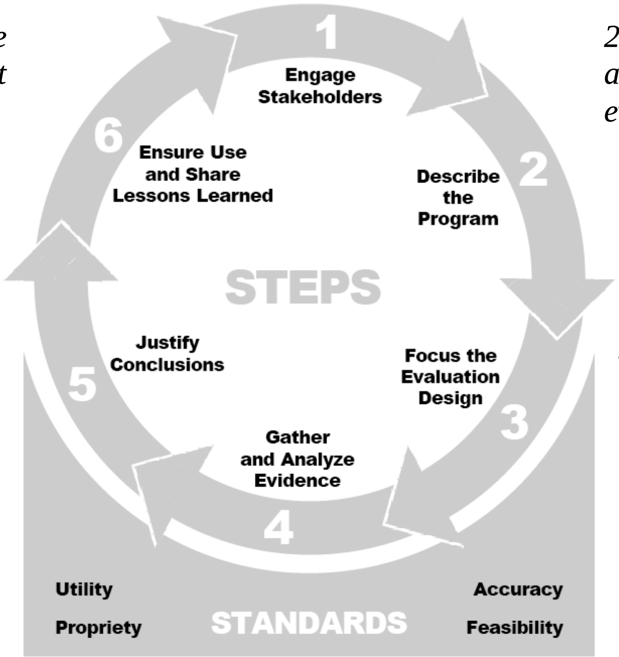
The third approach sees ‘community as a social system or as an ecosystem with capacity to work towards its own community identified problems’. The aim in this type of health promotion intervention is “to harness and enhance the natural problem solving and helping processes in the community” (Hawe, 1994, p. 201). The third approach relates most closely with the scale and community governance interests of the present research. The first approach assumes the involvement of many more people and a greater reach than the present research while the second includes collaboration with organisations and not just community members as planned in this research. Even so, many of the principles such as supporting change, community organisation and community ownership are goals to strive for in any program.

Various visual models have been developed that summarise the complexities of health promotion evaluations. Some models describe evaluation methodologies (usually in stages) while others specify the ideals or success factors associated with health interventions. One methodological model developed by the Center for the Advancement of Community Based Public Health (CBPH) (Q. E. Baker et al., 2000) included six steps in program evaluation as shown in the circular part of the model in Figure 18. The six steps are associated with six guiding questions, shown around the outer part of model.

1.Who is the evaluation for?

6. How can we be assured that what we learn will be used?

2. What program are we evaluating?



5. How will we justify our conclusions?

3. What methods will we use in conducting our evaluation?

4. How will we gather and analyse information that is credible and in what forms?

Figure 18. Steps in program evaluation.

Reproduced from "An Evaluation Framework for Community Health Programs", by Q. E. Baker, D. A. Davis, R. Gallerani, V. Sánchez and C. Viadro, 2000, p.3. Copyright 2000 by The Center for the Advancement of Community Based Public Health.

Two other influential models include Nutbeam’s (1998a) six-stage development model and outcome model for health promotion. The outcome model is shown in Figure 19 and is discussed following in relation to the present research. Health and Social

Outcomes appear at the top of the hierarchy and include quality of life, functional independence and equity, which have the highest value according to the authors.

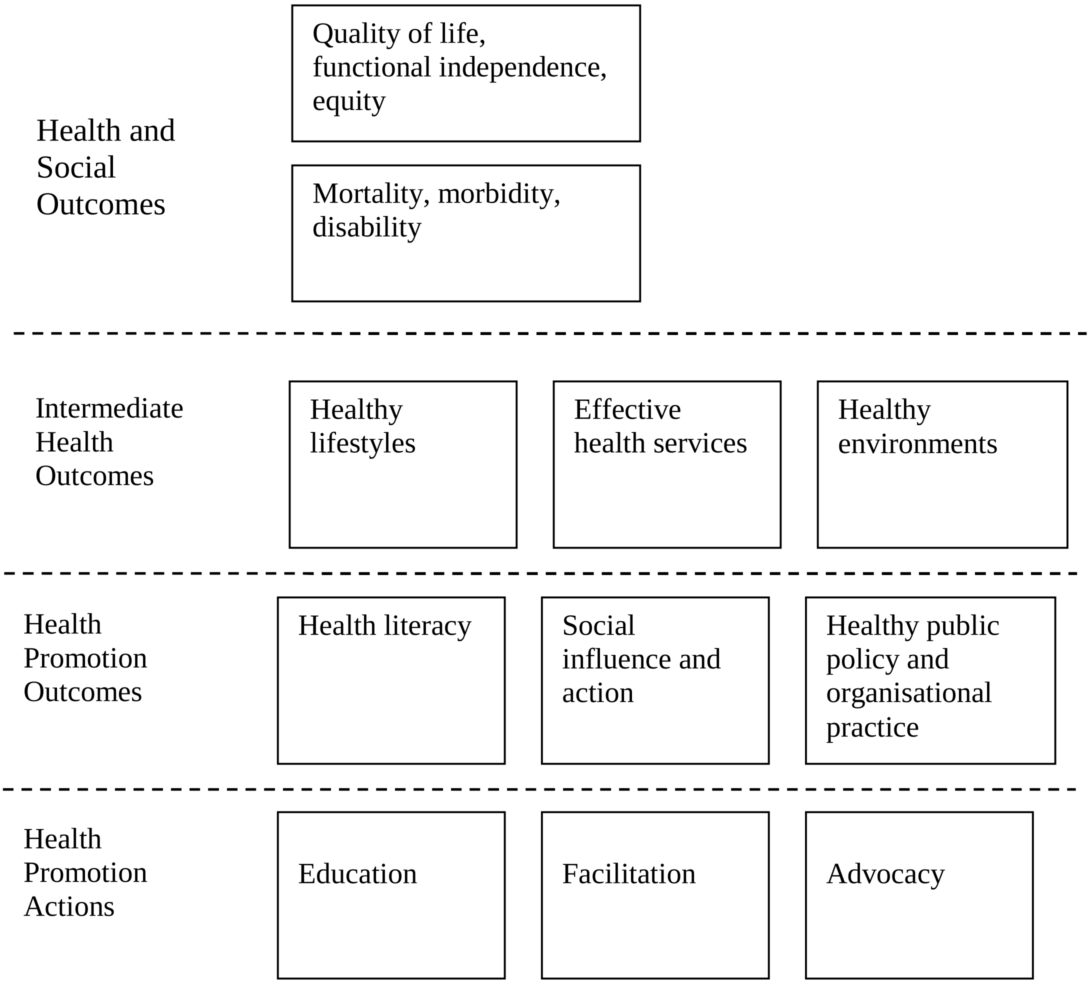


Figure 19. An outcome model for health promotion.

Reproduced from "Evaluating health promotion - progress, problems and solutions", by D. Nutbeam, 1998. *Health Promotion International*. *13*(1), p.30.

Reductions in mortality, morbidity and disability are also valued outcomes in health and medical interventions (second box). The second layer consists of the Intermediate Health Outcomes (healthy lifestyles, effective health services and healthy environments) which represent determinants of health and social outcomes. The aim of health promotion is to increase people’s control over such determinants (Nutbeam, 1998). Some of the means by which determinants can be changed (e.g., health literacy) are listed next in the model in the category of Health Promotion Outcomes (consisting of education, facilitation and advocacy). Education includes learning opportunities to improve personal health literacy and individual and community capacity for health improvement. Facilitation is action taken in collaboration with individual and groups to mobilise social and material health resources and advocacy is “action taken on behalf of individuals and/or communities to overcome structural barriers to the achievement of health” (Nutbeam, 1998a, p. 31).

Nutbeam’s (1998a) outcome model in shows that there are many indicators which can be used to assess health promotion outcomes. Some of these were considered in the present research and are taken up again in the evaluation methodology section.

Nutbeam’s (1998a) six-stage development model for the evaluation of health promotion is shown in Figure 20. It shows the six stages of evaluation research on the top and the key questions that should be addressed at each of these stages on the bottom. It proposes basic epidemiological/demographic and community needs analysis in the first stage to identify major health problems in a defined population and to understand the determinants and scope for change of those determinants.

The second stage involves social and behavioural research to improve understanding of target populations and the type of change possible and to form the basis of an intervention theory development. The third stage of intervention demonstration is associated with the question of whether the solution worked while the Innovation Testing and Demonstration stages are about whether the programme can be repeated/refined, and widely reproduced, respectively. The sixth and final stage of Programme Management is about whether the program can be sustained (Nutbeam, 1998a). The model also shows that the two fundamental tasks in evaluation are to assess outcomes in order to determine whether the intervention achieved what it set out to achieve, and to understand the process and identify the basic conditions of success so that the intervention and successful outcomes can be replicated (Nutbeam, 1998a).

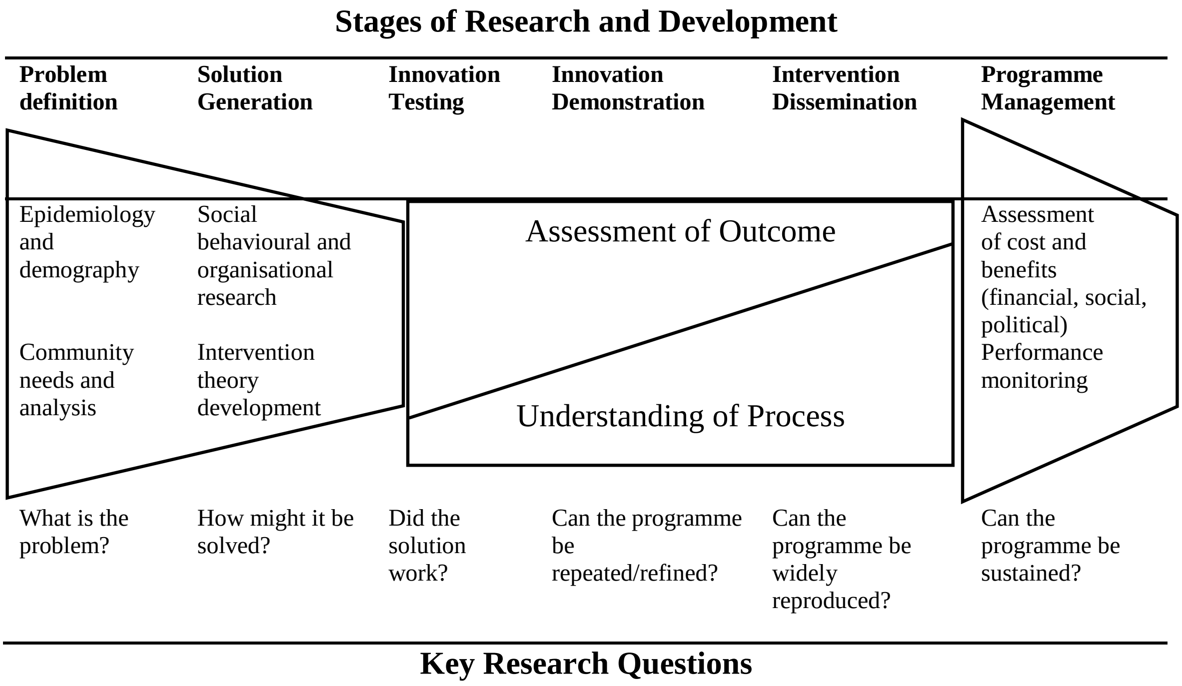


Figure 20. Six-stage development model for the evaluation of health promotion programmes.

Reproduced from "Evaluating health promotion - progress, problems and solutions", by D. Nutbeam. (1998). *Health Promotion International*. 13(1), p.33.

The ‘salutogenic’ approach to community health promotion as proposed by Judd, et al., (2001) focuses on ‘social capital’, capacity building, citizen engagement and activities that seek to maximize the health and quality-of-life of individuals, families and communities.

The evaluation theories and methodologies shown in this section were reviewed because of their relevance to this thesis, and to the evaluation in Stage Three in particular. Some of the issues highlighted were that evaluations do not adhere to a single methodology and may need to be tailor made to suit a program (Nutbeam, 1998c); and that programs of varying size should be judged differently. For example, one would expect a government program that used a great deal of tax payers money to produce significant public health gains whereas less might be expected from a short term community program with little funding. Evaluations can include various questions and can be conducted at different stages of a program, such as at the beginning, during or end. In particular, health promotion evaluations follow or align with the goals and principles of health promotion (Russell-Mayhew, 2006). The measurement of goals such as health literacy, empowerment, control over the determinants of health, community action and reductions in mortality or morbidity are therefore characteristic of health promotion evaluations. These issues were considered in the development of the present evaluation conducted in Stage Three.

2.6 Community Empowerment in Health

As may be discerned from the review of literature thus far, empowerment is a vital part of health promotion and community based health interventions. This section provides a review of some of the major empowerment definitions and debates with respect to community, public health and health promotion and some of the major empowerment models that attempt to illustrate the empowerment concept and process.

2.6.1 Empowerment definitions and debates. Although community involvement/participation, like empowerment, is another vital part of health promotion and community based health interventions, one can argue that this involvement must have some direct benefit for the community. If not by empowering the community to new levels of understanding and self-determination then at least it should lead to some improvement in the condition of their lives. As put by Teršelić (2000) participation is about taking part in “existing power structures”, whereas “empowerment might mean transforming power relationships through transforming one's self, changing relationships in society, and changing cultural patterns” (p. 2). Participation does not necessarily mean empowerment, which is why attention to empowerment issues is warranted.

Community empowerment in public health has its historic roots in various fields including community psychology, social psychology, the community participation values of the WHO and Ottawa Health Promotion Charter, the liberation and education philosophy of Brazilian educator Paulo Freire, the Saul Alinsky and Myles Horton traditions of community organizing and critical, feminist and post-modernist theory

(Wallerstein & Bernstein, 1994). This section offers a review of key literature on the topic of empowerment and its role in community based interventions.

Freire’s writings demonstrate a concern for the inequalities in power, knowledge and freedom of Brazilian and Latin American people during his lifetime in the mid to late twentieth century. He believed that people lived in a climate of political oppression that was reinforced and sustained by a system that encourages “silence” and an oppressive form of education called “banking” method of education (Paulo Freire, 1993). The banking approach to education assumes students are like banks or empty receptacles to which the teacher deposits information. The students role is to passively listen, receive, conform, memorize, repeat, file and store. In contrast to banking, Freire developed the problem-posing concept or method of education. This may described as a creative method or liberating pedagogy that encourages dialogue and stimulates critical thinking and praxis: “true reflection and action upon reality” in order to transform it (Paulo Freire, 1993).

Freire’s theories are often referred to in health education and empowerment literature (Nutbeam, 2000; Travers, 1997; Wallerstein & Bernstein, 1988, 1994). For example, Travers (1997) states that the traditional health education which focuses on individuals modifying lifestyle choices and behaviours relates to the ‘banking’ style of education while ignoring environmental factors beyond the individuals control. According to her, such “strategies may have little impact on those who have limited access to health-supporting resources such as income for nutritious food, adequate housing, and culturally relevant health education” (Travers, 1997, p. 344). In this paper, Travers presents a case study of participatory research and community organizing with urban low-income women around the problem of nutritional inequalities. Weekly discussion meetings with between 5-10 women (out of a total of 33) of a 16 month period were held at a Parent Center which provided food packs and an eat in meal (soup) for disadvantaged women and their families.

Travers describes the process of empowerment over several months, which began with the women simply talking and listening to each other, to a transformation in their seeing, thinking and relating to the world. By breaking the silence and sharing their experiences they “came to recognise the common and political roots of their oppression and thus were able to shed their self-blame” (p. 349). They initiated many small wins with the support of the researcher who took a community development role. This included contributing to the reduction of price inequities between neighbouring supermarkets; after finding out through an analysis of prices, that the supermarkets closer to them were more expensive. Such changes, “live on long after the research process has ended” and can be called “emancipatory health education” (Travers, p. 351). The resources, supportive environment and time allocated to the project would undoubtedly contribute to these positive personal changes. Extending these positive outcomes to broader system level changes would require an even greater commitment of time and resources.

Julian Rappaport (1981), a major proponent of empowerment theory in the field of community psychology, argued that empowerment should be the plan of action and symbolic ideology for the field of community psychology. In his article titled: *In praise of paradox: A social policy of empowerment over prevention,* Rappaport argued that the idea of prevention is derived from a needs model of dependent people where people are treated as children and taught to fit in and do the right thing. There is a contradiction and danger that our prevention programs will be controlling, and will therefore ignore rights over needs and ‘blame the victim’ while ignoring the environmental context of the problems we are trying to prevent according to him. By empowerment he meant that our “aim should be to enhance the possibilities for people to control their own lives” (1981, p. 15). This demonstrates the importance of critical education on system level problems (such as the growing burden of chronic diseases) and community governance and ownership in health promotion and prevention programs.

Similarly, in later work on empowerment and prevention, Rappaport (1987) refers to empowerment as a process and “a mechanism by which people, organizations, and communities gain mastery over their affairs” (p.122). He alludes to the ecological nature of empowerment as “not only an individual psychological construct, … [but] also organizational, political, sociological, economic, and spiritual” (p.130). According to

Rappaport, empowerment steers away from person blame ideology, and encompasses our interests in racial and economic justice, legal rights and human needs, health care and educational justice, competence and sense of community. Another key assumption of Rappaport’s theory of empowerment, which is core to this research, is that the “people of concern are to be treated as collaborators; and at the same time, the researcher may be thought of as a participant, legitimately involved with the people she is studying” (Rappaport, 1987). A researcher conducting a health program in a community of interest (e.g., the geographic community of residence) such as in the present research may be one way of participating and collaborating in a legitimate way.

Empowerment theory has been described as an enigma because it takes on different forms in different people and contexts and differs across levels of analysis (Zimmerman, 1990). Empowerment includes “participatory behavior, motivations to exert control, and feelings of efficacy and control” at the individual level; and “shared leadership, opportunities to develop skills, expansion, and effective community influence” at an organisational level (pp. 169-170). Empowered communities consist of empowered organisations and enable citizen participation in community decision making, and fair consideration of multiple perspectives (Zimmerman, 1990).

The community psychology interest in empowerment has been further explicated in a number of articles in the *American Journal of Community Psychology* (1990). Two of these are briefly discussed here.

In the first, introductory article, Florin and Wandersman (1990), put forward a framework for analysing community based initiatives in which empowerment was the central value system, and citizen participation, community based organisations and community development, were conceptualised as process, structure and domain, respectively. The framework highlights the intimate connection or “convergence” (p.41) of these ideas.

In another article, Zimmerman (1990) discussed the distinction between individually oriented and psychological conceptions of empowerment in relation to research. He argued that the former “neglects contextual considerations, is limited to a single paradigm and treats empowerment as a personality variable” (p.173). Psychological empowerment in contrast, refers to the individual level of analysis but does not ignore ecological and cultural influences. It also embraces the notion of person-environment fit, collective action, skill development and cultural awareness and intrapsychic variables such as motivation to control, locus of control and self efficacy. Zimmerman’s advice to researchers is not to ignore one over the other but to attempt to integrate “levels of analysis” for understanding the construct in its entirety (p. 174). “Empowerment-oriented interventions enhance wellness while they also aim to ameliorate problems, provide opportunities for participants to develop knowledge and skills, and engage professionals as collaborators instead of authoritative experts” (Perkins & Zimmerman, 1995, p. 569). A widely accepted definition of empowerment is: “an intentional ongoing process centered in the local community, involving mutual respect, critical reflection, caring, and group participation, through which people lacking an equal share of valued resources gain greater access to and control over those resources” (Cornell Empowerment Group, 1989; cited in Perkins & Zimmerman, 1995, p. 569).

Despite a widespread acceptance of the empowerment principle, some important criticisms have also been brought to the fore. One major criticism is that a great deal of research conflates *sense of* personal control with actual control (Riger, 1993). This is associated with the tendency to “ignore or downplay the influence of situational or social structural factors in favour of a focus on individual perceptions” (Riger, 1993). Riger claims that much of life is controlled by the politics and practices at the macro level and warns that a sense of empowerment may be an illusion rather than a real increase in power in decision making, influence and control of resources at the broader level.

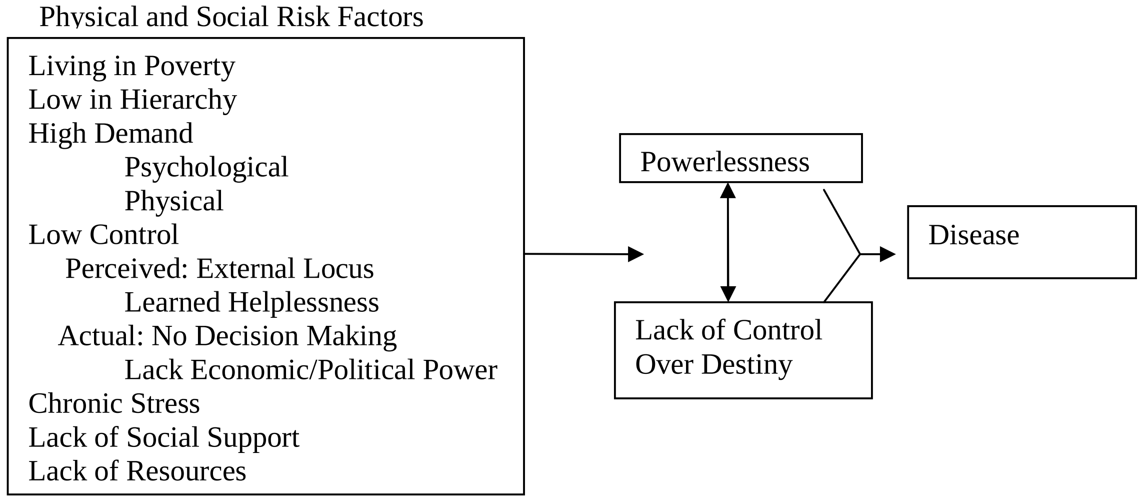
In a similar vein, Rissel (1994) questions whether empowerment is the “holy grail” of health promotion. He argues that although it has much to offer health promotion potentially, the concept does not have a clear theoretical underpinning, meaning or way of being measured. Rissel also distinguishes between “psychological empowerment” which involves feelings of greater control over one’s life gained through membership in the group; and “community empowerment” which involves active political participation resulting in redistribution of resources or decision making in the community’s favour, in addition to psychological empowerment.

Whilst individual level/personal feelings of empowerment should not be disregarded or considered less important than politics or macro level change, Riger and Rissel, like Rappaport and Zimmerman, remind us that empowerment is a multi-level construct.

2.6.2 Models of empowerment. Empowerment researchers have developed many informative models that illustrate the key components of their theories of empowerment. Wallerstein’s (1992) highly detailed model of powerlessness and empowerment shown in Figure 21 is an excellent demonstration of the multilevel nature of the empowerment. Wallerstein developed the model following an exploration of powerlessness and empowerment in the health and social science literature (including community psychology) which revealed that “powerlessness, or lack of control over destiny, emerges as a broad-based risk factor for disease” (p. 197). Conversely, empowerment, while more difficult to evaluate was an important promoter of health.

Wallerstein defined empowerment as a “social-action process that promotes participation of people, organizations, and communities towards the goals of increased individual and community control, political efficacy, improved quality of community life, and social justice” (Wallerstein, 1992). The model coincides with many of the community governance principles of interest in this thesis such as community control and action.

Powerlessness



Empowerment

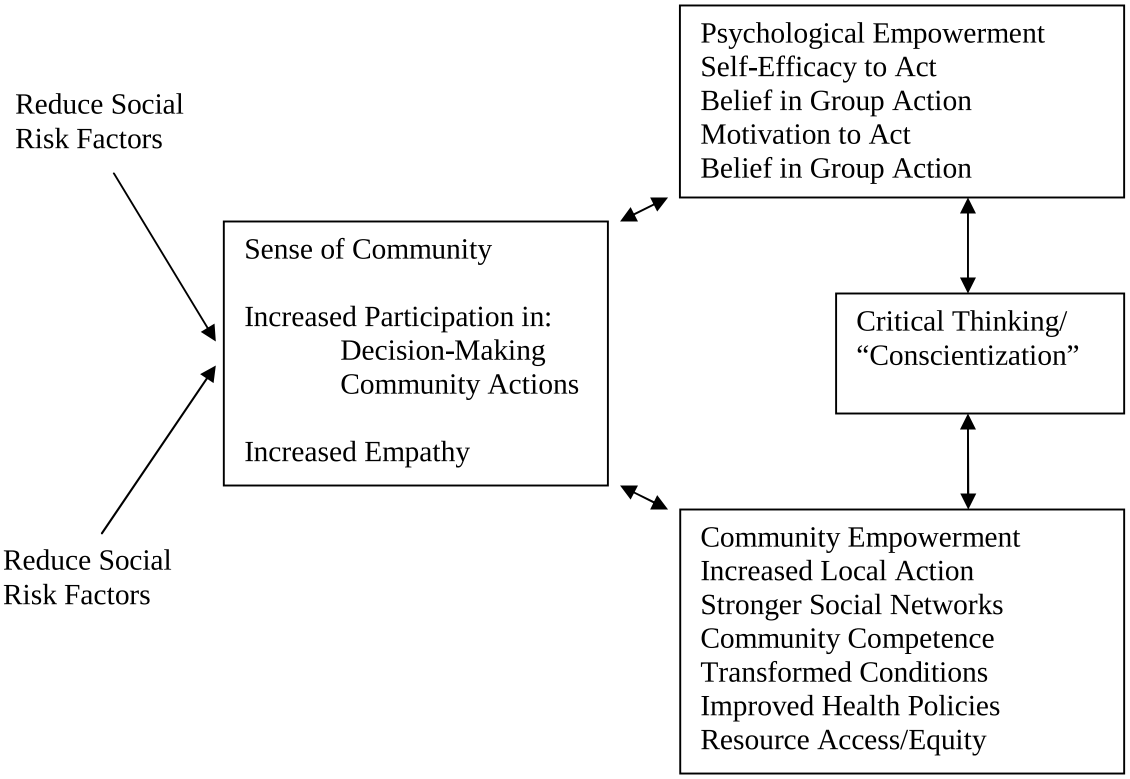


Figure 21. Variables that contribute to powerlessness and empowerment.

Reproduced from "Powerlessness, Empowerment, and Health: Implications for Health Promotion Programs", by N. Wallerstein, 1992, American Journal of Health Promotion. 6(3), p.201.

The terms ‘bottom-up’ and ‘top-down’ are sometimes used in the health promotion, participation and empowerment literature. The bottom-up approach, according to Laverack and Labonte (2000) is more associated with concepts of community empowerment, addresses issues of concern to particular groups and individuals, and has improvement in power and capacity as the major health outcome. The top-down approach is “more associated with disease prevention efforts, begins by seeking to involve particular groups and individuals in issues and activities largely defined by health agencies, and regards improvement in particular behaviours as the important health outcome” (Laverack & Labonte, 2000, p. 255). These authors draw attention to a tension between the two approaches where many health promoters use emancipatory discourse yet at the same time exert power over the community. This is said to occur because of the lack of clarification in operational terms about empowerment within the top-down programme context.

Laverack and Labonte (2000) offer practical suggestions for how to resolve these tensions by making programmes more empowering. Their model in Figure 22 demonstrates the two ‘parallel tracks’ in health promotion referred to as the ‘programme track’ and ‘empowerment track’. Each has several phases consisting of initial design/formation, objective setting, strategy selection, implementation/management and evaluation. The track on the right shows the defining characteristics/work of the empowerment track while the programme track on the left shows the questions which need to be addressed to make it more empowering.

Laverack and Labonte’s also offer advice on how to make a specific or targeted programme (such as a tobacco reduction programme) more empowering. Although the model may be useful to anyone concerned about community empowerment, it appears to be designed to assist those already in positions of power (e.g., government) to achieve success and to thereby maintain their positions of power.

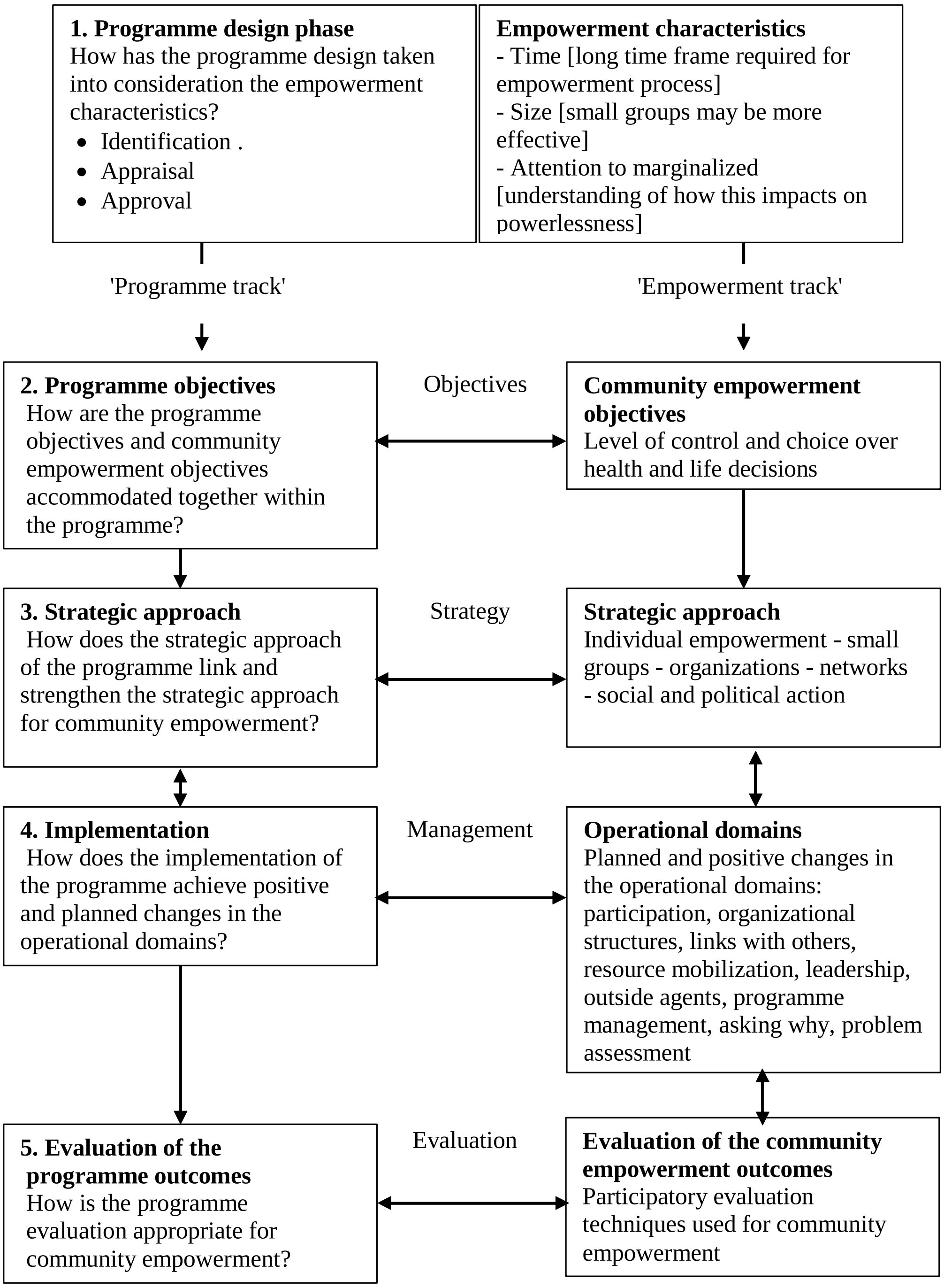


Figure 22. A planning framework for the accommodation of community empowerment into top-down health promotion programmes.

Reproduced from "A Planning Framework for Community Empowerment Goals within Health Promotion", by G. Laverack and R. Labonte, 2000, p.257. *Health Policy and Planning* 15(3), 255-262.

While the ‘democratic’ state of affairs, where governments are elected to act on behalf of the public is not likely to change, questions about ‘who does the empowering?’ and whether there is a ‘monopoly over empowerment work’ need to be addressed. In many countries, including Australia[7], governments and their policies have been the source rather than the liberators of oppression (see Theoretical Discussion for further discussion). For this reason, a range of persons, including community leaders and community workers working independently from government, should lead community empowerment work and critical education. The “ability of people to deal with the forces that affect their lives, even if they decide not to deal with them … is what empowerment means … ” (Syme, 2004)

Empowerment models such as the one developed by Laverack and Labonte provide valuable information about how to incorporate empowerment into health promotion programs or community based interventions and assess, measure or evaluate whether ‘empowerment’ has occurred.

Another model of psychological health empowerment, which has implications for health care in multicultural communities was discussed by Menon (2002). Menon presented a Venn diagram illustrating the setting or context for a model of psychological health empowerment. She describes in detail how the three overlapping circles of “individual”, “health service providers” and “health policy systems” interact and impact on each other (p.31). The model includes an informative table consisting of multiple items for a measure of psychological empowerment within the three broad categories/domains of perceived control (12 items) perceived competence (12 items) and goal internalisation (8 items). Example items for perceived control include (e.g. I know I have access to health care when I need it); for perceived competence (I believe I have the capability and knowledge to make the right health care decisions); and for goal internalisation (e.g. I believe being healthy is very important). However, Menon claims that the implicit assumption that the prevailing health system and activities of various health service

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[7] Australia has had a history of racist policies which served to disempower Indigenous Australians including government ‘assimilation’ policy which led to the forced removal of Aboriginal and Torres Strait Islander children from their families during 1909 to 1969 (Commonwealth of Australia, 2010b).

providers reflect the values of the people; is not a valid assumption in the case of ethnic or cultural minorities because of differing value systems. This causes various barriers to psychological health empowerment in the areas of health locus of control (for example whether one believes that health is predetermined or self determined), access to health care and difficulties arising from communication and language issues (Menon, 2002). Community based health interventions that include culturally diverse people are vital to identifying and addressing such perceptions and barriers to health and fostering empowerment.

More recently Wallerstein (2006) produced another model for the WHO Health Evidence Network that emphasised empowerment programme strategies and outcomes. The model (see Table 13) was produced following a review of research demonstrating that "empowering initiatives can lead to [positive] health outcomes and that empowerment is a viable public health strategy" (Wallerstein, 2006, p. 4). The first part of the model in column one shows several levels of empowering intervention strategies that can be undertaken. The second part of the model shows numerous empowerment outcomes associated with psychological, organizational, and community/political domains (columns two-four) and a special section (last row) focussing on women's empowerment (Wallerstein, 2006).

Psychological empowerment (see second column in Table 13) has been mentioned several times in this thesis (Menon, 2002; Rappaport, 1981; Rissel, 1994; Zimmerman, 1990). This type of empowerment may be fostered in community based health promotion and prevention programs because of its focus on building the capacity of people in the context of the community, society or political environment. The organisational and community/political pathways in Wallerstein's model suggest the involvement of health and community services and governments, respectively. Thus, as also proposed by Rappaport (1987), the model clearly demonstrates the complex ecological nature of empowerment.

Table 13

Pathways to Empowerment - Empowerment Outcomes

Empowerment Programme Components/Strategies:	**Empowerment Outcomes:**		
	Psychological	**Organizational**	**Community/Political**
• *Personal skills:* planning/actions o access to information • *Supportive environments:* o supportive groups o dialogical approach o based on indigenous knowledge • Community action/ participation: o meaningful decision-making o use of lay leaders o leadership/advocacy o organization capacity • *Healthy public policy:* o collective actions o effective organisation structures o transfer power o promote transparency • *Reorienting health care:* o involve constituents	• *Intrapersonal change* o political efficacy o collective efficacy o belief in group action o motivation to act o perceived control • *Sense of community* o community identity o bonding social capital o trust o reciprocity • *Participation* • *Critical consciousness of society*	• *Well-functioning services* o publicly accountable o equitably distributed o efficient o integrated o culturally appropriate o maintained overtime • *Organizational effectiveness and capacity* o sustainability o constituency building o produce outcomes o effective leadership o empowering to members o bridging social capital • *Effective inter-organizational networks/ partnerships*	• *Enhanced civil society* o structures for participation o increased social capital • *Good governance* o decreased corruption o increased transparency o accountability • *Human rights* • *Increased civil liberties* • *Anti-discrimination policies* • *Pro-poor development* o increased micro-enterprises o increased material assets o enabling economic policies • *Transformed socio-economic, environmental conditions and policies*
		Example: Women's empowerment	
	• Autonomy: freedom of movement • Authority: household decision making • Sense of community/participation with women • Collective efficacy	• Effective women's organizations	• Women's political rights & economic opportunities

Note. Reproduced from "What is the evidence on effectiveness of empowerment to improve health", by N. Wallerstein. (2006). Copenhagen: WHO Regional Office for Europe *(Health Evidence Network Report) www.euro.who.int/Document/E.88086*.

Another part of the model illustrating the “potential impact” of the previous strategies and outcomes on “health disparities and development effectiveness” is shown in Figure 23 (Wallerstein, 2006). In this component, empowering strategies such as those espoused in the Ottawa charter involving community participation are believed to lead to empowerment/capacity outcomes as well as to longer-term health outcomes such as decreased health disparities and inequities.

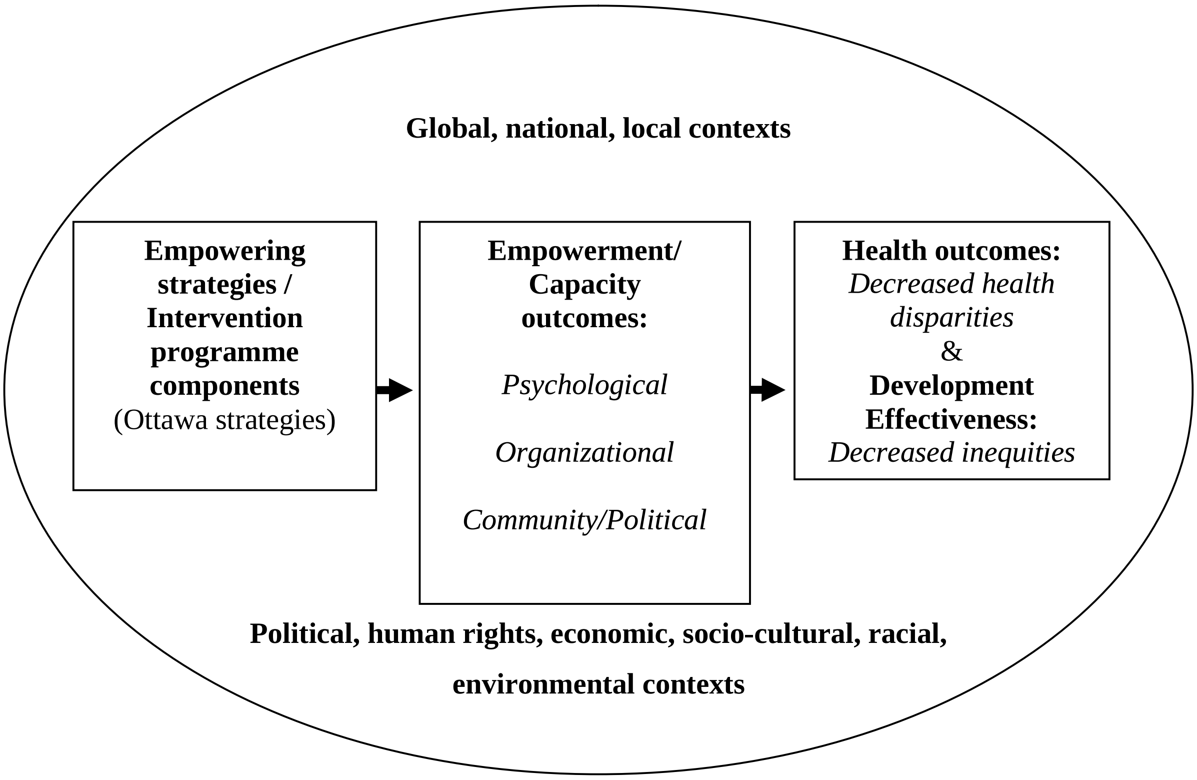

Figure 23. Pathways to health.

Reprinted from "What Is the Evidence on Effectiveness of Empowerment to Improve Health", by N. Wallerstein, 2006, p.23. Copenhagen: WHO Regional Office for Europe (Health Evidence Network Report).

In contrast to many of the political and more complex models of empowerment, Rifkin and Pridmore (2001) offered a simple definition of empowerment which has been used successfully in villages in third world countries such as India and Africa. Their model is shown in Box 2.

Box 2. Rifkin and Pridmore's empowerment model

Information is **KNOWLEDGE**
Knowledge is **POWER**
Sharing knowledge is **EMPOWERMENT**

Note. Reprinted from "*Partners in Planning: Information, Participation and Empowerment*", by S. B. Rifkin and P. Pridmore, 2001. London: Macmillan.

This type of model may be more appropriate for small-scale projects, when there is limited time, when urgent health education is required and when broader political involvement may be dangerous, unwarranted or unwanted. El Salvador during the 1980's is an example of a dangerous political environment. Although this model, like many of the models reviewed in this section, has some similarities to the present research design, this model is non-critical, non-action oriented and non-political.

Empowerment in this thesis consists of the elements of Rifkin and Pridmore's empowerment model but aligns closely with community psychology, a praxis paradigm and the critical and transformative theories of Martín-Baró and Freire. The present research also aligns with Tones and Tilford's (Tones, 2001) empowerment model shown in Figure 24 and Tones' (2001) praxis and community action model shown in Figure 25. The similarities of these two models and previous empowerment models to the model designed for this research are discussed in the conceptual framework, methodology and discussion chapters.

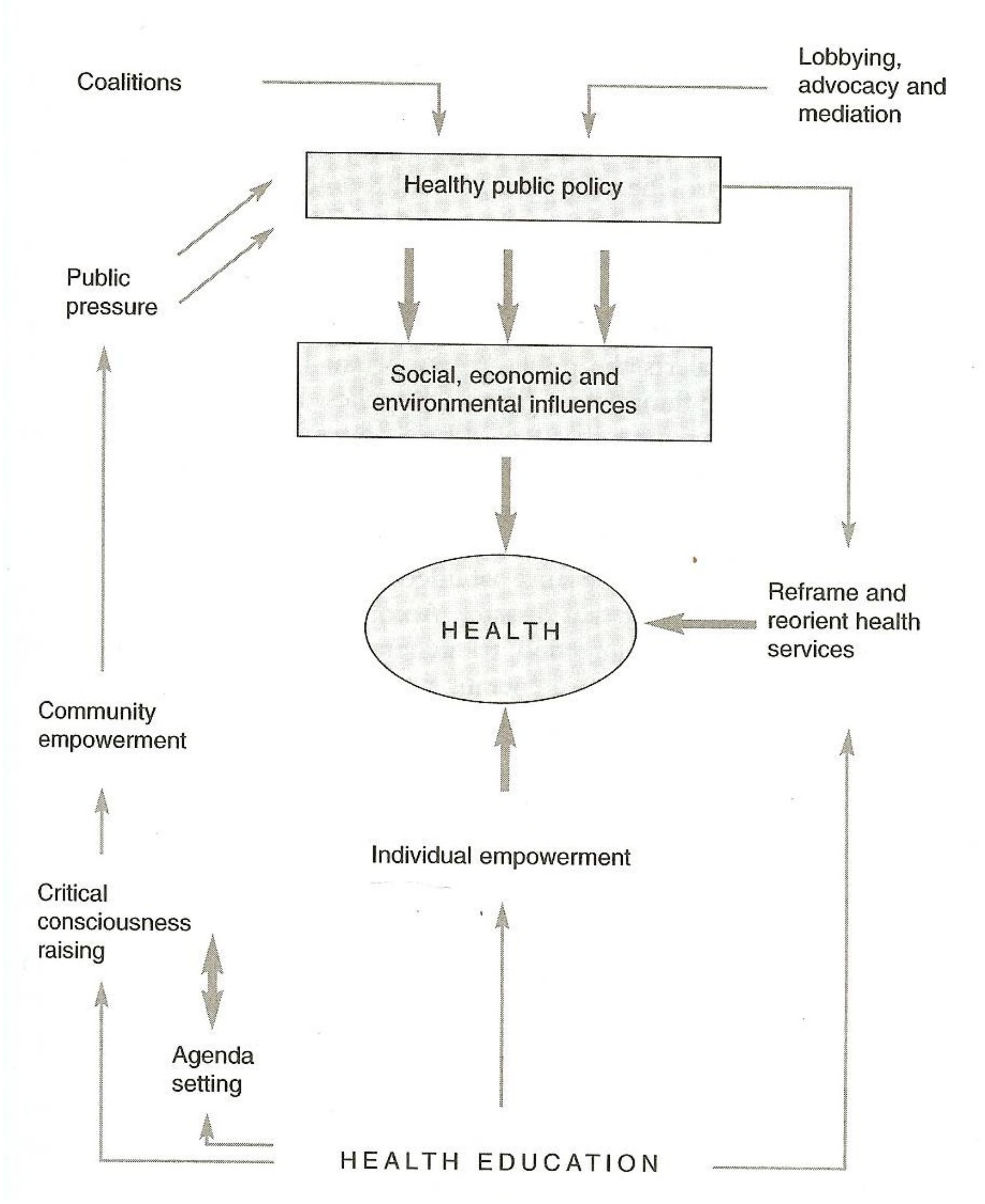

Figure 24. An empowerment model

Reprinted from "Health Promotion: The Empowerment Imperative", by K. Tones, 2001, p.13. *Health Promotion: Professional Perspectives*. 3-16.

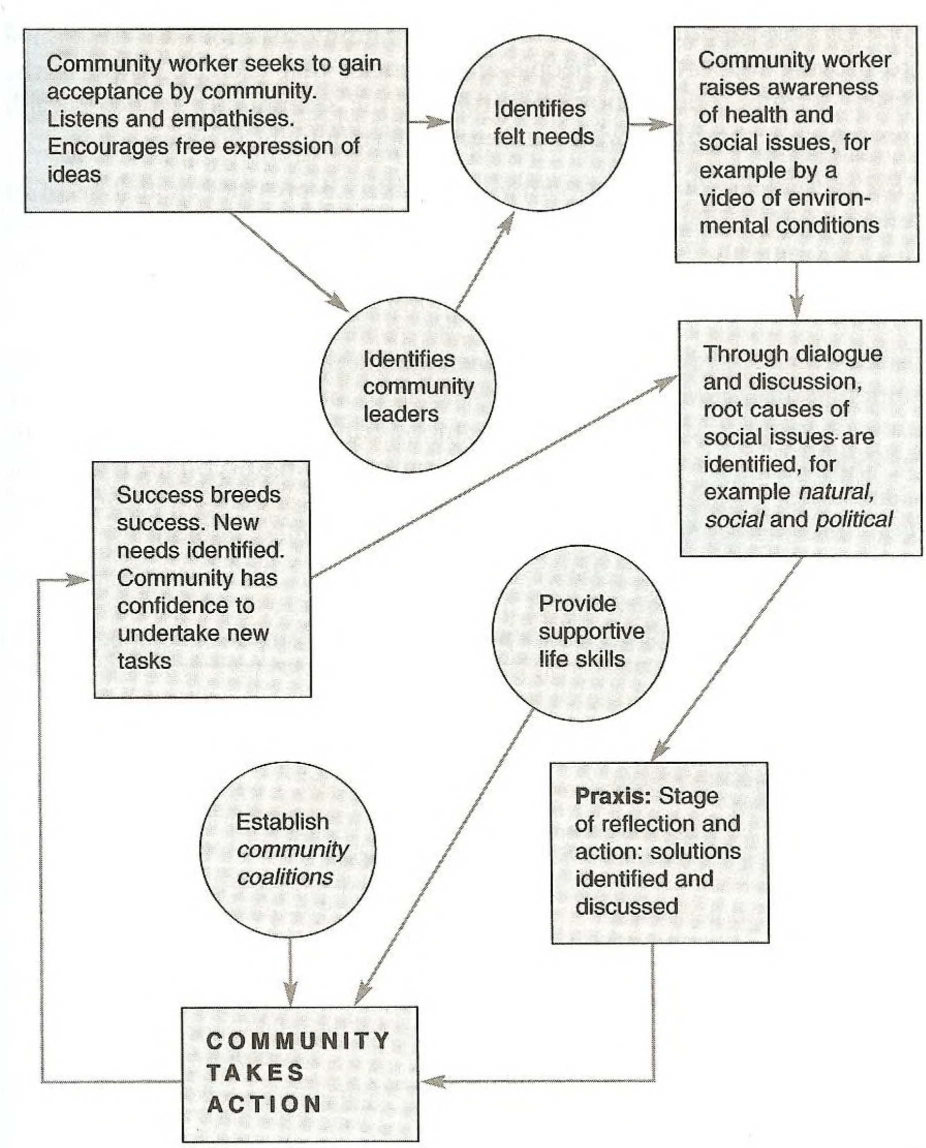

Figure 25. Praxis and community action

Reprinted from "Health Promotion: The Empowerment Imperative", by K. Tones, 2001, p.15. *Health Promotion: Professional Perspectives*. 3-16.

2.7 Health in an Australian Context

Various bodies of literature related to public health, health promotion and community based interventions from Australia and other countries around the world were reviewed in Chapter 2. The focus of this final part of the literature review is now directed to the Australian health policy context in order to provide a background for the present research design. The Australian context and health system is a multifaceted and an evolving one rather than a static one and many changes have occurred in this system during this doctoral period. As suggested by VicHealth, the Victorian Health Promotion Foundation, health promotion and prevention at the national and state level has been developing rapidly over the past few years and for many, is proving to be difficult to keep up with this changing environment (Victorian Health Promotion Foundation, 2011). The section includes a review/environmental scan of some of the major Australian and Victorian government health topics, policies and initiatives that have influenced this thesis, relate to it in some way and/or that demonstrate gaps in the public health and health promotion system, which are addressed in the thesis. Some of these existed prior to undertaking the first stage of this thesis while others are relatively new and have only emerged recently.

2.7.1 Australian government initiatives. A selected number of Australian health topics, initiatives and policies are reviewed in the following paragraphs. The first of these – the National Health Priority Areas (NHPAs) is central to this thesis. The NHPAs relate to one of the problems of interest in this thesis (as illustrated in the diagram in Figure 2) - the Growing Burden of Chronic Disease. The NHPAs inspired the initial interest in undertaking public health research and inform both the evidence gathering and the community health promotion stage of the thesis. Several other strategies that aim to address the growing burden of chronic disease are also reviewed and include the National Chronic Disease Strategy, the Australian Better Health Initiative, the National Preventative Health Strategy and the Australian Healthcare Reform initiative.

2.7.1.1 National health priority areas. Australia’s approach to health improvement and chronic disease prevention is currently centred around several National Health Priority Areas developed in response to the *Health for All in the 21st Century* global strategy for health reform (Australian Institute of Health and Welfare, 2005a). These are described in detail in this section because they will also be a focus in the first evidence gathering (Community Health Evidence Base) stage of the present research. According to the Australian Institute of Health and Welfare (AIHW), the NHPA initiative is overseen by the National Health Priority Action Council (NHPAC) and is a collaborative effort between Commonwealth, State and Territory governments. The initiative focuses on areas that significantly contribute to the burden of illness and injury and have potential for health improvement and reduction in the burden of disease (AIHW, 2005a). There are currently eight NHPAs. The initial NHPAs in 1996 consisted of cardiovascular health, cancer control, injury prevention and control and mental health with diabetes mellitus added in 1997, asthma in 1999, arthritis and musculoskeletal conditions in 2002 and obesity in 2008 (Australian Institute of Health and Welfare, 2008b). As data on the NHPAs are the focus of analysis in Chapter Three of this thesis, an introduction to each of the NHPAs is provided in the following paragraphs.

Arthritis and musculoskeletal conditions are associated with inflammation of the joints, causing pain, stiffness, disability and deformity. There are more than 100 forms of arthritis and musculoskeletal conditions, with the NHPA initiative focusing on osteoarthritis, rheumatoid arthritis and osteoporosis (AIHW, 2005b).

Asthma is a chronic inflammation and narrowing of the air passages associated with episodes of wheezing, chest tightness and shortness of breath (AIHW, 2005c).

Cancer involves cells becoming defective, multiplying out of control, and invading and damaging surrounding tissue. These cells may also spread to other parts of the body causing further damage. There are many different types of cancers with the NHPA Cancer Control initiative focusing on the following eight types: lung cancer, melanoma, non-melanocytic skin cancers, colorectal cancer, prostate cancer, non-Hodgkin's lymphoma, cervical cancer, breast cancer (AIHW, 2005d).

Cardiovascular health relates to the health of the heart and blood vessels as well as organs that are dependent on a strong blood supply. Major cardiovascular diseases include coronary heart disease, stroke, heart failure and peripheral vascular disease (AIHW, 2005e).

Diabetes is a chronic disease in which the body does not produce enough of the hormone insulin or cannot use it properly. Diabetes includes type 1 diabetes, type 2 diabetes and gestational diabetes (AIHW, 2005f).

Injury is the main cause of death in people aged under 45 years. Injury includes damage to health due to events such as transport-related accidents, falls, drowning and near-drowning, suicide and intentional self-harm, homicide and interpersonal violence, fire, burns and scalds, poisoning (from pharmaceuticals and other substances), sports-related accidents, incidents occurring in workplaces and on farms, and from other causes (AIHW, 2005g).

Mental health has been defined as “the capacity of individuals and groups to interact with one another and the environment, in ways that promote subjective well-being, optimal development and the use of cognitive, affective and relational abilities”. The AIHW recognises that “a diverse range of social, environmental, biological and psychological factors can impact on an individual’s mental health”. The current focus of this initiative is on depression which is “characterised by feelings of sadness, loss of interest or pleasure in nearly all activities, feelings of hopelessness and suicidal thoughts or self-blame” (AIHW, 2005h).

Obesity is not a disease but according to the Australian Government Department of Health and Ageing, it substantially increases the risk of chronic conditions such as Type II Diabetes, cardiovascular disease, stroke, cancers and musculoskeletal problems (DoHA, 2003). Obesity and overweight are caused by a combination of genetic factors and an energy imbalance (where energy intake is greater than energy expenditure over an extended period of time) (AIHW, 2008c). Obesity has reached epidemic proportions in Australia with the 2004-2005 National Health Survey showing that nearly half of all

Australian adults surveyed were overweight or obese (2008a). Obesity was only made a NHPA in April 2008, in the hope that it would help drive collaborative efforts aimed at tackling obesity at national, local, state and territory levels and ensure that obesity receives the attention it deserves as a matter of urgency (AIHW, 2008c).

The “seven NHPAs [not including obesity] account for almost 80% of the total burden of disease and injury in Australia” (AIHW, 2005a, p. 2). Through the NHPA initiative, it is recognised that certain common risk factors are associated with NHPA diseases and conditions and that there is a need to control and prevent them.

Table 14 shows some of the known modifiable/non-modifiable risk factors for the NHPA diseases and conditions. The preventable conditions and risk factors outlined in the table need to be emphasised in community based health promotion interventions so that they are well understood by community members.

Table 14

Known Risk Factors for Diseases and Conditions in each NHPA

Condition	**Non-modifiable risk factors**	**Modifiable risk factors**
Diabetes Type 1	Heredity	
Diabetes Type 2	Age, heredity, pregnancy, low birth weight, age	Excess weight (particularly obesity), impaired glucose tolerance, physical inactivity, poor diet and nutrition, low birth weight
Asthma	Family history	Excess weight, allergens, exercise, emotion, respiratory tract infections in infancy, low birth weight, viral infections, tobacco smoke, food, chemicals, drugs
Coronary heart disease	Age, male sex, family history	Tobacco smoking, physical inactivity, alcohol misuse, poor diet and nutrition, high blood pressure, high blood cholesterol, excess body weight, diabetes
Stroke	Age, male sex, family history	High blood pressure, high blood cholesterol, atrial fibrillation, transient ischaemic attack, tobacco smoking, alcohol misuse, excess body weight, physical inactivity, poor diet and nutrition
Lung cancer	Age, male sex	Tobacco smoking, environmental tobacco smoke, exposure to asbestos or radon
Colorectal cancer	Heredity, personal or family history of polyps or colorectal cancer, inflammatory bowel disease, age	Poor diet and nutrition, physical inactivity, excess weight
Depression	Family history of depression, being a female adolescent, high trait anxiety and pre-existing anxiety disorders, temperament—reacting negatively to stressors, negative thought patterns, avoidant coping style	Poverty, unemployment, conflict, poor parenting practices, child abuse, exposure to adverse life events, carers of those with chronic physical or mental disorder, older age, residential care
Arthritis	Genetic, female sex, age	Joint trauma and injury, obesity, repetitive occupational joint use, physical inactivity
Osteoporosis	Female sex, family history, low levels of oestrogen after menopause, amenorrhoea lasting more than 6 months before the age of 45, early menopause (before age 45)	Low body weight, low calcium intake, low vitamin D levels, physical inactivity, smoking, alcoholism, use of corticosteroids
Injury prevention	Male sex, younger and older age groups, non-metropolitan areas, lower socioeconomic status	Alcohol consumption, participation in sporting activities and vigorous exercise, non-compliance with safety precautions (e.g. secured pool fencing, wearing seatbelts)
Suicide	Males 20–39 and 80 years and over, unmarried males	

Note. Reprinted from "*Australia's health 2004*", by Australian Institute of Health and Welfare. (2004). Canberra: AIHW. Sources: AIHW 2002; Bradley & Harrison 2004; Steencamp & Harrison 2000; Brownson et al. 1998.

2.7.1.2 The National Chronic Disease Strategy. Another major initiative for improving chronic disease prevention and care across Australia is the National Health Priority Action Council (NHPAC) National Chronic Disease Strategy (NCDS). The approach consists of a NCDS and national service improvement frameworks for asthma cancer, diabetes, heart, stroke and vascular disease and osteoarthritis, rheumatoid arthritis and osteoporosis; and a blueprint for nationwide surveillance of chronic diseases and associated determinants (NHPAC, 2006). The NCDS outlines seven key principles and four actions as central to the strategy. These are shown in Table 15 following.

Table 15

Key Principles and Actions of the National Chronic Disease Strategy

Key Principles	**Actions**
Adopt a population health approach and reduce inequalities	Prevention across the continuum
Prioritise health promotion and illness prevention	Early detection and early treatment
Achieve person centred care and optimise self-management	Integration and continuity of prevention and care
Provide the most effective care	Self-management
Facilitate coordinated and integrated multidisciplinary care across services, settings and sectors	
Achieve significant and sustainable change	
Monitor progress	

Note. Adapted from "National Chronic Disease Strategy", by National Health Priority Action Council (NHPAC). (2006), p.9-12.

The community centred research design of Stage Two of the present study has much in common with the principles of health promotion and illness prevention, self-management, inequalities reduction and change focus outlined in Table 15.

2.7.1.3 The Australian Better Health Initiative. Another initiative which aims to reduce the prevalence of chronic disease and the associated risk factors is the Australian Better Health Initiative (ABHI) introduced in 2006 by the Council of Australian Governments (COAG) (DoHA, 2007b). The "ABHI is a … four year joint Australian, state and territory government program which aims to reduce the prevalence of risk factors for chronic disease, limit the incidence and the impact of these diseases and reduce morbidity and mortality rates" (DoHA, 2007a, p. 1). ABHI's priority areas include: promoting healthy lifestyles, supporting early detection of risk factors and chronic disease, supporting lifestyle and risk modification, encouraging active patient self management of chronic conditions and improving the communication and coordination between care services. One of the ABHI social marketing campaigns aimed at promoting healthy lifestyles is the Measure Up program which targets parents aged 25-50 and 45-60 year olds who may have been diagnosed with a chronic disease or may have an unhealthy lifestyle (DoHA, 2007b). The initiative encourages people to measure their waists and warns that there is an increased risk of chronic diseases (like some cancers, heart disease and type 2 diabetes) for men if more than 94 centimetres and women if than 80 centimetres. A greatly increased risk is indicated for men if more than 102 centimetres and women if more than 88 centimetres (DoHA, 2007b).

It would be worthwhile introducing initiatives such as these to community groups in personalised health promotion programs. This will ensure that people who do not normally access websites such as some elderly, culturally and linguistically diverse (CALD) groups and people who do not have internet access are aware of them. Moreover, some CALD and elderly persons do not access mainstream television and radio and may therefore not learn of such health campaigns even when they are widely advertised via such mediums.

2.7.1.4 The National Preventative Health Strategy. A more recent national prevention strategy known as the National Preventative Health Strategy (Australia: The Healthiest Country by 2020) was launched by the Minister for Health and Ageing, the Hon Nicola Roxon in September 2009. This aim of this strategy is to prevent Australians dying prematurely or becoming ill and suffering and to minimise the overload on health and hospital systems (Australian Government Preventative Health Taskforce, 2009). The strategy focuses on reducing overweight and obesity, smoking, drinking, and the life expectancy gap between Indigenous and non-Indigenous people. The discussion paper consisted of a range of actions in each of the four areas and argued for the establishment of a National Prevention Agency to ensure leadership and coordination of the various prevention activities (Australian Government Preventative Health Taskforce, 2009).

On the 17th November 2010, the idea of health prevention agency became a reality when the historic Australian National Preventive Health Agency Bill was passed in Parliament by the Gillard Government (Commonwealth of Australia, 2010a). The Minister for Health and Ageing declared that the agency will be critical in combating preventable diseases, which affects the lives of millions of Australians. The Government has allocated $17.6 million to establish and operate three specific programs under the National Partnership Agreement on Preventive Health including:

- National social marketing programs relating to tobacco and obesity
- A preventive health research fund focussing on translational research
- A preventive workforce audit and strategy (Commonwealth of Australia, 2010a).

The first two of these are comparable with the research undertaken for this thesis. Firstly, social marketing is advanced during the Second Stage of the research through the development of a website housing various Australian and international health initiatives. Secondly, translational research is similar to and has its origins in applied and action research, which is employed in this research.

2.7.1.5 Australian healthcare reform. Health reform is needed because there are various problems with the current health system. Indeed, many of the policies and initiatives discussed in this section were appear to have been developed with health care reform principles in mind. Healthcare reform became a major issue in 2003 when the National Hospitals Clinician's taskforce (Chaired by Professor John Dwyer AO), formed an organisation called the Australian Health Care Reform Alliance (AHCRA, 2007-2009a). The key problems with the health system according to AHCRA are:

- The health gap between Indigenous and non-Indigenous Australians
- Many Australians cannot access health care when and where they need it
- A chronic shortage of doctors, nurses and other health professionals

- Insufficient focus on prevention and primary care
- Inefficient allocation of resources caused by the current State/ Commonwealth funding structure.

The principles underpinning the values of AHCRA are summarised following:

- Vision - to assist individuals to be healthy and deliver compassionate and quality health care to all
- Access - health care as a right and on the basis of need not the ability to pay
- Primary health care - health promotion and preventive strategies and early diagnosis and treatment to minimise the development of chronic disease
- Community engagement - health care systems built on partnerships with community and consumers
- Equitable outcomes - urgently address indigenous health status, inequity and injustice and social determinants
- Workforce - professionals providing quality services in a culturally sensitive manner to cater for the diversity that characterises modern Australia
- Efficiency - in relation to State and Federal government responsibilities and healthcare based on evidence and delivered by appropriately skilled health professionals (AHCRA, 2007-2009b).

AHCRA members have been critical of the failure of successive Australian governments to address inequities in health care access due to costs and lack of services and for wasting billions of dollars of taxpayers money each year due to duplication of services and lack of accountability in health care spending. The 2007 National Health Reform summit identified many issues for reform including continuing inequities and the problem that many preventable chronic illnesses are creating a massive burden for the acute health system (AHCRA, 2007-2009a).

2.7.2 Victorian government initiatives. In addition to the national policies and initiatives outlined above, a number of important Victorian initiatives related to health promotion and prevention have also emerged over the past few years.

One key Victorian initiative is the 2007 Victorian Auditor-General’s report titled: Promoting Better Health through Healthy Eating and Physical Activity. According to Auditor-General Des Pearson:

> Physical inactivity, unhealthy eating and being overweight are the most important preventable causes of chronic diseases such as type 2 diabetes, heart disease and many types of cancer. The social and economic costs of these diseases are enormous and have the potential to increase significantly over the coming years (Pearson, 2007, p. 5).

Pearson recognised that health promotion activities aim to reduce the incidence of chronic disease by encouraging people to adopt healthier behaviours and that the current approach to promote healthy eating and physical activity needed to be strengthened. He noted that the evidence base and subsequent targeting of effort, as well as planning and coordination of programs across government could be improved (Pearson, 2007).

The Victorian Government Department of Health (DoH), formerly called the Department of Human Services (DHS) is committed to health promotion and prevention and addressing health inequalities in Victoria. Some examples of this commitment include a dedicated website on health promotion, which includes various resources and a focus on health promotion priorities’, integrated health promotion principles and health promotion evidence and evaluation.

The health promotion website consisted of health promotion information, resources and events for health workers and links to related websites for professionals and consumers . One of the popular consumer sites listed was the Victorian Government 'Go for your life' initiative, which aims to promote healthy eating and increase levels of physical activity. Another popular consumer website is the multiple award winning ‘Better Health Channel’ founded by the Victorian Government in 1999 and rated as the number one health and medical website in Australia. Consumer health information and social marketing such as this has proliferated on the World Wide Web in recent years and is an important new health promotion strategy. Even so, some population groups such as CALD communities, the elderly and other disadvantaged groups may have difficulties

in understanding and accessing such information. Community based health promotion interventions that aim to include these people may bridge the gap in this respect.
The Integrated Health Promotion (IHP) strategy refers to a collaborative relationship between agencies and organisations from a wide range of sectors and communities in a catchment using a mix of health promotion interventions and capacity building strategies to address priority health and well-being issues (DHS, 2006). The guiding principles for IHP are:

- Address the broader determinants of health
- Base activities on the best available data and evidence
- Act to reduce social inequities and injustice
- Emphasise active consumer and community participation
- Empower individuals and communities
- Explicitly consider difference in gender and culture
- Work in collaboration across a broad range of sectors (DHS, 2006).

With the exception of the last point in the list, which is more applicable to organisations and government than research conducted by independent researcher, the guiding principles of IHP are also relevant in the present thesis.

The seven health promotion priorities for Victoria for 2007-2012 approved by the Minister for Health should also be acknowledged. The aim of these priorities which are listed following is to improve overall health and reduce health inequalities (DHS, 2007).

1) Promoting physical activity and active communities
2) Promoting accessible and nutritious food
3) Promoting mental health and wellbeing
4) Reducing tobacco-related harm
5) Reducing and minimising harm from alcohol and other drugs
6) Safe environments to prevent unintentional injury
7) Sexual and reproductive health

The Department of Health also recognised that making health promotion and disease prevention strategies more effective requires using evidence to guide decisions about interventions (for policy and practice) as well as consistently evaluating the effectiveness of interventions in terms of their impact (DoH, 2010a). Evidence was defined as evaluation and research evidence for intervention effectiveness or cost-effectiveness to help answer the questions of "What interventions work?" and "Is the intervention cost-effective?" It was acknowledged that research evidence would also help in making other types of decisions, such as "What is the problem?" These are relevant questions that could also be applied in the present research. For example, quantitative health/epidemiological data also constitutes a type of evidence about ‘What is the problem?’ and is a focus of Stage One of this thesis. On the other hand, the first two questions could be considered in Stage Two of the research in order to evaluate the health promotion program with community members.

Two of the six strategic directions of the Department of Health are to ‘strengthen prevention and health promotion’ by reducing the incidence of preventable disease through education, programs and regulation; and to ‘reduce health inequalities’ by tackling the differences in health access and outcomes, especially for disadvantaged groups in the community (DoH, 2010b). These closely relate to the present thesis in that Stage One is concerned with developing a better understanding of existing inequalities and Stage Two with community based health promotion, education and prevention.

Some significant initiatives that aim to tackle increasing levels of preventable diseases in particular, have also been recently developed by the Department of Health. Although the research stages undertaken for the present thesis were completed prior to the development of these state initiatives, they are of interest because they incorporate many of the themes of interest in this thesis. The initiatives include the Public Health and Wellbeing Act 2008, which took effect on 1 January 2010; the development of a new branch dedicated to Prevention and Population Health; a public health research centre, established to strengthen the preventive health effort in Victoria; and the first Victorian prevention plan titled the Victorian Public Health and Wellbeing Plan 2011-2015 (DoH, 2011a). The first and last of these are reviewed following.

The Public Health and Wellbeing Act 2008 seeks to achieve the highest attainable standard of public health and wellbeing by: “Protecting public health and preventing disease, illness, injury, disability or premature death, promoting conditions in which people can be healthy and reducing inequalities in the state of public health and wellbeing” (Department of Health, 2011a, p. 1). The Act includes several principles that also underlie this thesis including the principles of primacy of prevention, evidence based decision-making and collaboration (State of Victoria, 2008). It also supports a holistic view of public health and wellbeing as the absence of disease, illness, injury, disability or premature death and the collective state of public health and wellbeing.

The Victorian Public Health and Wellbeing Plan 2011-2015 - Victoria’s first public health plan to tackle chronic disease, was launched by the Minister for Health and Ageing, the Hon. David Davis MP on Thursday, 01 September 2011. According to Davis: "An effective prevention system, along with a strong and responsive healthcare system, can help reduce the growing burden of chronic disease and injury we are now facing, and support people to enjoy a greater sense of wellbeing." (Davis, 2011, p. 1). The development of the plan included consultations with key NGOs including the Heart Foundation, the Cancer Council and Diabetes Australia and negotiations are underway to work in partnership with local governments on new chronic disease prevention activities that are tailored to meet the needs of their local community (Davis, 2011).

The Victorian Health System in 2011 as denoted in Figure 26 has a focus on health promotion and disease prevention in addition to primary, secondary and tertiary care sectors. The shaded areas show the relative contributions by State government, private health providers and individual contributions, Local government and Commonwealth government funding.

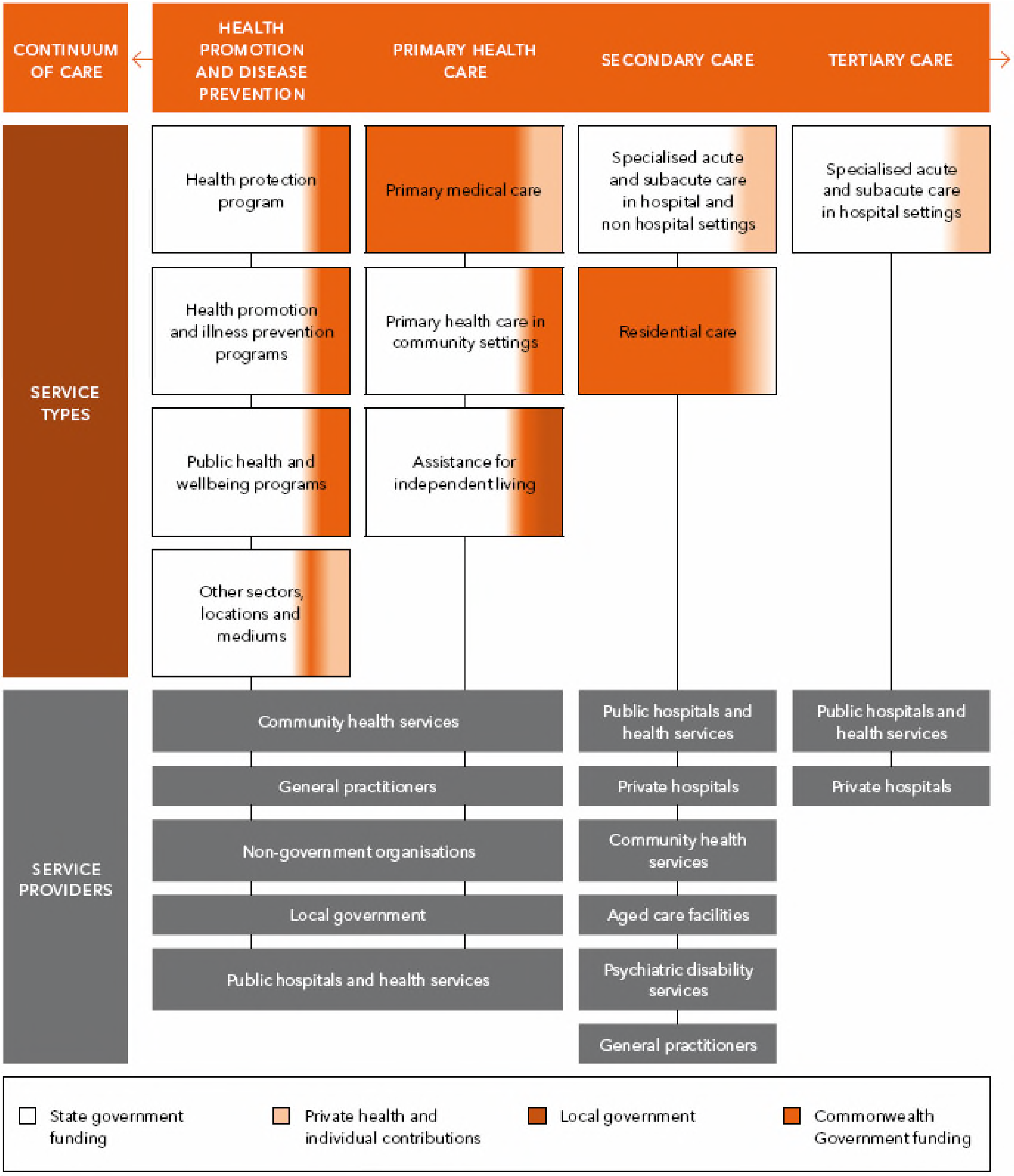

Figure 26. Victoria’s health system – a representation.

Reproduced from "Victorian Health Priorities Framework 2012–2022: Metropolitan Health Plan" by Department of Health. Victoria. Australia. (2011). 2011(May) p. 11.

According to the new Victorian Metropolitan Health Plan 2012–2022, significant improvements in the current health system in Victoria are required so that health services become more responsive to people’s needs, better coordinated, more efficient, and more rigorously-informed and informative (DoH, 2011b). In addition, the system requires greater capacity to deliver prevention, primary care, and early intervention.

Figure 27 includes the statement that Victoria’s health system will be more ‘people focussed’ by 2022 with the outcome that:

- People are as healthy as they can be (optimal health status).
- People are managing their own health better.
- People enjoy the best possible health care service outcomes.

Another key promise is that the Victorian health system will become more ‘knowledge focussed’ as shown in the model and discussed elsewhere in the report. The flows of information within the system will improve and will include continuous capture of patient based data as well as a data repository of population-based data (DoH, 2011b). Significant developments in the health system in the coming years are therefore proposed to meet the challenge of chronic disease.

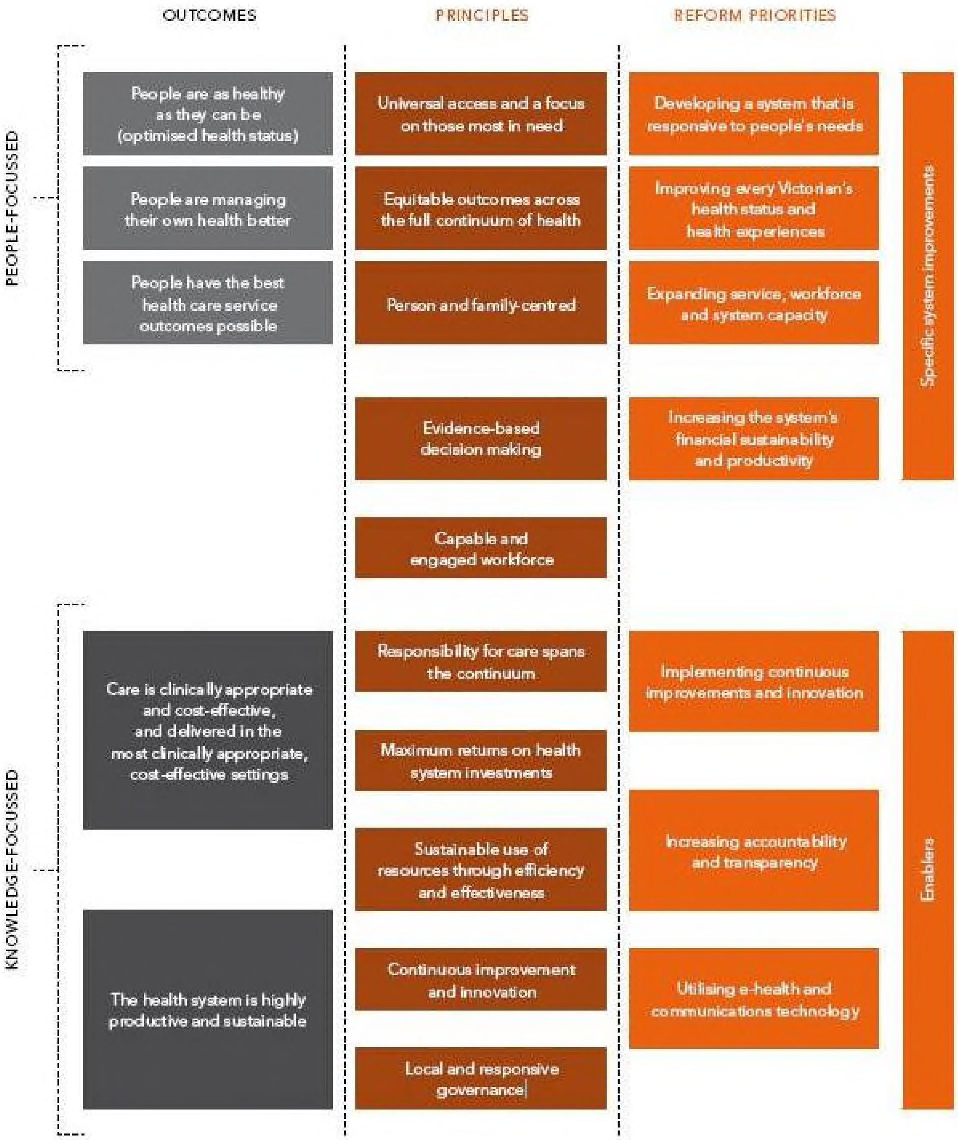

Figure 27. Outcomes, principles and priorities of the Victorian Health Priorities Framework 2012-2022.

Reproduced from "Victorian Health Priorities Framework 2012–2022: Metropolitan Health Plan" by Department of Health. Victoria. Australia. (2011). 2011(May) p. 47.

2.8 Looking Back and Looking Forward to a New Approach

This section provides a summary of some of the key topics covered in the literature review and an introduction to the Community Centred Health Promotion and Prevention research design. The literature review consisted of discussions around four themes that are of relevance to the health promotion and prevention of chronic diseases and conditions focus of this research thesis.

The first theme traced the general *history and meaning of public health and health promotion* in order to situate and align the present research with these broad fields of study. Although public health and health promotion are interrelated fields concerned with the health of the public, the former is an older and broader term associated with a biomedical approach and the policies and concerns of government and health authorities around the prevention of disease. The health promotion movement emerged in the early 1970s in response to the increasing incidence of chronic diseases and the perceived failure of the biomedical approach to prevent these. Health promotion was focussed on understanding determinants and inequalities in health, on community collaboration and empowerment and other such ‘social’ principles in order to promote health and prevent disease. Public health today can be seen as an area that accepts and encompasses the health promotion perspective and approach. It aims to prevent and control diseases and injuries and includes a holistic approach to health, concern for disparities, vulnerable groups and community empowerment. Evidence and community collaboration were also common and important themes that appeared in the public health and health promotion literature and are central to this thesis.

Illuminating and developing the concept of evidence was the focus of the second theme in the literature review. This section consisted of discussion of evidence based health promotion, determinants, inequalities and community health status. A model consisting of determinants, inequalities and community health status was developed and forms the basis of the first (quantitative evidence gathering) stage of the research. A ‘person in context’ model of health determinants that can be used in the present research as well as other community health education programs was also developed in this section.

The third theme consisted of a review of community based health intervention literature, with a particular emphasis on community psychology interventions and principles, models of community based health promotion and empowerment, and evaluation of community health interventions. These models and methods of community intervention informed and/or had similarities with the design of the second (qualitative) stage of the research with community members and the third evaluative stage undertaken in this study.

The fourth theme of *health in an Australian context* situated the present research in the immediate surrounding political and Australian/Victorian health system context. The National Health Priority Areas consisting of arthritis and musculoskeletal conditions, asthma, cancer control, cardiovascular health and stroke, diabetes mellitus, injury prevention and control, mental health, and obesity were discussed and provide a focus for the epidemiological analysis in Stage One of this thesis and the overall prevention focus in this thesis. It was acknowledged that the Australian health system was changing rapidly in terms of its broad political strategic directions. Indeed, as observed during this Doctoral period the landscape appears to have almost totally transformed itself through major reforms and policies to make prevention a critical part of the health agenda. The importance of evidence based decision making and focus on improving health data collection and utilisation, have also become key issues for reform. For example, at the start of this Doctoral period, there was no Australian National Preventive Health Agency, the Public Health and Wellbeing Act 2008 did not exist, and the Victorian Strategic Directions and Public Health and Wellbeing Plan 2011-2015 had not been written. The health data landscape has also changed during this time, although this has not been quite as rapid as the rhetoric.

Despite these positive changes at the policy level, the practical tasks of reducing and preventing chronic diseases and conditions in the community, is also a workforce issue and will require a concerted effort by many practitioners and many disciplines. These may include individuals or groups of medical practitioners, nurses, psychologists and other allied health professionals, public health practitioners, diabetes educators, academics, health researchers and social marketers as well as government. The present research represents an independent effort by a community psychologist entering the field of public health and health promotion. The traditional focus of community psychology has always been on prevention and the promotion and improvement of public health, however, in more recent times there has been an emerging interest to diversify the focus from mental health to incorporate physical health and disease prevention.

As a community psychologist, the approach taken in this research, is that the community is of central importance. Good policies for prevention are essential but health promotion needs to occur close to the people at a community-based level to ensure that people have the capabilities (knowledge, skills and confidence) to make informed decisions about their health and the health of others in their community. As suggested in the model in Figure 1 (see introductory chapter) dys-function and disease requires medical treatment by an expert; but promoting wellness, preventing dys-function and disease and “strengthening health systems” can be “everybody’s business” (WHO, 2007b). The approach in this thesis is that proactive strategies aimed at promoting health and preventing diseases, and that involve community members as informed and empowered collaborators, are needed to improve the health of the public and ease the burden on the present health system. In addition, the proposition above implies that an evidence base to inform community members and broader health promotion activities is required. The overarching aim of the research undertaken for this thesis was:

To develop a community centred health promotion strategy to assist the improvement of health and the prevention of chronic disease in an Australian context.

Community Centred Health Promotion and Prevention in an Australian Context, is centred on the promotion of good health and the prevention of chronic diseases and conditions at a local community level, while being mindful of the problems and priorities in the broader Australian health system. It refers to a strategy that is both evidence based and community based.

The research included developing a health evidence base that addresses current Australian health priorities and concerns in Stage One, involving community members in the governance or meaningful collaboration of health promotion activities in Stage Two and evaluating the effectiveness of the intervention in Stage Three. Each stage consisted of further aims and research questions and are discussed in detail in the methodology and results chapters. Prior to this, a brief theoretical chapter is presented to outline some of the theories, assumptions and philosophical threads underlying this thesis and to introduce the conceptual framework of the study.

PART TWO: THEORIES AND METHODS

	2

Chapter 3: Theoretical Discussion

Chapter 4: Methodology

Chapter 3: Theoretical Discussion

3.1 Introduction to the Theoretical Discussion

It is customary in psychology, and in many other disciplines, to include a theoretical chapter in a PhD thesis. A theoretical chapter may consist of a discussion of the underlying theories and assumptions that guide the research and explication of one’s paradigm, epistemological and ontological stance and theoretical/conceptual framework. The purpose of this chapter is to define and discuss these concepts in relation to the present thesis.

Epistemology can be defined as the study of knowledge and justified belief (Steup, 2010) and ontology as the study of what there is or what exists (Hofweber, 2011). A paradigm is often seen as the broadest view of the world or worldview, which encompasses other theoretical, scientific, philosophical and methodological elements. This was evident in Kuhn’s understanding of paradigm as a coherent tradition of scientific research and practice which encompasses such elements as models, law, theory, application and instrumentation (1996). He also defined paradigm as a disciplinary matrix consisting of constituent parts such as symbolic generalizations, models (ontology analogies, heuristics, metaphysical commitment) and exemplars (Kuhn, 1996). Paradigm has also been defined as “a philosophical and theoretical framework of a scientific school or discipline within which theories, laws, and generalizations and the experiments performed in support of them are formulated; broadly: a philosophical or theoretical framework of any kind” (Merriam-Webster Incorporated, 2011).

In other definitions, such as the one following, paradigm is not mentioned, and it is the theoretical framework that is all encompassing. “The theoretical framework connects the researcher to existing knowledge. Guided by a relevant theory, researchers have a basis for their hypotheses and choice of research methods” (Escalada, 2009). A theoretical framework may also be viewed as the answer to two basic questions: What is the problem? Why is your approach a feasible solution? (2010, p. 1). However, another question that should be asked is: What is your approach to the problem and where does it come from?

In response to the first question, the problem in the present research is the increasing rate of chronic disease, perpetuated by a reactive and paternalistic health system that unwittingly acts to disempower community. The approach maintained in this thesis (what is your approach?) is that addressing the problem of chronic disease requires an evidence base on determinants, inequalities and health status as well as community governance in health promotion. The micro-macro approach is unique but arises from reading the public health and health promotion literature and from sharing certain values and ways of knowing from psychology and from other disciplines and theorists, including Plato, Bohm and Freire.

Kuhn (1959) pointed out that the arts and social sciences have multiple paradigms while the [hard] sciences tend toward a single unifying paradigm in each field. This multiplicity is evident in the present thesis. Several models were developed to explicate the view held in this thesis. This included the wellness eidos (or ideal) presented in the introductory chapter, the model of guiding and evaluative evidence in community health interventions, the determinants, inequalities and community health status model, the ecological ‘person in context’ model of health determinants and the CHIC motto – ‘Together we can create a healthier world for all’. The wellness eidos is discussed further in the next section and like Plato’s use of the concept of eidos, represents an epistemology of idealism. Other philosophical isms (Chrisomalis, 2007) that underlie this thesis are holism (or wholism) and communitarism and are also discussed in this chapter. Following these broad and more abstract discussions, a visual representation of the theoretical framework is presented, which provides integration to the concepts and a basis for the methodology in the next chapter.

3.2 Idealism and The Wellness Eidos

The wellness eidos, presented again in the following paragraph, expresses a view about a system wide problem in Australian society and the importance of community governance, empowerment, prevention and wellness. These principles are at the heart of my theoretical perspective.

I look forward to a time when community members are informed and empowered in matters relating to their complete wellness; when healthy lifestyles are valued and the magic of food to heal and transform lives is realised; when equity in health is achieved; where food production is socially responsible; where people live healthily into old age; and where the resources for prevention are strong and the need for treatment has lessened.

The wellness eidos came to mind in 2008, shortly before beginning the second stage of the research with community members and while reflecting holistically on the question: Why am I doing what I am doing and what am I striving for?
Cavanagh (2008a) defines eidos as a guiding image, principle or abstract ideal associated with one's approach, view of the world and view of knowledge. An eidos stimulates the researcher's engagement in inquiry into a research problem and can form the basis for research questions and methodology (Cavanagh, 2008a, 2008b).

Eidos (plural: eide) is of Greek origin and means "something that is seen"; it also stems from the Latin word "video" which means "to see" (Novak, 2005). The term eidos is attributed to the ancient Greek philosopher Plato. Some related terms used by Plato or translators of Plato's writings include forms, essence, idea, ideal, being, universal and intellectual vision. The use and mention of eide (plural) in Plato's dialogues has become known as the Theory of Ideas or Forms by Western philosophers (Novak, 2005). Plato's philosophy was a form of *dualism* (Genova, 1994; Robinson, 2007) and a form of *idealism* because it considered both the actual and the ideal. Plato's eidos is akin to a model, ideal object, state or existence that is aside from the present reality.

Plato's dialogues on the nature of matter, the actual, and the present, suggest that the world could be perceived by the senses and is ever changing or in a state of flux (Appendix A). The ideal, eidos or essence on the other hand, can only be perceived by the mind and is unseen and unchanging. According to Plato "being or essence … of all our notions, is the most universal". Although, Plato believed that eide were unchanging, he acknowledged (Appendix B) that they are ideals or standards, which may not be achievable or may not even “exist in fact”. In the same way, we may strive to achieve complete wellness or a world without disease, even though this may not be achievable. This can be contrasted to idealism in the field of education which is “to discover and develop each individual's abilities and full moral excellence in order to better serve society” (Cohen & Gelbrich, 1999, p. 1).

What seems to be important then are our attempts or striving as artists, health activists or as politicians (for example) to achieve the ideal, not to prove that such could actually exist. One may see how this relates to the wellness eidos in the present thesis and to the aim in particular, which is guided by this philosophical idealism. An independent researcher cannot change a system wide problem, claim to understand it as a whole or be sure that the ideal is achievable. Yet, as flux and change are certain, we should at least face the approximate direction that we would like to be travelling in. The eidos therefore serves as an approximation or guide because the ideal cannot be seen or known in its entirety and might not even be achievable in ‘every respect’ as Plato suggested. Although we are likely to ‘fall short’ of the ideal, it may have an important purpose in the process of discovery and action. In the same way, even though the eidos and aim proposed in this thesis are broader than what is logistically achievable, idealistic vision can guide change. The *Health for All* philosophy of the Ottawa Charter (WHO, 1986) is a case in point. Although the original aim of health for all by the year 2000 was not achieved within the time allocated, it inspired and continues to inspire many actions, policies and improvements in health around the world.

Plato also made many specific references to health in his dialogues. The following demonstrates his sense of eidos or idealism in the realm of health.

… the temperament of their seasons is such that they have no disease, and live much longer than we do, and have sight and hearing and smell, and all the other senses, in far greater perfection, in the same degree that air is purer than water or the ether than air (Plato, 360 BC-a).

The wellness eidos is linked with my world view as a community psychologist. For example, the pursuit of ideals such as prevention, empowerment, wellness and community transformation are characteristic of community psychology. These ideals are also imbedded in the theoretical framework represented diagrammatically in this thesis in section 3.5.

Prior to moving onto the next section, it would be fair (in a thesis about health) to briefly mention another ancient wisdom that has had a major influence on health and have inspired the present interest in health promotion and prevention. The first is the quote by Hippocrates (431 B.C.), known as the father of medicine, who said: *'Let food be thy medicine and medicine be thy food'*. This suggests the use of food to heal when one is sick as well as a regular way of eating that only includes healing or nutritional foods. Living by this profound statement could prevent the rising tide of chronic disease and is a statement worth sharing in any health promotion program.

3.3 Wholism and Ecology

Figure 28. Green Barnsley fern.

Reprinted from "Green Barnsley Fern. TAO Tool Suite. Discrete Dynamical Systems", by T. Malloy, Retrieved 28 November, 2011, from http://www.psych.utah.edu/stat/dynamic_systems/.

Holism (or wholism) has been defined as an epistemological approach toward explanation that places emphasis on the importance of a whole system as against that of its individual parts (Southgate, 2003). It has also been defined as a theory that posits that the parts of any whole cannot exist and cannot be understood except in their relation to the whole (Farlex Inc., 2011b). Holism may be seen as the opposite of reductionism, atomism, individualism, fragmentation, dualism (mind/body) and narrow-mindedness.

Various holisms were reviewed and discussed in this thesis. For example, the term wellness as it appeared in the eidos, refers to holistic health as exemplified in the WHO definition of health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1946). The community psychology definition of wellness as a positive state brought about by the satisfaction of personal, relational, and collective needs of individuals and communities (Prilleltensky, 2005) also represents holistic view of health. Cowen’s definition of wellness as the positive end of a hypothetical continuum and an ideal we should continually strive to approach reflects an epistemology of holism as well as idealism.

Ecology is another holistic concept that was widely discussed in this thesis. In particular, a model known as the ecological ‘person in context’ model of health determinants was developed to demonstrate the holistic understanding that multiple personal and contextual factors act to determine the health and well-being (wellness) of the individual. An ecological systems perspective is important in community psychology because it assists understanding of complex social systems (Rudkin, 2003). The ideas of Kurt Lewin and Urie Bronfrenbrenner are especially important to the field of community psychology and the present research. Lewin (1890-1947) proposed a type of field theory known as psychological ecology that acknowledged the wider physical environment in human behaviour (Gifford, 1997). In 1935, he developed the famous equation: B=f (P,E) or behavior is the function of person and environment (cited in Levine & Perkins, 1997, p.114) to illustrate that the individual should not be viewed in isolation from the broader environment. In Kuhnian terms, the equation could be called a ‘symbolic generalisation’ and one of the constituent parts of a paradigm. Lewin also developed action research, which is described more fully in the methodology chapter.

Urie Bronfenbrenner, a developmental psychologist, further promoted the ecological perspective. He used the concept of a nested system to describe the individual's relationship to various social systems, including the microsystem, mesosystem, exosystem and macrosystem. According to this theory, the individual represents the inner system and is surrounded by the outer microsystem (e.g., home, school and work); mesosystem (linkages between home, school, work, community); exosystem (institutional level – media, school, government agencies, churches); and macrosystem (e.g., system of government, the economy, education, religion) (Bronfenbrenner, 1979; cited in Dalton et al., 2001).

In this thesis, working at the micro level with individuals and a single community while being both mindful and critical of the broader macro or systemic issues relating to chronic disease prevention denotes a similar ecological or holistic paradigm.
The ecological approach is further epitomized in the following quote by Trickett (1984):

> If, when conducting our work, … we "see", we have a world view that focuses on the community-embeddedness of our programs and the persons they are designed to serve, if we develop a perspective that centers on the creation and expansion of resources for our community, and if our actions for the quick fix are embedded in a vision about the long haul, then we can, by both word and deed, assert both the distinctiveness of community psychology and further the aspirations underlying the creation of our field (Trickett, 1984).

The choice of mixed methods and the researcher's view that the real world is a duality comprised of both qualitative and quantitative aspects also represents a holistic approach. This view can be explored by analogy to a fern. Consider a fern, alive and growing, swaying gently in the breeze. Consider its freshness and bright green colour and the morning dew on its fronds. What could be more qualitative?

Figure 28, shown at the beginning of this section shows a fractal geometry known as the Barnsley fern, named after the mathematician Michael Barnsley, who generated the fern on computer using a mathematical code and multiple iterations (Barnsley, 2000). The fact that an image of something as seemingly qualitative as a fern can be generated using a sequence of numbers demonstrates the underlying mathematics in nature as well as the coexistence in the real world of both qualitative and quantitative elements. I use this metaphor at times when someone comments on the stark contrast or perceived incompatibility of qualitative and quantitative methods and it is always comprehended. Holism can be seen as an alternative to positivism and constructivism.

The systems thinking of physicist David Bohm is also reflected in the present approach. Bohm reasoned that the world and universe is an undivided whole where each part contains information about the whole and where everything is enfolded into everything (Bohm, 1980, 2002). As we are also enfolded in this universe, each individual is therefore a ‘microcosm’ of the universe. Problems arise when we hold a fragmentary world-view and separate ourselves from society because this separation and division is an illusion Bohm asserted. Seen in the context of this thesis, the individual and the community are both enfolded in (are part of) the broader health system. The problems in the broader system (e.g., chronic disease) also exist at the individual level. As a microcosm of this system, the individual can therefore yield insights not only about their personal experience but also about the barriers that might occur at a macro or systemic level. Further, by offering a picture of the whole grim reality of chronic disease, the fragmentary world-view is challenged and people come to see that this is a problem in which they are also a part of. Finally, positive changes in individual health behaviour can have flow on effects for the broader community and system.

3.4 Communitarianism, Praxis and Community Governance

Communitarianism can be defined as a political and social philosophy that emphasizes the importance of community in the functioning of political life, in the analysis and evaluation of political institutions, and in understanding human identity and well-being (Farlex Inc., 2011a). Like holism, its opposites are atomism and individualism as well as the related liberalism, which places high a value on individual freedom (Farlex Inc., 2011a) sometimes at the expense of community. Communitarianism can range from moderate to more radical and controversial views about the role of community, with the latter having many critics. A common debate on the topic involves the suggestion that libertarians are too preoccupied with individual rights and that communitarians are too preoccupied with social responsibilities (Etzioni, 1996). However, it is not within the present scope to enter this debate. The researcher's interest in community based health promotion, community collaboration, community health and wellness, community governance, community development and other similar concepts discussed throughout this thesis are all forms of moderate communitarianism, as is the profession of community psychology itself. A denial of the individual self and/or support of the collective or political system at the expense of individual rights and freedom (e.g., hardline communism) reflects a more extreme form of communitarianism.

Some criticism of the status quo is always present in communitarian dialogue and is an essential tool for praxis (Kagan & Burton, 2001; Prilleltensky & Nelson, 1997; Seidman, 1988). According to O'Brien (1998) praxis was a term used by Aristotle to refer to the art of acting upon the conditions one faces in order to change them and deals in particular with the ethical and political lives of people. Aristotle contrasted this with 'theoria' or sciences and activities that are concerned with knowing for its own sake, and claimed that both are needed.

Paulo Freire (1921-1997) and Ignacio Martín Baró (1942-1989) are two notable Latin American practitioners who have utilised and furthered the praxis paradigm and influenced the present research. Freire's concept of praxis, problem-posing method of education and influence in the empowerment field was discussed in the literature review. The following paragraph further epitomizes his view on praxis:

> … [H]umankind as beings of the praxis, differ from animals, which are beings of pure activity. Human beings emerge from the world, objectify it, and in so doing can understand it and transform it with their labour … human activity consists of action and reflection: it is praxis; it is transformation of the world. And, as praxis it requires theory to illuminate it. Human activity is theory and practice; it is reflection and action (Freire, 2001, p. 125).

Martín-Baró was a Jesuit priest and social psychologist whose view of praxis emphasised the role of psychologists working with and for the community in order to transform reality and liberate people (Martín-Baró, Aron, & Corne, 1994). This is demonstrated in the following quote:

> It is not easy to figure out how to place ourselves [as psychologists] in the [social] process alongside the dominated rather than … the dominator … to leave our role of technocrat or professional superiority and work hand in hand with community groups. But if we do not embark upon this new type of praxis that transforms us as well as transforming reality, it will be hard indeed to develop a Latin American psychology that will contribute to the liberation of our peoples (Martín-Baró et al., 1994).

The present interpretation of praxis as discussed by Freire and Martín-Baró is three fold: 1. Praxis is informed reflective practice and action of a transformative kind. 2. Praxis involves working respectively and collaboratively with the community. 3. Praxis involves transformation at a personal and societal level. These three tenets of praxis will be discussed again in the methodology section.

Support for community represents a form of communitarianism as does the concept of community governance. At first glance, the concept of community governance seems to suggest the governance of a community by a government body such as local or municipal council. This is different to the current meaning, which implies “management”, “decision-making” (Totikidis, Armstrong & Francis, 2005, p. 2), control and ownership of health promotion and public health by and for the community. Yet, this is not about relocating or stripping power from government but rather about how community can share power and play a unique role in health promotion, public health and chronic disease prevention. It is about shifting from ‘top-down’ paternalism to ‘bottom-up’ or ‘grass roots’ empowerment. Community governance is a central component of the conceptual map/theoretical framework discussed in Section 3.6.

3.5 Reflexivity and Positionality

Qualitative researchers often discuss the importance of reflexivity and positionality of the researcher during the research process (England, 1994; Jones, Jenkinson, & Kennedy, 2004; Macbeth, 2001; Scott, 2007). Reflexivity, according to Jones et al.,

(2004) refers to how the data produced from the research are influenced by researcher biases and the research process itself and in particular to how personal experience of a research topic may impact on researcher expectations. Reflexivity has also been referred to as the feelings or responses of the researcher when collecting and analysing data, how emotions are conveyed to participants and how in turn participants react and adjust to researchers' responses (Corbin & Strauss, 2008). Corbin and Strauss also use the term to denote “self-reflection” and “sensitivity” with the latter term signifying the opposite of “objectivity” (Corbin & Strauss, 2008). Objectivity in qualitative research is a myth according to the authors and researchers bring to the research situation their particular paradigms, perspectives, training, knowledge, biases and other aspects of self that become woven into all aspects of the research process (Guba & Lincoln, 1998; cited in Corbin & Strauss, 2008). Finlay and Gough (2008) further offered five variants of reflexivity, including introspection, intersubjective reflection, mutual collaboration, social critique and ironic deconstruction. These provide the basis for detailed insight and discussion and appear (from careful reading of Finlay and Gough’s book) to be particularly suited to phenomenological, feminist, psychoanalytic and ethnographic research. Reflexivity is also vital in action research (Dowling, 2006; Robertson, 2000) that involves qualitative methods and is therefore relevant to consider in light of the second stage of the present research.

Positionality is a related term to reflexivity indicating aspects of the self that impact on the research process, including gender, class and race (England, 1994). In terms of gender, many feminists take the role of a “supplicant” in the research process, “seeking reciprocal relationships based on empathy and mutual respect” and sharing knowledge with those they research (England, 1994, p. 3). As demonstrated in many parts of this thesis, this is a view I also share as a community psychologist and community practitioner. The ‘community member’ is treated with positive regard and placed at the centre as the expert collaborator in positive community change. Yet, on the other hand, ‘I’ the community psychologist (following years of training in psychology and research) identify as a scientist as well as a community practitioner, as reflected in my evidence based and community based approach. As a result, I do not denounce my own voice and knowledge in the research but rather share my scientific and research expertise with the communities that I work with. I do not enter the research as a ‘tabula rasa’, rather, it is the interaction of my voice and knowledge with the participant’s voice and knowledge that makes the research what it is.

During my first year of study in a psychology degree, I was taught that ‘good science’ was objective, unbiased and value free and that good scientific research was written in the third person. The subjective and literary ‘I’ was to be avoided at all costs. Although the literary rule remained throughout my undergraduate degree, the competing paradigms of interpretive and critical social science were also introduced during this early stage and suggested that other ways of knowing and doing might be possible in addition to positivism. According to Neuman (1991) the place for values differs in each of the research approaches. Positivism holds that science is value-neutral, and values can only have a place when choosing a topic. Interpretive social science, accepts that values are an integral part of social life and that people’s values are not wrong but different. Critical social science, holds that all science must begin with a value position with some positions right and some wrong (W.L. Neuman, 1991).

I practiced my literary and subjective ‘I’ (writing in the first person and reflecting on myself) after undertaking units of study in qualitative research and during reflective writing of my practicum experiences during my Masters in Applied (Community) Psychology course. Community psychology leans towards the interpretive and critical schools of thought and unlike many other branches of psychology is not only more accepting of values and the voice of the researcher but encourages values based praxis (Prilleltensky, 2001). By the time I embarked on my PhD, I felt comfortable writing in both the first and third person, with both quantitative and qualitative methods and with suppressing and expressing personal reflections and value based argument. Even so, because this comfort is not widespread across the academic, psychology or public health sector and a large part of this thesis is quantitative, most of the thesis is written the traditional third person. For the same reasons, deep reflexivity such as that proposed by Finlay and Gough is also not used throughout the thesis.

My values on the other hand are very much alive in this thesis. My values around health for all, community governance, evidence and information, and working holistically and systemically have been discussed and stem from my present position and family upbringing in addition to my professional training. For example, my father's story of living through the advent of an oppressive communist regime in Romania, taught me that communities could be quite capable of managing their own affairs but could be easily constrained by and become apathetic and dependent on government. This is why community governance is important even today, especially in the realm of health where urgent action and hence action research is required. As in the critical social science tradition described above, I am driven by the idea that our present reactive health system needs to be challenged in order to empower people. Interest in human rights and issues around class, ethnicity and sense of community have also contributed to my interest in *the human right to health promotion and the prevention of chronic conditions*[8], particularly for the multicultural Brimbank community, in which I live and which is the focus of intervention in the second stage of this research.

3.6 Theoretical Framework

The wellness eidos encompasses support for community governance as a means to empowerment, prevention and wellness. The theoretical/conceptual framework shown in Figure 29 integrates the theories discussed and the principles in the eidos and other models developed in this thesis, and, lays the foundation for the methodological chapter. The theoretical framework can be viewed as a model or theory of community intervention, health promotion, health literacy, community informatics, preventative health, community governance, empowerment, praxis or wellness. Although it contains all of these elements, it is referred to as a model for the community governance of health promotion and prevention, not only for the sake of brevity, but because the concept of community governance encompasses a range of other meanings of importance in this thesis as well. Shown in part 1b of the model, these include participation, collaboration, strengths, respect for diversity, action orientation, control, self determination, voice, decision making, management, ownership, confidence, self

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[8] This is also the name of a journal article co-authored by the present researcher (Bennett et al., 2009)

efficacy, skills and competence. These principles are seen under the umbrella of community of governance and are proposed to be conducive to successful health promotion and public health by the community. The model therefore lays out a plan for how this could be achieved as a theory and in practice.

The community health governance model emphasises the importance of knowledge and information, and community governance in the development of empowerment and striving towards the wellness ideal. Knowledge or evidence about the problems at hand (e.g., statistics on mortality and morbidity or the ‘grim’ statistics as they are often called) (part 1a.) and knowledge about the possible prevention of these problems (part 1c.) are equally important. Knowledge of the grim statistics would be stifling without information on how to prevent negative health outcomes. Yet, knowledge about healthy eating and lifestyles might not be taken as seriously without knowledge of present realities such as the rising tide of chronic diseases. Engaging with the problem (of chronic disease) or problem based learning is a critical part of the model as are problem solutions provided to and generated by the community. Both are necessary for empowerment and praxis.

“Knowledge is power” according to Francis Bacon, but is it enough? One needs to know what is wrong and how one can go about changing it but one also needs to know that it is alright to do so. Empowerment in this model (part 1d.) is therefore seen, as the acquisition of knowledge and skills as well as positive feelings such as confidence and self-efficacy gained from the process of community collaboration and governance (1a-c). Empowerment is thus a form of competence or health literacy that enables individuals and communities to prevent negative health outcomes and promote wellness (part 1e.).

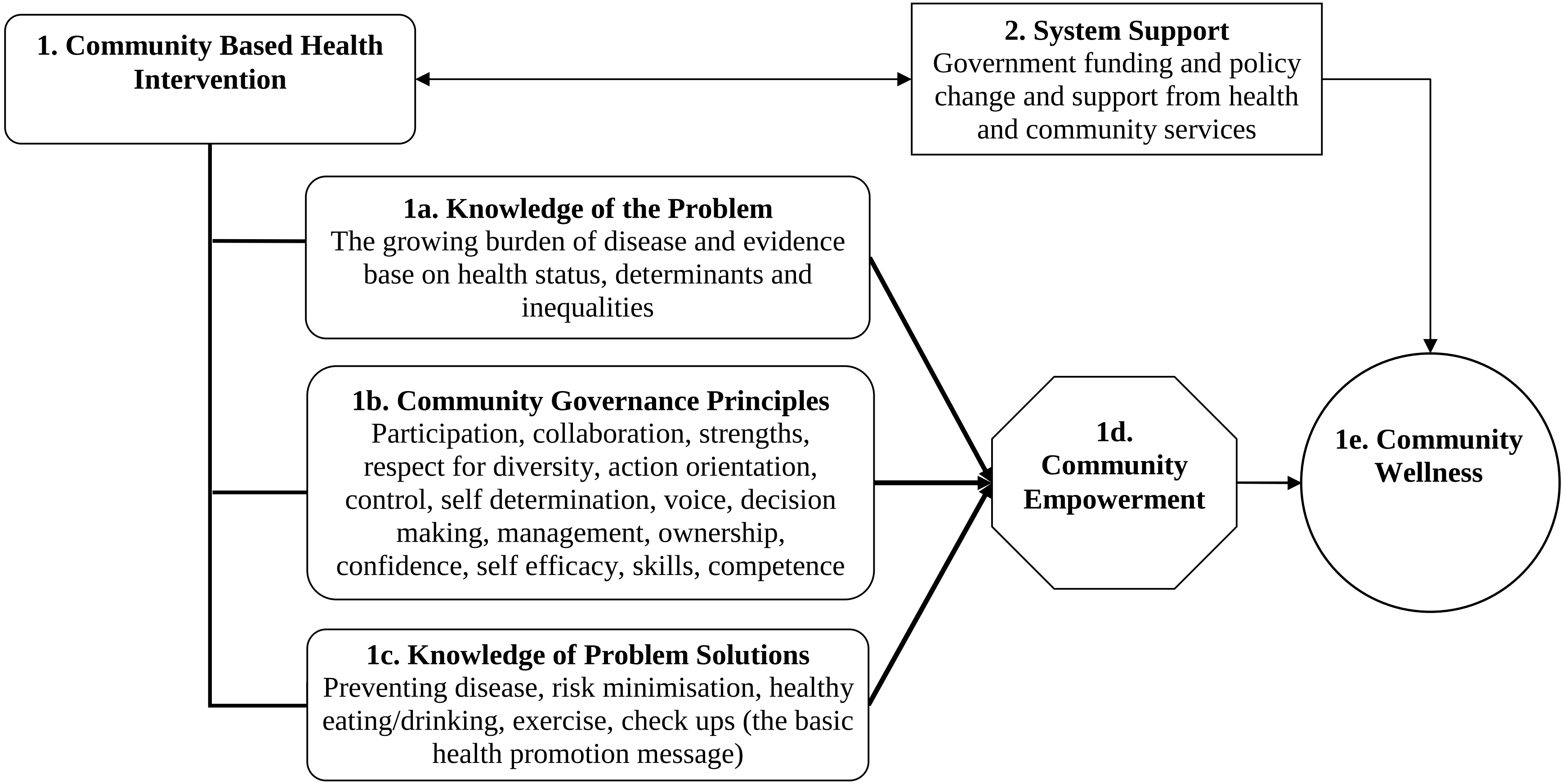

Figure 29. A model for the community governance of health promotion and prevention.

Empowerment is an essential concept in this thesis. It was first introduced in the eidos, which among other things expressed the ideal of community members being informed and empowered in matters relating to their complete wellness. These terms seem to stand in correct relationship to each other in the previous sentence in that information (about health) precedes empowerment and can be empowering, liberating and health promoting. This proposition has been supported in many of the other empowerment discourses reviewed in this thesis. For example, the statement of purpose of public health in Australia outlined that one of the roles of public health practice was to inform and empower individuals and communities (NPHP, 1998).

.Information was also seen as a vital component of empowerment in the Jakarta Declaration which stated that health learning fosters participation and that access to education and information is essential to achieving effective participation and empowerment of people and communities (WHO, 1997). The use of education to empower people is central to community based health interventions (Revenson & Schiaffino, 2000) and is also at the heart of Friere’s theories. The relationship between education and empowerment was also well supported at the most recent WHO international conference on health promotion in Nairobi which specified health literacy as critical to empowerment. Rifkin and Pridmore’s (2001) simple model of empowerment, also showed the relationship between information, knowledge, power, sharing and empowerment.

In addition to information, education or health literacy, the literature reveals many other definitions and concepts of relevance to empowerment. Empowerment is a human construct that occurs at a psychological level, but it can arise from positive change and transformation that occurs at one or more levels of the individual, community or collective. Empowerment is about collaboration and participation, having voice, being accepted and not being blamed, sharing, and shifting and gaining power. It is about enhancing opportunities for people to identify and solve problems, control their own lives, and develop skills, competency and feelings of efficacy. Empowerment can come from small wins or large and can include improved health, well-being and sense of community and the attainment of resources and educational, economic and political justice. Moreover, empowerment is seen as an essential mediator in prevention (Baillie et al., 2004; McMillan, Florin, Stevenson, Kerman, & Mitchell, 1995; Rappaport, 1987) and may therefore be an important mediator in the prevention of chronic disease as well.

The theoretical framework has parallels with many of the theories and constructs discussed in the literature review. It shares similarities with various “effect” or “how it works” (Sanderson et al., 1996) models of health and incorporates the concepts of evidence and empowerment which have been discussed in some detail throughout this work. Other specific concepts reflected in the framework include Rifkin and Pridmore’s (2001) knowledge equals empowerment message; the epidemiological diagnosis stage of the PRECEDE/PROCEED model (L. W. Green, 1999); and the positive psychological empowerment constructs of Rappaport (1981), Zimmerman (1990) and Wallerstein (1992). Tones and Tilford’s empowerment model and Tone’s praxis and community action model (Tones, 2001) also have similarities to the present model. For example, the first model emphasises health education, individual and community empowerment, critical consciousness raising, agenda setting and the potential of public pressure to influence the development of healthy public policy. The second model describes the process of emancipatory education, which begins and depends on the community worker gaining acceptance by the community and demonstrating skills such as listening empathising and encouraging free expression of ideas. In this model, praxis, as consistent with Freirean theory, is a stage of reflection and action where solutions are identified and discussed and which leads to community action (Tones, 2001).

Community and the principles of community governance are central in the present model and are consistent with the WHO definition of health promotion as “the process of enabling people to increase control over, and to improve their health” and to “reach a state of complete physical, mental and social well-being” (1986, p. 1). The concept of wellness in the model also encompasses this broad definition of health. Wellness is a holistic state of affairs that involves positive conditions at a personal level (physical, psychological) as well as at the relational (interpersonal, social) and collective (political, economic, environmental) levels (Totikidis & Prilleltensky, 2006).

As with many previous models and discourses on empowerment and community based health promotion the present framework also acknowledges the political context (e.g., Laverack & Labonte, 2000; Rissel, 1994; Tones, 2001; Wallerstein, 1992). Community based initiatives can play an important role in the health system and the prevention of chronic disease. However, commitment from national and local governments and financial support are essential to maintain and expand these community based initiatives (Ansari et al., 2003). Another critical part of the model is therefore system support (part 2.) which includes government funding and policy change and support from community services or agencies. The two directional arrows between the community based intervention and system support components (part 1 and 2 of the model) indicate that system support of community based governance and wellness initiatives are needed. Moreover, successful community initiated interventions can sometimes work upwards (or sideways) through public pressure or demonstration of effectiveness to stimulate government funding towards identified community needs and issues. Epidemiological evidence is also of interest to government and can inform decision making with respect to health priorities. The arrow pointing downwards from government represents other direct contributions made towards community wellness by government and health and community service providers. These contributions may include reactive services that do not necessarily empower community members or ‘patients’ or ‘consumers’ (as the recipients of services are often called) and that do not necessarily prevent further illness but are nevertheless, essential.

Although the theoretical framework implicitly guided many aspects of this thesis (much of the literature review and the research aims and methodology), the diagram itself came to mind and was developed relatively late in this thesis, following the completion of the research stages. Consistent with Strauss and Corbin’s (A. L. Strauss & Corbin, 1998) ‘grounded theory’ or ‘theory building’ approach, a clearer picture of how various concepts relate to each emerged through interaction with the data and research process. The idea of emergence means that the researcher is not building on previous research and is therefore not “able to enter into the project with a set of pre-established concepts or a well structured design. Rather, the design … [and] concepts must be allowed to emerge through the research” (A. L. Strauss & Corbin, 1998, p. 33). The process of increasing awareness of one’s work and making explicit what was previously implicit, is also consistent with action research which according Dick (1999b) allows practitioners to be more reflective and to improve understanding of their own practice. The action research approach is discussed in further detail in the methodology chapter following.

Chapter 4: Methodology

The aim in this chapter is to outline and to justify the three-stage, mixed methodology, action research approach adopted in this research. Following a summary of the research design in Section 4.1, the background to this methodological approach is explained and the reasons for its adoption for the thesis are expanded. This includes further definition and review of action research in Section 4.2 and an explanation of the mixed methods used in the current action research design in Section 4.3. Detail for each of the three research stages is then provided in Section 4.3.

4.1 Summary of Action Research Design

This research utilised a praxis paradigm, action research design and three research stages (quantitative/qualitative) consisting of primary aims and research questions and further operational aims and questions. Praxis and action research are related paradigms, albeit with many subtle differences. One essential difference is that praxis does not necessarily involve research whereas action research always involves reflection and action, components of praxis. Praxis is a paradigm in community practice whereas action research is a paradigm in research. Action research can be viewed as an application of praxis in research that is similarly concerned with action and reflection in order to change or transform reality. The reality in question in this thesis as introduced in Figure 2 is the problem of chronic disease and the reactive paternalistic and disempowering public health system. It is this problem, that the mixed methods action research design discussed in this chapter aims to address.

This research utilised mixed methods (both quantitative and qualitative) and an action research design over three research stages. The design and stages are represented schematically in Figure 30.

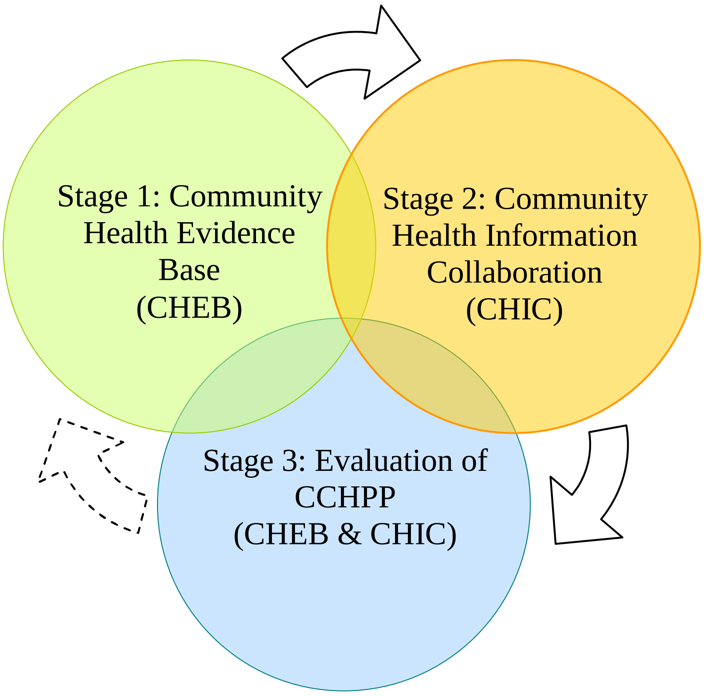

Figure 30. Community centred health promotion and prevention – mixed methods action research design.

Stage One involved the collection and analysis of quantitative data in the development of a resource called Community Health Evidence Base (CHEB). Stage Two applied qualitative participatory action research methods to engage a small group of community members from the Brimbank region of Melbourne (Victoria, Australia) in health promotion and disease prevention activities. This stage was referred to as the Community Health Information Collaboration (CHIC program). A website was also developed at the beginning of Stage Two to provide project and health information for the community group and the broader public. Stage Three involved an evaluation of the Community Centred Health Promotion and Prevention strategy as a whole (both CHEB and CHIC).

In the previous chapter, Stages One and Two were represented as theoretical concepts embedded in the Theoretical Framework. In contrast, and as illustrated in the present model in Figure 30, these Stages are shown in a temporal relationship, as methodological components of the overall action research design. The importance of evaluation in community based health interventions, especially for the accumulation of evidence of effectiveness, was discussed in the literature review and forms the third part of the current action research design. Although, all stages in the model classify as research, Stage One focuses on evidence and analysis, Stage Two on participatory action, and Stage Three on evaluation.

The overall formal research aim or objective of this research was:

To develop a community centred health promotion strategy to assist the improvement of health and the prevention of chronic disease in an Australian context.

In summary, the research included developing a health evidence base that addresses current Australian health priorities and concerns in Stage One, involving community members in the governance or meaningful collaboration of health promotion activities in Stage Two and evaluating the effectiveness of the intervention in Stage Three. Further description of how each of the three research stages were carried out in the present study is provided in the methods and stages section of this chapter following a discussion of action research and mixed methods.

4.2 Action Research and Mixed Methodology

4.2.1 Action Research. Action research is a variant of applied research (Spjelkavik, 1999), so in order to define the former, we must also look to the meaning of the latter. Applied research can be defined as scientific study and research that seeks to solve practical problems, to find solutions to everyday problems, cure illness, and develop innovative technologies (Van Wagner). Action research is applied research that is distinctively participatory and democratic consisting of an evolving rather than fixed contract between the researcher and participants and a focus on the mutual development of solutions to local problems
(Spjelkavik, 1999).

Action research was originally developed in the 1940s by a psychologist named Kurt Lewin. Unlike the laboratory based psychologists of the 1940's, Lewin was interested in group dynamics and generating knowledge about social and community problems (Dalton et al., 2001). Lewin's emphasis was on social action and research as well as a collaborative partnership approach to working with professionals and community members (Dalton et al., 2001).

Action research has had a strong influence in the development of community psychology (Dalton et al., 2001), which like action research is characterised by community collaboration, research and action. Action research was a suitable method/paradigm for the present researcher who holds a Masters in Applied Community Psychology and considers community participation and action and change at the community level as critical. Because of applied nature and close connection to actual or real world community practice, this approach thus offered the researcher (a practitioner) the opportunity of using action research to improve understanding of her own practice. This 'training' opportunity was also consistent with the National Health and Medical Research Council (NHMRC) Public Health (Allied Health Professional) Postgraduate Training Research Scholarship awarded to the researcher to conduct this research. The understanding gained from this real world research would thereby prepare the researcher/practitioner to undertake more of such informed and measured public health programs in the future.

Action research can be viewed as a method and paradigm with many defining features or characteristics and where various models are possible. Some features may be present in one model and not another while other features may be present in all action research models. For example, Dick's definition of action research "as a family of research methodologies which pursue action (or change) and research (or understanding) at the same time" (Dick, 1999b) may be a defining feature of all action research while other features such as those listed following may apply to some models and not to others.

- A useful way of doing research for practitioners wishing to improve understanding of their own practice
- Used by activists who wish to engage the clients as co-researchers

- Can be used for preliminary or pilot research before using some other research approach
- A research paradigm: a family of research methods united by a certain set of principles and a certain style
- Is typically cyclic. The later cycles are used to challenge and refine the results of the earlier cycles
- Tends to be qualitative and participative but can be quantitative
- Publication of results can be a defining characteristic
- Action research is critically reflective, more so than practice
- Action research is designed to allow simultaneous change and understanding
- Not a method for exploring causal relationship (Dick, 1999a).

Many of the features listed Dick’s (1999a) list also apply to the present action research design developed for this thesis. This included in particular, the wish to engage participants as co-researchers, which is also consistent with community psychology principles. The other reason was that action research is consistent with an applied perspective allowing change and understanding, action and research at the same time.

Although there are many models and variations of action research (see for example S. Grundy & Kemmis, 1981; O’Brien, 1998; Susman, 1983), the method usually involves a cyclic or spiral process beginning with critical reflection and leading to action (Dick, 1999b). Yet, as suggested by (Kemmis & McTaggart, 2000) critical reflection can also be an end product of action research and a precursor to positive transformation in practice and conditions. In the field of organisation development, action research is said to begin with preliminary diagnosis, followed by data collection, feedback of the data to the client, exploration of data by the client group, action planning based on the data, and taking action (French & Bell, 1995). The action research developed in the present research follows a similar design.

In this thesis, Stage One represents a formal reflective, diagnostic, needs analysis and evidence gathering phase; and this continues with further diagnosis, reflection and action in collaboration with community members in Stage Two. Further reflection/evaluation (e.g., what was achieved and whether it was effective) in Stage Three may then lead to ideas on the aspects that should be maintained and refined, leading to further strengthening of the program and a more sustainable program. The evaluation is the final stage in the present research but as suggested by the large arrow with the dashed line in Figure 31, the whole program cycle could be repeated. For example, it could be replicated in the same community with the same participants (for refinement or sustainability); in the same community with different participants (to explore, empower and impart health information to greater sectors of the community or for further testing of effectiveness and expansion/consolidation of ideas); or in various other communities. Therefore, although each stage is only conducted once for the present thesis requirements, the design allows for a process that can be sustained as an ongoing cyclic process over time as well. This would resemble a repeating spiral design as shown in the example in Figure 31.

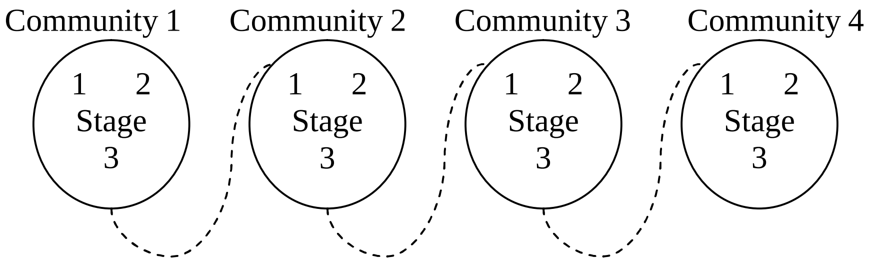

Figure 31. Repeating spiral or replicable action research design with three stages (1. diagnostic/evidence gathering, 2. community collaboration/action and 3. evaluation).

The concern with the diagnosis of problems, the public health ‘system’, community collaboration, empowerment, reflection, action and transformation (the paradigmatic and praxis aspects) and not simply the presence of reflection and action stages and particular methods is what classifies this research as action research.

As noted by Dick (1999a) action research tends to be qualitative and participative but can also be quantitative. The same could be said of praxis research, although it is not clear in the praxis or research methods literature exactly what techniques fall within and outside a praxis paradigm. The literature shows that researchers that claim to be doing praxis research use qualitative methods; however, one should ask as Denzin and Lincoln (2005) question in their discussion on the crisis of praxis in qualitative research: “Is it possible to effect change in the world if society is only and always a text?” (p. 20). This brings us back to the nature of the change idealised by the researcher. If it is preventative education and empowering change among a community of people, then qualitative methods that bring the researcher close to the people may be best. If it is about gathering evidence and understanding and analysing the extent of the problem (of chronic disease), then quantitative and epidemiological methods will be more appropriate. The former may be more suitable for effecting change in community groups while the latter with change at a policy level, although the reverse might also be possible.

Kagan and Burton (2001) similarly explain that praxis (and in particular a radical community psychology praxis) is not wedded to any particular orthodoxy of method but rather involves major strategies of intervention (each of which could incorporate different methods). The four such strategies proposed included: “(1) furtherance of critical consciousness; (2) creation of new forms of social relations (new social settings); (3) development of alliances and counter systems; and (4) giving away psychology” (p. 10). The same strategies could be applied equally well to community ‘health’ psychology interventions, including “giving health away” (Totikidis, 2011) in the same way that psychologists could do for psychology; and which implies giving away our specialist knowledge for the benefit of society.

4.2.2 Mixed methodology.

“*Mixed methods research refers to those studies or lines of inquiry that integrate one or more qualitative and quantitative techniques for data collection and/or analysis*” (Borkan, 2004, p. 4; italics added).

According to Creswell and Clark (Creswell & Plano-Clark, 2007) mixed methods can be used when a need exists:

- For both quantitative and qualitative approaches
- To enhance a study with a second source of data
- To explain the quantitative results
- To first explore qualitatively

The reasons listed by Creswell and Plano-Clark apply to this thesis. With respect to the first need (dot point above), logically a quantitative approach is suitable for meeting one of the central research tenets: that is, the detailing of guiding evidence (determinants, inequalities and community health status) to inform and point to future directions in community health promotion efforts. Additionally, a qualitative approach is appropriate for meeting a second tenet: to foster community governance and collaboration in order to promote community health and to prevent disease. In other words, there is a clear need for both (mixed) methodologies because better evidence (quantitative) could enhance the definition of health promotion at the community level (qualitative) and conversely, research with people (as characterised in the more qualitative Stage Two) can enhance, enrich and provide context to quantitative data. As stated in the third and fourth dot points, qualitative data can help to explain quantitative results or can be used to explore a topic prior to conducting quantitative analysis. Although the present research aligns with the order outlined in the third dot point, it seems possible that either method could be used to explore (if used first) or to explain (if used second).

Overall, mixed methods allow for a more comprehensive approach and triangulation of method and research effort. Triangulation in social science is defined as mixing methods or data so that a topic can be known from various viewpoints (Olsen, 2004). Triangulation can widen and deepen one’s understanding as well as provide validation for certain results (Olsen, 2004). Sydenstricker-Neto similarly writes that the “use of mixed-method is likely to increase the quality of final results and to provide a more comprehensive understanding of analyzed phenomena" (Sydenstricker-Neto, 1997, p. 1).

In the present research, the CHEB or CHIC stage could have been conducted alone but the adoption of a mixed methods approach allowed more to be done within a single project time line and budget. Mixed methods allowed the topic of chronic disease to be investigated from both an epidemiological systems level perspective and a preventative local community level perspective.

When combined with a critical community psychology perspective and an action research paradigm, mixed methods can also be used to change or improve some observed phenomenon such as social injustices, health inequities and sense of powerlessness over or lack of control of health outcomes. That is, mixed methods per se cannot change oppressive conditions. Rather it is our paradigm or world view that guides the selection of particular methods that expose problems (such as rising mortality due to chronic diseases), call on political responsibilities, and include and empower particular groups and communities to participate in transformation.

4.3 Research Aims, Questions, Stages and Methods

The stages, aims, questions and methods for the research as a whole can be seen in Table 16 with each stage discussed in turn in sections 4.3.1-4.3.3. Each of the three stages of research consisted of one or more primary aims and research questions with further operational aims and questions developed for the quantitative analysis in Stage One.

4.3.1 Method in Stage One: Community Health Evidence Base. Ethics approval for Stage One of the research was obtained from the Victoria University Human Research Ethics Committee in May 2006[9]. The ethics approval note for this stage is shown in Appendix C. Stage One consisted of an integration and analysis of health data/statistics at the Australian, Victorian and Victorian community levels.

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[9] Although Candidature is usually obtained prior to Ethics clearance at Victoria University, a condition of the NHMRC funding was that Ethics clearance is obtained prior to any allocation of funding.

Table 16

Research Stages, Aims, Questions and Methods in the Three Stages

Research Stage	**Research Aim**	**Research Question (RQ)**	**Methodology**
Stage One: Community Health Evidence Base (CHEB)	Aim1. To develop an evidence base that will contribute to knowledge of community health status, determinants and inequalities and provide a guide for health promotion and disease prevention activities. Further operational aims and questions developed during the quantitative analysis	RQ1. What is the current evidence/knowledge about health status, determinants and inequalities in Victorian communities and the broader Victorian and Australian context?	Quantitative: integration and analysis of health data/statistics at the Australian, Victorian and Victorian community levels (e.g., suburbs, local government area levels).
Stage Two: Community Health Information Collaboration (CHIC)	Aim 2. To collaborate with a local community group and empower members of the group with health promotion and disease prevention knowledge, skills and confidence including: Aim 2.a. To inform the community group about major health concepts and concerns in Australian society, including National Health Priority Areas, health status, determinants of health, inequalities and major causes of mortality and hospitalisation. Aim 2.b. To introduce the community group and broader community to a range of internet based community health information resources. Aim 2.c. To explore and strengthen community members' understanding and interests in personal and community health. Aim 3. To engage the community group in the development of a health promotion idea for action to improve health in the broader community.	RQ2. What are the benefits of community based health promotion and prevention? RQ3. What ideas for health promotion action does the community have to offer?	Qualitative: Community based participatory action research through health promotion collaboration with a local community group in the metropolitan Brimbank region of Melbourne, Victoria, Australia. Includes use of the nominal group technique.
Stage Three: Evaluation of Community Centred Health Promotion and Prevention (CCHPP)	Aim 4. To evaluate the strength and of the community centred health promotion strategy (CHEB resource, CHIC program and website) to contribute to better health outcomes.	RQ4. In what ways, can health evidence and community involvement in health promotion, referred to here as community centred health promotion, contribute to better health outcomes?	Mixed methods: questionnaire, participant observation of process and outcomes

Stage One was exploratory and initially consisted of a major aim and research question as shown in Table 17. Then, during the collection and exploration of the data, numerous specific or operational research questions were developed to further interrogate the quantitative data. The specific research questions associated with this stage are presented in a data map in Table 18 and again with the results of this stage in Chapter 5.

Using statistical terms, determinants (see RQ1) may be viewed as independent variables, while inequalities and community health status are dependent variables. Even so, because this research utilises existing public data sets rather than experimental research where variables can be manipulated; determinants, inequalities and community health status are the preferred terms.

Table 17

Research Aim, Question and Method in Stage One

Research Stage	**Research Aim**	**Research Question**	**Methodology**
Stage One: Community Health Evidence Base (CHEB)	Aim1. To develop an evidence base that will contribute to knowledge of community health status, determinants and inequalities and provide a guide for health promotion and disease prevention activities. Further operational aims and questions developed during the quantitative analysis	RQ1. What is the current evidence/knowledge about health status, determinants and inequalities in Victorian communities and the broader Victorian and Australian context?	Quantitative: integration and analysis of health data/statistics at the Australian, Victorian and Victorian community levels (e.g., suburbs, local government area levels).

The reason in addressing this particular research question was to contribute to a central argument of this thesis that information (guiding evidence) on community health status, health determinants and inequalities is an essential prerequisite for action to address the major public health problems and inequalities in Victorian communities. That is, to guide health promotion and disease prevention activities. The approach during Stage One was to develop a statistical resource called the Community Health Evidence Base (CHEB). This resource was designed to introduce community members to public/community health issues and act as a guide for the community governance (control) of health promotion. The resource was also designed in consideration of its potential use by public health practitioners, policy makers, action researchers, community development and other health workers concerned with promoting health and preventing illness and disease in Victorian communities. Another reason for undertaking this study was to learn more about public health matters and methods consistent with the NHMRC Public Health (Allied Health) Postgraduate Training Scholarship and the researcher’s future career aspirations.

Given the range of purposes and audiences for the CHEB resource, it was produced in three different formats. The first draft of the CHEB resource was initially produced in a report format in 2008. The intention was to use this report in the second stage of research with community members but due to its large size, a more succinct PowerPoint presentation was also developed and shown to participants instead. The larger report was made available for participants during the program and on the CHIC website. Finally, the CHEB resource was also integrated into this thesis as Chapter 5.

The term ‘Victorian communities’ which appears in the research question, should be defined to avoid confusion. Community can be defined in a range of ways and can therefore be a problematic term. In one sense, it can be thought of as a group of people with some shared attribute such as belonging to the same ethnic group, living in the same region, having a common interest or attending the same school. Australia, Victoria and the local government area (LGA) or suburb one lives in can all be thought of as communities. The term ‘Victorian communities’ in the research question refers to Local Government Areas, with each LGA usually comprising of a number of suburbs. While constructing the resource for relevance at this ‘local’ community level, data at the Australian and Victorian levels are also presented in this research to illustrate issues of concern in the broader context. Data from some Statistical Local Areas (SLAs) – the smallest spatial/geographic area delineated by the Australian Bureau of Statistics are also presented in instances where LGA level data was not readily available.

The research question (RQ1) points to a quantitative approach and was addressed by reviewing, summarising, integrating and analysing publicly available secondary quantitative data (data sets/survey results available on a public website and downloaded and manipulated by the researcher). Quantitative research involving "existing statistics/documents and secondary data analysis" is an appropriate method for topics that require information routinely collected by large bureaucratic organisations (Neuman, 2006, p. 236). All the data collected and analysed in the present study were from credible sources and included:

- Australian Bureau of Statistics
- Australian Government Department of Health and Ageing (HealthWiz CD-Rom)
- Australian Institute of Health and Welfare
- Central Intelligence Agency
- Victorian Government Department of Human Services (now Department of Health)
- World Health Organization

A substantial analysis of causes of death and hospitalisation data obtained from the Victorian Department of Human Services and the Department of Health and Ageing Healthwiz database that was not previously in the public domain was also undertaken. The data map in Table 18 provides a summary of the specific research questions and statistics that make up the Community Health Evidence Base. Column one shows the basic demographics and data on the health of Australians, the health of Victorians and the health of Victorian communities that were collected and analysed. These health data included Life Expectancy, mortality and morbidity around the world, causes of death, summaries of major health surveys and hospitalisations (separations and bed days).

The data were collected to coincide as closely as possible to the latest 2006 ABS Census data. Even so, as may be seen by the years in brackets in Table 18, obtaining a snapshot of health at one given time using various sources was not possible due to unavailability of the data.

Numerous graphs and tables on mortality, causes of death, hospital admissions and self-rated health at the Australian, Victorian and community levels were developed and

Table 18

Data Map Showing the Specific Research Questions and Statistics Collected and Analysed in Stage One

Statistics/Analysis Levels	**Australians (Chapter 5.2)**	**Victorians (Chapter 5.3)**	**Victorian Communities (Chapter 5.4)**
Who are we? (selected demographics)	Country of birth, sex, age, income for Australia (2006)	Country of birth, sex, age, income for Victoria (2006)	LGAs and regional divisions in Victorian Communities (2006)
Life Expectancy (LE)	Australians/world (2007); Indigenous Australians (1996–2001)	Victorians compared to states and territories (1995-2004)	Metropolitan and rural regions (1996-2004); LGAs below and above average (2004)
Mortality and Morbidity (Death and Disease) around the world	Mortality and morbidity among adults, worldwide (2002); Core health (mortality) indicators for Australia and worldwide (2002)		
Causes of Death	Ages 0-44 and 45-85+ (2005); Indigenous and Non-indigenous Australians (2005)	Top 20 causes (1999-2008)	What was the male, female and total number and rate of deaths in rural and metropolitan Victoria for each age group for the years 2001-2005? Which LGAs have the highest numbers and rates of death in each age category? What are the main causes of death among males and females of different age groups and LGAs?
Summaries of Health Surveys	The National Health Survey – Australia (2004-2005)	The National Health Survey – Victoria (2004-2005); The Victorian Population Health Survey (2005); “Your Health” Report on the Health of Victorians (2005)	
Hospitalisations: Separations and bed days		What are the hospital separation and bed day numbers for each of the seven NHPAs in Victoria? Are there any gender differences in hospital separations and bed day numbers for the NHPAs in Victoria? Are there any age related differences in hospital separations and bed days for the NHPAs and total conditions in Victoria? (2004-2005)	What are the hospital separation and bed day numbers for each of the NHPAs in Victorian communities? Are there any inequalities among communities when compared on the dimensions of overall separations, bed day numbers and NHPAs?

health inequalities associated with indigenous status, gender, age and geographical location were developed. Full details regarding the sources of data, specific research questions and procedures are provided prior to presenting the results in Chapter 5.

The results of Stage One were completed in 2008. The statistical information about health that was collated and visualised during this stage were then presented to community members in 2009 during the Stage Two Community Health Information Collaboration. A stand-alone report was developed from Stage One titled: Community Health Evidence Base: Guiding Evidence for Community Health Promotion in Victoria. A summary PowerPoint presentation consisting of all the tables and graphs contained in the report was also developed.

4.3.2 Method in Stage Two: Community Health Information Collaboration. Approval to conduct Stage Two of the research was obtained from the Victoria University Human Research Ethics Committee on August 2008. The ethics approval note for this stage is shown in Appendix D. A plain language statement form consisting of information about the project for participants (Appendix E) and a consent form (Appendix F) were also approved for use in this stage.

Stage Two consisted of a qualitative community based participatory action research/health promotion collaboration with a local community group in the metropolitan Brimbank region of Melbourne, Victoria, Australia. This stage consisted of two general aims, two research questions and four specific research aims as shown in Table 19. These questions were addressed by developing and undertaking a 10-week program named the Community Health Information Collaboration (CHIC) with a group of community members from the LGA of Brimbank. The main aims in undertaking the CHIC program were to empower participants with health promotion knowledge, skills and confidence as defined further in the three sub-aims (2a-2c) in Table 19; and to engage the community group in the development of a health promotion idea for action to improve health in the broader community (Aim 3).

4.3.2.1 Participants and program overview. Seven people (six female and one male) actively participated in the CHIC program. This represented the lower end of the 7-15 participants proposed in the ethics application and was similar in size to a focus group. Although, there were at least 40 initial inquiries from interested community members during the recruitment phase, the day and time of the program session did not suit all the people that had inquired about the program. This is because some worked during the day or had changed life circumstances such as obtaining full time employment, study commitments, or having to report to government employment agencies on the proposed day of the program.

Table 19

Research Aim, Question and Method in Stage Two

Research Stage	**Research Aim**	**Research Question**	**Methodology**
Stage Two: Community Health Information Collaboration (CHIC)	Aim 2. To collaborate with a local community group and empower members of the group with health promotion and disease prevention knowledge, skills and confidence including: Aim 2.a. To inform the community group about major health concepts and concerns in Australian society, including National Health Priority Areas, health status, determinants of health, inequalities and major causes of mortality and hospitalisation. Aim 2.b. To introduce the community group and broader community to a range of internet based community health information resources. Aim 2.c. To explore and strengthen community members' understanding and interests in personal and community health.	RQ2. What are the benefits of community based health promotion and prevention?	Qualitative: Community based participatory action research through health promotion collaboration with a local community group in the metropolitan Brimbank region of Melbourne, Victoria, Australia. Includes use of the nominal group technique.
	Aim 3. To engage the community group in the development of a health promotion idea for action to improve health in the broader community.	RQ3. What ideas for health promotion action does the community have to offer?	

Two additional members (a nutritionist and a local house building project manager) who expressed interest in the program but who could only attend for one session each were kept informed of the progress of the group by email throughout the ten sessions. This is not discussed further in this thesis.

The seven participants were a culturally diverse group, consisting of four Vietnamese people (one male and three females) who were known to each other and three females from the Maltese, Filipino and Latin-American communities. All were born overseas in the respective Non-English speaking countries. The ages ranged from early 20's to over 50. As this was a qualitative study with a small sample size, further socio-demographic information was not obtained from the participants to ensure privacy of personal information. Although, participants did not choose to have their names concealed, they are referred to by the pseudonyms Anita, Vivianne, Celeste, Thanh, Chuong, Khanh, Thi and in this thesis.

The participants were recruited from the Brimbank region of Melbourne (Victoria, Australia). As this was a qualitative research stage, the sample recruited and indeed the findings, were not meant to be representative of the broader population/community nor was this region selected as the result of findings from Stage One. Brimbank was selected as the community of interest because of the researcher's knowledge of the people, issues and services in the area, gained from long term residence in the area and interest in improving health and well being in the Brimbank and Western region. "Brimbank is a culturally and linguistically diverse region with lower rates of education, higher rates of unemployment and various unmet needs related to disadvantage" (Totikidis, 2005, p. 7). Table 20 reveals that Brimbank ranked within the top ten or so (out of 79 LGAs in Victoria), on a range of indicators related to disadvantage/special community needs. For example, Brimbank ranked second highest for low income, people who did not go to school and people born in a NESB country out of 79 LGAs in Victoria. It has a high population with high rates of younger people and those still at school as well as high rates of people with low English proficiency.

Another reason for selecting Brimbank is that it is home to the two Victoria University research centres supporting/supervising this research. One, is the Wellness Promotion Unit, located within the School of Social Sciences and Psychology, Faculty of Arts, Education and Human Development. This unit was founded by a community psychologist in 2001 and is especially committed to social justice, diversity, community engagement and improvement of health and well being in the Brimbank and surrounding Western region. The primary supervisor of this PhD research is also the director of this unit. The second centre is the Australian Community Centre for Diabetes, which is also committed to diversity and applies a community engagement and action research model to the prevention and management of diabetes in the Western region. The research director of this centre was also the supervisor of this research for a two-year period until her resignation in 2011.

Table 20

Indicators Related to Community Needs in Brimbank

Indicator	**Rank**	**Brimbank Rate**	**Average LGA Rate**
Number on low income	2nd	103,137	34,330.03
Rate did not go to school	2nd	27.76	6.53
Rate born in non-Engl spkg country	2nd	380.55	100.9
Population (2001) (number)	3rd	169,839	61,827.74
Rate low English proficiency	3rd	100.25	18.36
Rate still at school	4th	37.02	29.82
Total household income rate	4th (lowest)	307.8	421.48
Rate age 15-24	6th	147.98	120.11
Gender disparity in income	9th	0.62	0.48
Rate of women as one parent families	11th	69.57	53.14

Note. Source of data: ABS 2001 Census of Population and Housing ‘Basic Community Profile’ Series (2002). Calculations by Totikidis (Totikidis, 2005): Rates were calculated per 1000 of the population. Gender Disparity in Income was calculated as the difference between the percentage of males on high income and the percentage of females on high income. Low English Proficiency consisted of two summed categories (Speaks other language and speaks English: Not well or Not at all).

Participants were recruited by means of advertising the program in a colourful A4 flier (Appendix G) and a three-panelled brochure (Appendix H). The brochure and flier consisted of information about the researcher and project, details about who could attend, where it was to be held and an outline of the 10-week program. The flier was emailed to several community-based agencies in the Brimbank region together with information about the research and a link to the CHIC website. Hard copies of the flier and brochures for displaying were also delivered to these agencies. The following services received emails and/or hard copies of the flier and brochures: Isis Primary

Care, Migrant Resource Centre, St Albans, Keilor Village and Deer Park libraries and Good Shepherd Youth and Family Services.

An outline of the 10-week CHIC program is shown in Table 21. The program and sessions are reflective of the theoretical framework detailed in the Theoretical Discussion in Chapter 3 and the theories and models associated with the framework. The major parts of the framework were 1a. Knowledge of the Problem, 1b. Community Governance Principles and 1c. Knowledge of Problem Solutions as a means to 1d. Community Empowerment and 1e. Community Wellness.

Formally, the CHIC program can be classified as a community-based participatory research method that aligns with many of the principles outlined by Israel et al., (2005) (see the section on Community Based Health Interventions in Chapter 2). Community-based participatory research approaches are becoming widely recognised among public health, nursing, sociology, social work, psychology and other professionals seeking “to improve the health and well being of communities in general and to eliminate health disparities in particular” (p. 3).

The CHIC program can also be described as community based participatory action research. Although the terms ‘community-based participatory research’ and ‘community-based action research’ are often used interchangeably, the distinguishing features of the latter are that it is “a planned, systematic approach to issues relevant to the community of interest [that] requires community involvement, has a problem-solving focus, is directed at societal change, and makes a lasting contribution to the community” (Hills, Mullett, & Carroll, 2007, p. 1). The applied nature of the CHIC program characterised by community engagement, an emphasis on promoting health and improving health knowledge and generating and implementing practical ideas to improve community health makes it consistent with an action research paradigm.

Table 21

CHIC Program Outline and Session Details

Week 1: Introductions
This first session will involve meeting other community members in the group and introducing our interests in health. Vicky will provide an overview of the project, including the new CHIC website. Some of my favourite health websites/topics will be explored including Body Mass Index and fruit and veggie calculators, personalized healthy food pyramids, healthy living calendar, world's healthiest foods and healthy recipe sites.

Week 2: Community Health Evidence Base (CHEB)
Vicky will present a power point presentation of the CHEB resource, which is an informative summary of public health issues and health statistics in Australia, Victoria and Victorian communities. Issues such as life expectancy, causes of death and illness and differences in health outcomes due to factors such as age, gender and geographical location are presented.

Week 3: Thinking about health in our community
In this session we will focus on the Brimbank community and will discuss some of the community health issues of interest to us as a community. Are some health issues more urgent/important to us? What are some of the reasons for these particular health problems? Is our community healthy?

Week 4: Good ideas and choosing a manageable task
Today, we will 'brainstorm' ideas about actions that can be undertaken to improve health in our community. We will list our good ideas on project paper and prioritize and decide on a manageable task using the 'Nominal Group Technique'.

Week 5: Planning for success
In this session we will develop a plan of action for our chosen idea. What needs to be done? Who will do what? Who can help? Do we need to apply for funding to enable the undertaking of the project? We will have the next 4 weeks to undertake our project or get it to a stage where it could be undertaken (if it is a large project).

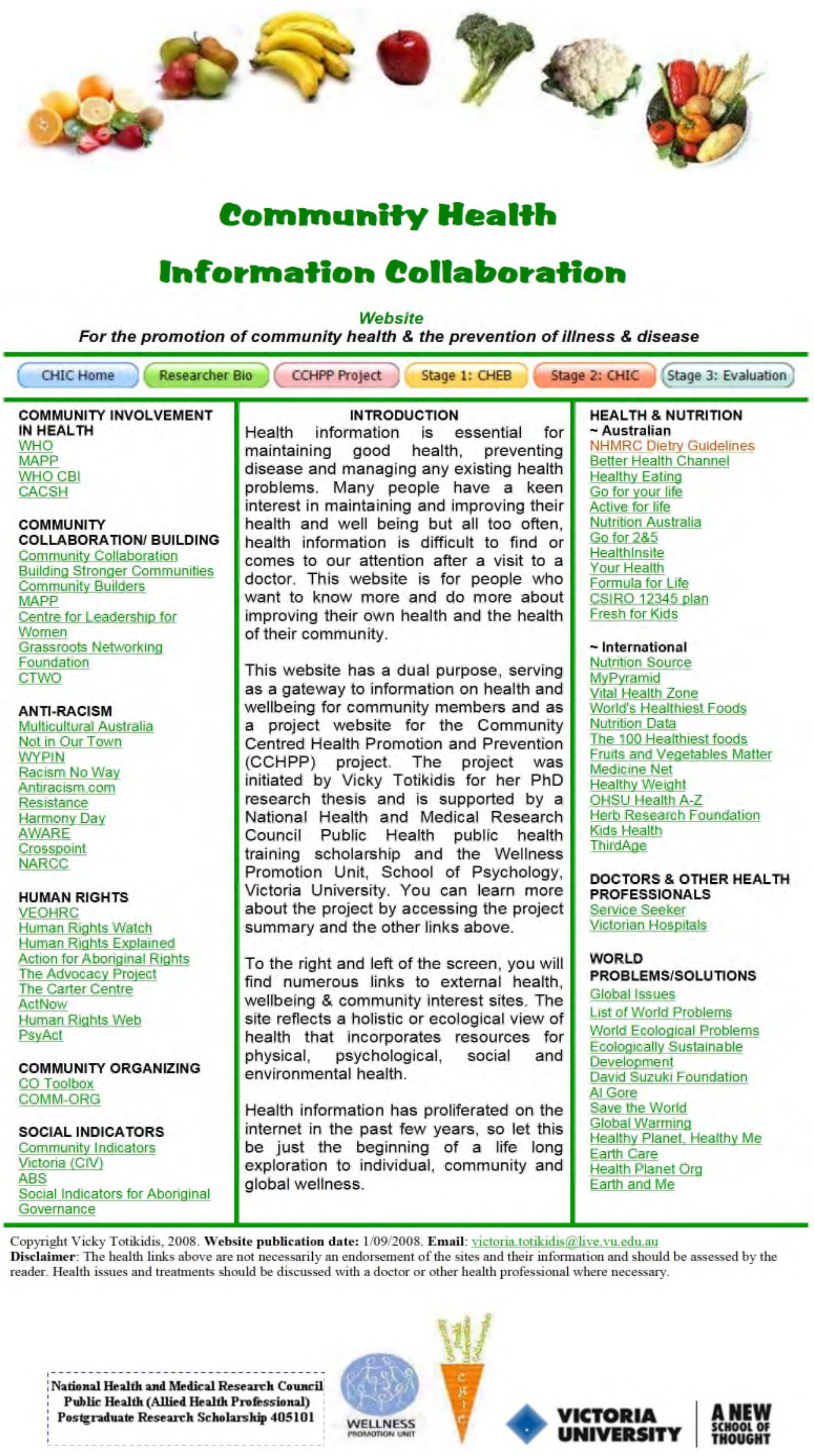
Week 6-9: Action stage 1-4

Week 10: Celebrate our achievement
Program members will be asked to bring in a small plate of healthy food to share. We will have a chance to reflect on and evaluate our experience and opinions of the program and celebrate our achievements.

Whilst the CHIC program as a whole could be classified as either ‘community-based participatory research’ or ‘community-based action research’ method, and the program consisted of both education and research components, “data collection” was not the intention in every session. For example, Session One was an introductory rapport building session and, together with session Two and Three, was designed to be informative and educative. Week One to Three of the program included introducing the group to a range of internet based health information and disease prevention resources; epidemiological evidence about the extent of the chronic disease problem; and focused information on the health and wellbeing of the Brimbank community.

The nominal group technique in Session Four was a more formal research method that yielded data. Detailed procedures relating to this technique are provided in the next section. Sessions Five to Nine involved a process of planning for action that could improve health in the community and that could be observed, documented and evaluated by the researcher. A formal evaluation with participants was also undertaken at the end of the program. The outcomes of each session are discussed in the results section.

4.3.2.2 Community Health Information Collaboration (CHIC) website. Prior to conducting the CHIC program, the researcher developed a website (Totikidis, 2008a) consisting of project and health information to provide information to community members and assist the health promotion aims of the CHIC research stage (see Figure 32). The site reflects a holistic or ecological view of health that incorporates resources for physical, psychological, social and environmental health and is consistent with the WHO constitution, community psychology principles and the concept of wellness. As outlined in the previous table, introducing the CHIC website was the main focus of the first session. The site was accessed in other sessions as well to assist in explaining certain concepts and to promote discussion and problem solving.



Community Health Information Collaboration

Website
For the promotion of community health & the prevention of illness & disease

COMMUNITY INVOLVEMENT IN HEALTH
WHO
MAPP
WHO CBI
CACSH

COMMUNITY COLLABORATION/ BUILDING
Community Collaboration
Building Stronger Communities
Community Builders
MAPP
Centre for Leadership for Women
Grassroots Networking Foundation
CTWO

ANTI-RACISM
Multicultural Australia
Not in Our Town
WYPIN
Racism No Way
Antiracism.com
Resistance
Harmony Day
AWARE
Crosspoint
NARCC

HUMAN RIGHTS
VEOHRC
Human Rights Watch
Human Rights Explained
Action for Aboriginal Rights
The Advocacy Project
The Carter Centre
ActNow
Human Rights Web
PsyAct

COMMUNITY ORGANIZING
CO Toolbox
COMM-ORG

SOCIAL INDICATORS
Community Indicators
Victoria (CIV)
ABS
Social Indicators for Aboriginal Governance

INTRODUCTION

Health information is essential for maintaining good health, preventing disease and managing any existing health problems. Many people have a keen interest in maintaining and improving their health and well being but all too often, health information is difficult to find or comes to our attention after a visit to a doctor. This website is for people who want to know more and do more about improving their own health and the health of their community.

This website has a dual purpose, serving as a gateway to information on health and wellbeing for community members and as a project website for the Community Centred Health Promotion and Prevention (CCHPP) project. The project was initiated by Vicky Totikidis for her PhD research thesis and is supported by a National Health and Medical Research Council Public Health public health training scholarship and the Wellness Promotion Unit, School of Psychology, Victoria University. You can learn more about the project by accessing the project summary and the other links above.

To the right and left of the screen, you will find numerous links to external health, wellbeing & community interest sites. The site reflects a holistic or ecological view of health that incorporates resources for physical, psychological, social and environmental health.

Health information has proliferated on the internet in the past few years, so let this be just the beginning of a life long exploration to individual, community and global wellness.

HEALTH & NUTRITION
~ Australian
NHMRC Dietry Guidelines
Better Health Channel
Healthy Eating
Go for your life
Active for life
Nutrition Australia
Go for 2&5
HealthInsite
Your Health
Formula for Life
CSIRO 12345 plan
Fresh for Kids

~ International
Nutrition Source
MyPyramid
Vital Health Zone
World's Healthiest Foods
Nutrition Data
The 100 Healthiest foods
Fruits and Vegetables Matter
Medicine Net
Healthy Weight
OHSU Health A-Z
Herb Research Foundation
Kids Health
ThirdAge

DOCTORS & OTHER HEALTH PROFESSIONALS
Service Seeker
Victorian Hospitals

WORLD PROBLEMS/SOLUTIONS
Global Issues
List of World Problems
World Ecological Problems
Ecologically Sustainable Development
David Suzuki Foundation
Al Gore
Save the World
Global Warming
Healthy Planet, Healthy Me
Earth Care
Health Planet Org
Earth and Me

Copyright Vicky Totikidis, 2008. **Website publication date:** 1/09/2008. **Email**: victoria.totikidis@live.vu.edu.au
Disclaimer: The health links above are not necessarily an endorsement of the sites and their information and should be assessed by the reader. Health issues and treatments should be discussed with a doctor or other health professional where necessary.

National Health and Medical Research Council
Public Health (Allied Health Professional)
Postgraduate Research Scholarship 405101

Figure 32. Home page of the CHIC website.

4.3.2.3 Nominal Group Technique. The Nominal Group Technique (NGT) was used in the fourth session of the CHIC program to generate ideas about actions that could be undertaken to improve health in the community[10]. NGT is a group decision-making tool originally developed by Delbecq and Van de Ven in 1968 (1974) and can be summarised as consisting of the five following steps:

1. Generating Ideas
2. Recording Ideas
3. Discussing/Clarifying Ideas
4. Voting/Rating Ideas
5. Summing the Ratings.

Some of the major advantages of NGT are that it produces a large number of ideas and has a greater potential for creative decision making and participant satisfaction (Van De Ven & Delbecq, 1974). The method also overcomes the problem for some participants who are reluctant to suggest ideas because of concern about being criticised or creating conflicting (Brahm & Kleiner, 1996). NGT minimises differences and ensures relatively equal participation among participants, saves time, may decrease any tension and hostility a group might normally experience in decision making and provides a sense of closure that is often not found in less-structured group methods (Brahm & Kleiner, 1996).

Within the field of health, NGT has been used in general practice to decide on priorities of care for people with diabetes (Gallagher, Hares, Spencer, Bradshaw, & Webb, 1993); with doctors and nurses to establish clinical and health services research priorities in critical care (Vella, Goldfrad, Rowan, Bion, & Black, 2000); and with opinion leaders to consider whether to adopt or adapt the World Health Organization practice recommendations for contraceptive use in the UK (Glasier, Brechin, Raine, & Penney, 2003).

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[10] A journal article arising from the nominal group technique undertaken in this research has been simultaneously published in the Australian Community Psychologist (Totikidis, 2010).

An application of NGT to identify community health priorities in northern Tanzania (Makundi et al., 2006) provides an example of NGT used in a similar way as the present study with community members at a community-based level. The Makundi et al., study was motivated by concern for the 'burden of disease' and the need for the perspectives of marginalised groups and communities, in resource poor settings, to be integrated within the policy-making and priority setting process. The research involved male and female groups consisting of community leaders/elders, patients or caregivers, religious leaders, youth leaders and women in four villages and the focus of the study was on disease problems and socio-cultural problems.

The results of the NGT showed that all the groups ranked Malaria as the number one disease problem with AIDS, hypertension and schistosomiasis also ranked highly by most of the groups. Poverty and unclean environment were identified as the leading social problems facing health services, where respondents defined poverty as a lack of financial resources to pay for health services when they fall ill. Other problems identified included lack of drugs, lack of equipment and qualified personnel in public health facilities and gender discrimination in the form of female genital mutilation and restriction of widow inheritance (Makundi et al., 2006).

Although the problems identified in the Tanzanian study are very different to problems in the Australian context, the study demonstrates many important points about using the NGT in community based research. Firstly, NGT assists in demonstrating to participants that their opinions are valued. Second, NGT serves as both an awareness raising (health promotion) tool and an awareness assessment tool. In regards to the latter, NGT may help to assess not only whether participants are aware of the leading health problems but also whether there are any myths or delusions about the extent of the problems. Thirdly, valuing and educating community members in this way also contribute to empowerment.

The Makundi, et al., study also showed that NGT is culturally and community sensitive. That is, while it is not within the scope of the present thesis to discuss in detail, Makundi, et al., found regional cultural differences in the identified disease and social problems among the groups and sexes. This demonstrates that NGT can be useful in identifying specific issues within communities and cultures as well as detecting differences among them. NGT in this example was succesfully used to identify disease and social problems but it could also be used to generate ideas or possible solutions to such problems as is the focus of the present study.

4.3.2.4 Materials. The CHIC program was held in a large refurbished classroom at the St Albans Campus of Victoria University between February and April, 2009. The room consisted of a computer lectern with internet access and projector facilities, ample lecture seating with side writing tablets, two large whiteboards, a couch, and tables for serving refreshments. A document wallet consisting of the plain language statement (Appendix E), the consent form (Appendix F), a 20-item evaluation questionnaire (Appendix I) and the following health promotion materials was available for each participant on arrival (see also Figure 33).

- Food for health - Dietary Guidelines for Children and Adolescents (Booklet) (Australian Government Department of Health and Ageing - National Health and Medical Research Council, 2003a)
- Food for health - Dietary Guidelines for Children and Adolescents (Pamphlet) (Australian Government Department of Health and Ageing - National Health and Medical Research Council, 2003b)
- It’s easy to find a way to get some extra fruit and vegies in your day (booklet) (Australian Government Department of Health and Ageing - National Health and Medical Research Council)
- 2009: A Year of Good Health for Families (Calendar) (Centers for Disease Control and Prevention. Office of Women’s Health, 2009)
- The health eating pyramid (diagram) (Harvard School of Public Health. Department of Nutrition, 2009)
- Food variety and a healthy diet (fact sheet) (Victorian Department of Human Services. Better Health Channel website, 2008)
- Formula for life - Diet Entry (sheet) (Formula for life. Growcom, 2008)

- Body Mass Index Chart (NiuFM, 2006-2007)
- The World's Healthiest Foods (list) (The George Mateljan Foundation, 2001-2009)

Figure *33*. Selected materials and attendance list used in the CHIC program.

Various materials were projected on a big screen during the program, including the Community Health Information Collaboration (CHIC) website and related health and nutrition links, the Community Health Evidence Base (CHEB) statistics and the Nominal Group Technique (NGT) presentation. Other materials for the nominal group session included an excel worksheet, pens, note paper, and several sets of small coloured cards.

4.3.3 Method in Stage Three: Evaluation of the Community Centred Health Promotion and Prevention project. Stage Three of the research involved an evaluation of the *Community Centred Health Promotion and Prevention* strategy as a whole. This stage consisted of a general aim and a related research question as shown in Table 22. The evaluation consisted of elements of the three types of evaluation discussed in the literature review - formative, process and outcome evaluation. Although these distinctions are not used further throughout this thesis, the formative category applies to this research because it is new and because of the action research design, which allows for replication of a similar (and improved) program in other communities. Therefore, discussion on what could be improved in future programs will be raised in the results and discussion chapter of this thesis. Attention to the process over the course of the

CHIC program and beyond in the post-program activities is also given. Despite the known limitations in identifying change and impact as a result of the program, some discussion consistent with the definition of outcome evaluation is also presented.

Table 22

Research Aim, Question and Method in Stage Three

Research Stage	**Methodology**	**Research Aim**	**Research Question**
Stage Three: Evaluation of Community Centred Health Promotion and Prevention (CCHPP)	Mixed methods: questionnaire, participant observation of process and outcomes	Aim 4. To evaluate the strength and potential of the community centred health promotion strategy (CHEB resource, CHIC program and website) to contribute to better health outcomes.	RQ4. In what ways, can health evidence and community involvement in health promotion, referred to here as community centred health promotion, contribute to better health outcomes?

The following items were the focus of the evaluation:

1. CHEB (Report/Power Point Presentation)
2. CHIC Website
3. CHIC Program

There are various methods that could be used to evaluate such a program, including:

1. Evaluations from CHIC program members
2. Evaluations from government departments and community health service providers
3. General feedback submitted from the CHIC website
4. Feedback from members of the general public
5. Researcher evaluations, observations, reflections and field notes of the process and outcomes

Attention to all of the above would provide a comprehensive evaluation framework; however, such an evaluation was beyond the scope of the present study. The primary data collection/evaluation methods employed in the present research was an evaluation questionnaire, seeking the opinions/evaluations of program members (Method 1 in the previous list) and researcher evaluations of the process and outcomes (Method 5). In comparison to Stage One and Two, Stage Three was a minor research stage at the end of the CHIC program that did not involve any new data collection. During this stage, the researcher collated participant evaluation responses, field notes, emails and products developed over the course of the research and reflected on the CHIC program and the research as a whole. A diagram showing this ‘minor’ evaluation design appears as Figure 34. The first arrow at the top of the model shows that participants contributed to the evaluation of the program components and some of the outcomes (dashed arrow) of the CHIC program that occurred within the 10-week program (via the questionnaire). As the researcher was involved for the ‘long haul’, the researcher evaluations extended to the program components, outcomes and post-program events as shown by the three arrows.

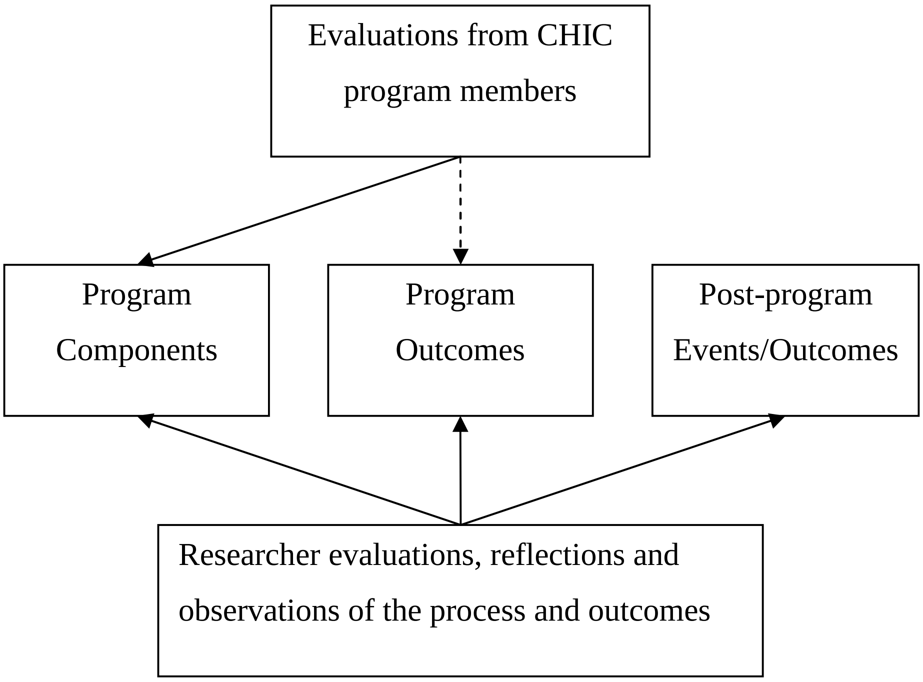


Figure 34. Community Centred Health Promotion and Prevention evaluation design.

The questionnaire design is briefly described following, while the results of the questionnaire (evaluations from CHIC program members) and the researcher evaluations/reflections are discussed in Chapter 6 and further in the conclusions section in Chapter 7.

4.3.3.1 Participant evaluation questionnaire.

A 20-item questionnaire was used to gauge participants' opinions of the program. This was developed specifically for the purpose of this study as there was no other psychometrically developed tool that encompassed the domains of the present intervention.

The evaluation questionnaire consisted of 16 Likert type statements and four open-ended questions. The Likert statements consisted of five response levels ranging from strongly disagree to strongly agree. The scale was designed to assess participants' opinions about the value of the CHIC website, the CHEB resource and the CHIC program, including enjoyment of the program, group membership and group facilitation/coordination. The 16 statements were all positively worded to avoid confusion. The 20 evaluation items are shown in Table 23 and a copy of the original formatted questionnaire is attached as Appendix I. The evaluation questionnaires were sent to participants electronically by email after the completion of the CHIC program and celebration and were returned in the same way.

Data entry involved assigning a number to each Likert statement (strongly disagree=1, disagree=2; neither agree nor disagree=3; agree=4; strongly agree=5) for the first 16 items of each questionnaires. The numbers were entered into a spreadsheet and basic descriptive statistics were calculated (range, mean, median, mode).

4.3.4 Research validity

Validity is used in many different ways and is often used to mean "true" or "correct" (W.L. Neuman, 1991) in contrast to "bias" and "systematic error" (Gray, 2010, p. 3). According to Gray, bias or systematic error is any process or effect at any stage of a study from design to execution, to the application of information from the study, that produces results or conclusions that differ systematically from the truth. Bias can be reduced by proper study design and execution.

Table 23

Evaluation Domains, Statements and Questions

Domains evaluated	**Likert statements and questions**
Community Health Information Collaboration (CHIC) Website	• The website is very informative • The website consists of good tips on how to maintain/improve my health • I plan to use the CHIC website regularly • I will certainly tell friends and family about the website
Community Health Evidence Base (CHEB) statistical resource	• The CHEB PowerPoint show was very informative • I am more aware of the health issues facing Australian communities after having seen the CHEB show • The information presented has made me more determined to maintain/improve my health and prevent illness • The information presented will help me to help others
Group Membership	• I enjoyed my time as a member of the CHIC program • I got along well with other members in the group • I felt like a valued member of the team • I believe we generated some great ideas on how to promote health in our community
Group Facilitation/ Coordination	• The sessions were well organised and facilitated • The facilitator was friendly and approachable • The facilitator was easy to understand • The facilitator was 'one of the team'
Further Questions	• What did you enjoy the most about the CHIC program? • What did you enjoy the least about the CHIC program? • Do you have any suggestions on how the program should be run in the future? • Do you have any further comments about any aspect of the program?

Although almost all studies have bias to some degree, observational study designs are more susceptible to bias than are experimental study designs but "the critical question is whether or not the results could be due in large part to bias, thus making the conclusions invalid" (Gray, 2010, p. 3). While validity is often considered differently depending on whether the research is quantitative or qualitative, Gray's three broad categories of 'design', 'execution' and 'results or conclusions' could be used for both. Table 24 shows these categories in relation to the three research stages and methods conducted in the present study. The table shows some of the validity issues that were considered throughout this research and that are discussed further in the conclusions chapter.

Table 24

Possible Validity Issues for Consideration in the Research

Stages/methods	**Design**	**Execution**	**Results Conclusions**
Stage One: Community Health Evidence Base (CHEB). Quantitative: integration and analysis of health data/statistics at the Australian, Victorian and Victorian community levels.	Design integrity: Is the research design/method appropriate for addressing the questions/aims of the study? Sources of data: Are the data accurate and credible? Are the health surveys valid?	Research integrity: Is the treatment and analysis of data accurate and credible? Were the results well presented? Were the results of benefit to the community group? Are the results of benefit to others?	External validity: Do the results accurately reflect the real world? Are the conclusions correct? Are there any serious limitations?
Stage Two: Community Health Information Collaboration (CHIC). Qualitative: Community based participatory action research and health promotion collaboration with a local community group. Includes use of the nominal group technique (NGT).	Design integrity: Is the research design/method appropriate for addressing the questions/aims of the study? Was the nominal group technique designed well?	Research integrity: Was the CHIC program well conducted? Was the nominal group technique conducted well? Was there any attrition in the program?	Are the conclusions correct? Was the intervention of benefit to participants? Did the NGT yield any fruitful ideas for action? Was the program successful/effective?
Stage Three: Evaluation of Community Centred Health Promotion and Prevention (CCHPP). Mixed methods: evaluation questionnaire, participant observation of process and outcomes.	Design integrity: Is the research design/method appropriate for addressing the questions/aims of the study? Is the evaluation questionnaire a valid and reliable instrument? Are the right things being evaluated?	Are the researcher observations/evaluations accurate and unbiased? Was the evaluation questionnaire completed and returned?	Do the researcher observations/evaluations indicate positive or negative outcomes? Do the participant evaluation questionnaire responses indicate positive or negative outcomes?

PART THREE: RESEARCH FINDINGS

3	

Chapter 5: Results of Stage One: Community Health Evidence Base

5.1 Chapter Overview

The results of Stage One of the research, referred to as the Community Health Evidence Base (CHEB), are presented in this chapter. The aim of this stage was to develop an evidence base that would contribute to knowledge of community health status, determinants and inequalities and provide a guide for health promotion and disease prevention activities. The major focus in developing this evidence base was on health statistics and quantitative and epidemiological analysis. The background and guides to the design for this stage were provided by: the National Health Priority Areas (NHPAs), the evidence from literature and best practice in the general fields of public health and health promotion, and the two models introduced in the literature review – (1) the Determinants, Inequalities and Community Health Status model and (2) the Ecological 'Person in Context' model of health determinants.

The main research question guiding this quantitative research stage was: What is the current evidence/knowledge about health status, determinants and inequalities in Victorian communities and the broader Victorian and Australian context? CHEB provides an overall snapshot of health in an Australian context using the available evidence at the time in 2008. This chapter includes three broad sections consisting of health statistics for Australia, Victoria and Victorian local communities. Although updates of such data should be continually made, the picture of health shown to program participants in 2009 has been preserved in this chapter and such updates will be a task for further research.

5.2 The Health of Australians

5.2.1 Australians: Who are we? Australia is a diverse and multicultural nation made up of small numbers of the traditional or Indigenous people of Australia (Aboriginal and Torres Strait Islander), large numbers of the descendants of the colonising country (England) and neighbouring countries, and migrants or descendants of migrants from other parts of Europe, Asia and other countries around the world. This picture of Australia acknowledges that "there are still major disparities in health, education, employment, and mental health between descendants of colonizers and descendants of indigenous peoples" (Guerin & Nolan, 2006, p. 5) that need to be acknowledged. These and other health issues are discussed in more detail following a brief profile showing the country of birth, ages and incomes of the Australian people.

5.2.1.1 Country of birth and sex of Australians. Table 25 shows the number of residents born in Australia and in another top twenty countries as of the most recent (2006) national census in relation to this doctoral study period. At this time, Australia comprised a total of 19,855,288 persons, of whom 14,072,937 (70.88%) were born in Australia (ABS, 2007e). Of those born in Australia, 2.29% people were Indigenous and 68.59% were non-Indigenous (see first two rows in Table 25).

Of the remainder of the census-recorded population, 22.24% were born in other countries and 6.88% did not state their country of birth. The top three Non-English Speaking Countries of birth as shown in Table 25 were China, Italy and Viet Nam with 206,593; 199,124; and 159,848 persons born in those countries, respectively.

5.2.1.2 Age of Australians. The median age of Australians according to the census statistics for 2006 was 37 (ABS, 2007e). The percentages of people in each age range were 6.3% (0-4 years), 13.5% (5-14 years), 13.6% (15-24 years), 42.2% (25-54 years), 11.0% (55-64 years) and 13.3% (65 years and over) (ABS, 2007e).

Table 25

Number of Residents Born in Australia and Other Top Twenty Countries

Country of Birth	**Males**	**Females**	**Persons**	**% Total**
Australia (Indigenous)	224,067	230,949	455,016	2.29%
Australia (non-Indigenous)	6,707,683	6,910,238	13,617,921	68.59%
United Kingdom	520,605	517,557	1,038,162	5.23%
New Zealand	196,446	193,021	389,467	1.96%
China*	93,281	113,312	206,593	1.04%
Italy	103,025	96,099	199,124	1.00%
Viet Nam	75,292	84,556	159,848	0.81%
India	81,196	65,915	147,111	0.74%
Philippines	42,680	77,854	120,534	0.61%
Greece	54,517	55,472	109,989	0.55%
Germany	50,995	55,533	106,528	0.54%
South Africa	51,037	53,095	104,132	0.52%
Malaysia	42,024	50,308	92,332	0.47%
Netherlands	40,472	38,459	78,931	0.40%
Lebanon	38,838	36,010	74,848	0.38%
Hong Kong**	34,530	37,271	71,801	0.36%
Sri Lanka	31,319	30,938	62,257	0.31%
United States of America	31,085	30,628	61,713	0.31%
Korea, Republic of (South)	24,022	28,739	52,761	0.27%
Poland	23,635	28,616	52,251	0.26%
Croatia	26,186	24,804	50,990	0.26%
Indonesia	22,806	28,175	50,981	0.26%

Note. Table constructed by Totikidis from 2006 Census of Population and Housing Australia (ABS, 2007a, 2007c). *China excludes Special Administrative Regions (SARs) and Taiwan Province. ** Hong Kong (SAR of China).

5.2.1.3 Income of Australians. The median gross weekly income of Australians aged 15 years and over at the time of the 2006 census was $466 (ABS, 2007f). A percentage of Australians (7.16%) aged 15 years and over did not have an income at all, while a further 33.84% earned between $1-$399 dollars (which is less than the median gross income) (ABS, 2007d). Another 13.64% of persons earned $400-$599, 18.53% earned $600-$999, 14.46% earned $1,000-$1,999, 3.47% earned over $2000 and 8.90% did not state their individual income. In conclusion, a sizeable proportion of people earn less than the median wage, which can impact on food security, health and well being for some people.

5.2.2 Life Expectancy at Birth for Australians. Australians enjoy good health in comparison to people living in most other countries. In a recent estimate of ‘life expectancy at birth’ Australia was ranked as 8th highest in life expectancy at birth out of a total of 222 countries (Central Intelligence Agency, 2007). Life expectancy at birth (LE) is a measure of the expected length of life and can be used to measure inequalities. Murgai et al., have defined life expectancy at birth as “a measure of how long a baby born at the present time could be expected to live if he or she grew up being subject to current mortality rates” (2004, p. 27). It is a good measure of mortality differences among groups and premature death in a population (Murgai et al., 2004). Figure 35 consists of bar graph that was constructed from the CIA data showing the countries with the top twenty highest LEs for males, females and all persons.

As shown at the bottom of the graph Andorra (a very small country between France and Spain in Europe) has the highest overall LE, followed by Macau (an administrative region, like Hong Kong, to the east of China), Japan, San Marino and Singapore. Australia at 8th and with a life expectancy of 80.62 years is substantially above the average LE of 68.44 years for the 222 countries.

Further observation of the data revealed that Australia as a developed country, has about twice the LE of some developing countries such Swaziland, Angola, Zambia, Zimbabwe and Lesotho (not shown in the graph), which all have LEs of under 40 years of age. As shown in the next section on mortality, low LEs in these latter countries are largely attributable to high infant and child mortality (from a number of causes) and early deaths due to HIV/AIDS (among various age groups).

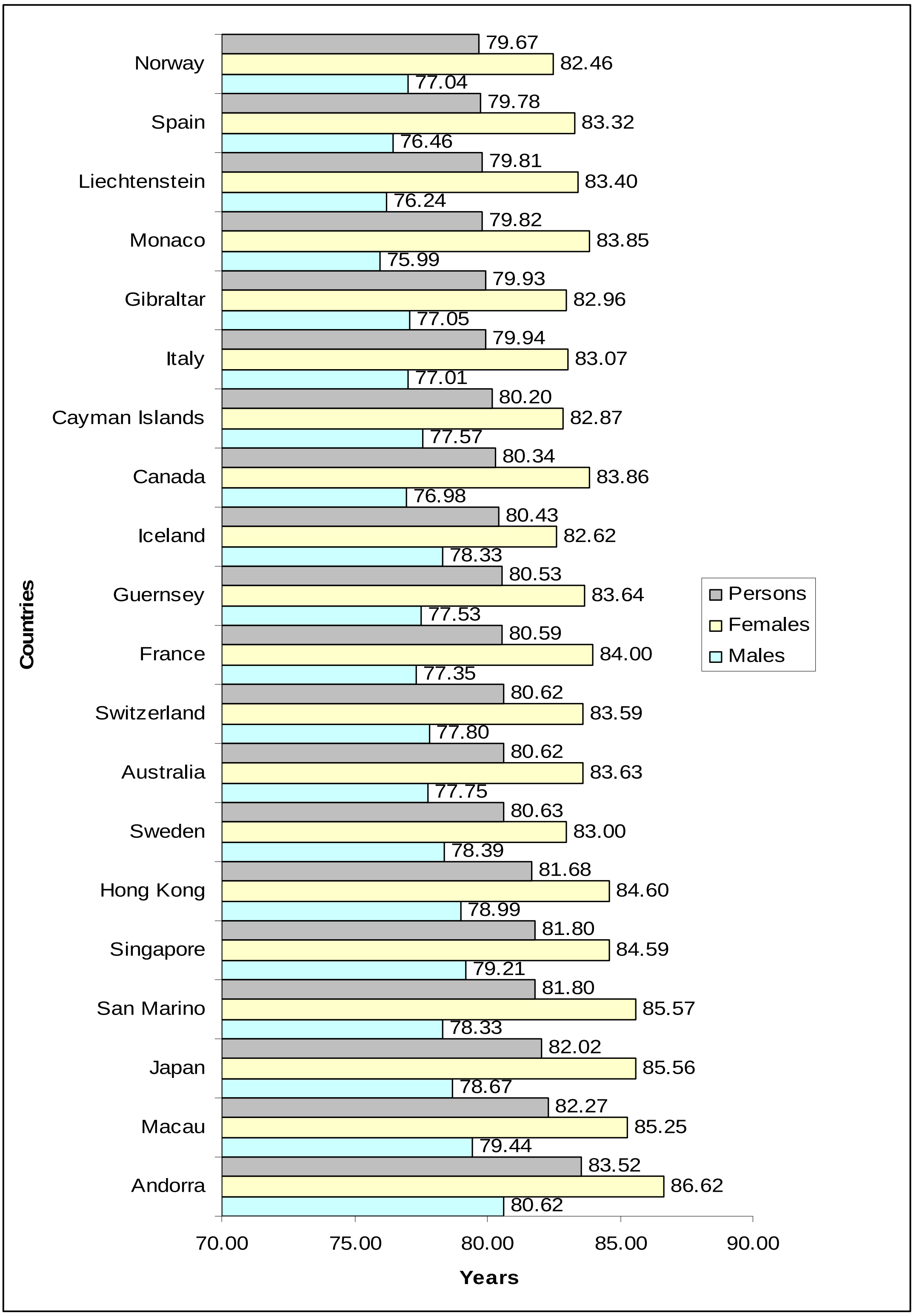


Figure 35. Countries with the top twenty highest life expectancies.

Note. Figure constructed by Totikidis from Central Intelligence Agency (CIA, 2007) data.

5.2.3 Life Expectancy at Birth for Indigenous Australians. Life expectancy at birth for Indigenous Australians is shockingly lower than that of the general Australian population. According to the latest available Indigenous statistics (1996–2001), Indigenous LE was 59 years for males and 65 years for females (Trewin & Madden, 2006). This was about 17 years below the 1998–2000 LEs for all Australian males and females, which were 77 years and 82 years, respectively (Trewin & Madden, 2006). Although a direct comparison to the LEs in the previous figure cannot be made due to the different collection periods, Australia's overall LE would be higher than most countries if Indigenous LE was addressed.

5.2.4 Mortality and Morbidity (Death and Disease). Mortality and morbidity (or burden of disease) statistics are other key ways of monitoring population health. Some of the main causes of mortality and morbidity in adults around the world are shown in the following table. Additional tables on core health (mortality) indicators for Australia and the world and main causes of death in Australia for ages 0-44 and 45-85 are also presented in this section.

5.2.4.1 Mortality and morbidity among adults, worldwide. Table 26 shows the leading causes of mortality and disease burden (DALYs) among adults worldwide based on 2002 data (WHO, 2003). According to the WHO: The DALY or Disability Adjusted Life Year is a health gap measure that extends the concept of potential years of life lost due to premature death (PYLL) to include equivalent years of 'healthy' life lost by virtue of being in states of poor health or disability. The DALY combines in one measure the time lived with disability and the time lost due to premature mortality. One DALY can be thought of as one lost year of 'healthy' life and the burden of disease as a measurement of the gap between current health status and an ideal situation where everyone lives into old age free of disease and disability (WHO, 2007a).

Table 26

Leading Causes of Mortality and Disease Burden (DALYS) (000) Among Adults, Worldwide, 2002*

Persons Aged 15–59		**Persons Aged 60+**	
Cause of Mortality	**Deaths***	**Cause of Mortality**	**Deaths***
HIV/AIDS	2,279	Ischaemic heart disease	5,825
Ischaemic heart disease	1,332	Cerebrovascular disease	4,689
Tuberculosis	1,036	COPD	2,399
Road traffic injuries	814	Lower respiratory infections	1,396
Cerebrovascular disease	783	Trachea, bronchus, lung cancers	928
Self-inflicted injuries	672	Diabetes mellitus	754
Violence	473	Hypertensive heart disease	735
Cirrhosis of the liver	382	Stomach cancer	605
Lower respiratory infections	352	Tuberculosis	495
COPD	343	Colon and rectum cancers	477
Disease Burden	**DALYs***	**Disease Burden**	**DALYs***
HIV/AIDS	68,661	Ischaemic heart disease	31,481
Unipolar depressive disorders	57,843	Cerebrovascular disease	29,595
Tuberculosis	28,380	COPD	14,380
Road traffic injuries	27,264	Alzheimer and other dementias	8,569
Ischaemic heart disease	26,155	Cataracts	7,384
Alcohol use disorders	19,567	Lower respiratory infections	6,597
Hearing loss, adult onset	19,486	Hearing loss, adult onset	6,548
Violence	18,962	Trachea, bronchus, lung cancers	5,952
Cerebrovascular disease	18,749	Diabetes mellitus	5,882
Self-inflicted injuries	18,522	Vision disorders, age-related/other	4,766

Note. Reprinted from "*The World Health Report 2003: Shaping the Future*", by World Health Organization, 2003. Geneva: World Health Organization. COPD - Chronic obstructive pulmonary disease. *All figures are in thousands (000) – multiply figures by 1000 to derive.

The striking feature of Table 26 is that it shows that most of the mortality and morbidity around the world is not from communicable diseases but from preventable causes, which can be curbed with better health promotion and education. The figures also show that younger people tend to die and suffer more from HIV/AIDS, accidents and injuries and alcohol related disease while older persons die and suffer more from chronic conditions and diseases of older age.

In addition to the mortality shown in the table, the WHO stated that many children do not survive until the age of five with over 10.5 million child deaths reported for developing countries around the world (2003). As will be shown further in this section, while the picture in Australia is not as grim as many other parts of the world, there are some exceptions to this. There are also many potentially avoidable and preventable deaths in both younger and older population groups within Australia and in the area of indigenous health, which requires urgent and concerted attention.

5.2.4.2 Core health (mortality) indicators for Australia and worldwide. Table 27 shows a range of WHO indicators for Australia compared to about 190 other countries around the world (2007c). The world averages, differences, ranges and medians were calculated by the present researcher from the online WHO Statistical Information System database (2007c). A limitation of this data is that it refers to the 2002 time period and later statistics of this kind were not available at the time of this analysis. As may be observed, Australia has lower mortality rates, Years of Life Lost (YLL) (early deaths) and deaths among children less than five years of age for most of the selected indicators. However, five exceptions should be highlighted.

Two of these exceptions are that Australia has a higher than world average of YLLs for *non-communicable diseases* and *injuries*. This suggests that even though less people in Australia are dying of these conditions compared to many other parts of the world, the ones that are dying are younger in age. Australia also has higher than the world averages of death of children under five years due to *injuries* as well as *neonatal causes* and *other causes* not listed in the table.

Table 27

Selected Core Health (Mortality) Indicators

Indicator	**Australian statistic**	**World average**	**Difference**	**World range**	**World median**
Age-standardized mortality rate for non-communicable diseases (per 100 000 population)	362	692.8	-330.8	287-1269	728.0
Age-standardized mortality rate for cardiovascular diseases (per 100 000 population)	140	364.4	-224.4	106-844	393.0
Age-standardized mortality rate for cancer (per 100 000 population)	127	128.9	-1.9	52-306	133.0
Age-standardized mortality rate for injuries (per 100 000 population)	35	76.8	-41.8	12-301	69.0
Years of life lost to communicable diseases (%)	5	38.1	-33.1	3-93	31.0
Years of life lost to non-communicable diseases (%)	77	46.8	30.2	4-87	52.0
Years of life lost to injuries (%)	17	12.8	4.2	2-40	12.0
Deaths among children under five years of age due to neonatal causes (%)*	55.6	43.3	12.3	2.8-99.9	43.1
Deaths among children under five years of age due to HIV/AIDS (%)	0	3.3	-3.3	0-57.1	.3
Deaths among children under five years of age due to diarrhoeal diseases (%)	.1	9.3	-9.2	0-37.8	10.6
Deaths among children under five years of age due to measles (%)	0	1.3	-1.3	0-8.1	0.1
Deaths among children under five years of age due to malaria (%)	0	4.0	-4.0	0-33	0.2
Deaths among children under five years of age due to pneumonia (%)	1.2	11.2	-10.0	0-30.3	11.5
Deaths among children under five years of age due to injuries (%)	10.6	5.1	5.5	0-19.4	3.8
Deaths among children under five years of age due to other causes (%)	32.5	22.4	11.7	0-74.9	24.0

Note. Table constructed by Totikidis from: "WHOSIS (WHO Statistical Information System): Core Health Indicators, 2002.", by World Health Organization, 2007. Accessed 25 July, 2007. http://www.who.int/whosis/database/core/core_select.cfm. Data refer to the 2002 time period.
* Under-five mortality rate (probability of dying by age 5 per 1000 live births). World averages, differences, ranges and medians were calculated by the present researcher from 190 countries.

5.2.4.3 Causes of death in Australia for ages 0-44 and 45-85+. Specific causes of death for Australians aged 0-44 and 45-85+ (2005) are shown in the next two tables, constructed from ABS data (2007h). Table 28 shows the causes of mortality for younger Australians from birth to 44 years of age. The greatest numbers of deaths for these younger age groups combined were from a variety of external causes, followed by malignant neoplasms, intentional self-harm, transport accidents and diseases of the circulatory system.

Table 28

Causes of Death in Australia for Ages 0-44

Age in Years	**< 1**	**0-14**	**15-24**	**25-34**	**35-44**	**Total**
Deaths from all causes	1,302	522	1,309	2,004	3,423	8,560
Certain conditions originating in the perinatal period	667					667
Congenital malformations, deformations and chromosomal abnormalities	300	25				325
Sudden infant death syndrome	74					74
Diseases of the circulatory system		31		150	595	776
Diseases of the digestive system				27	175	202
Diseases of the nervous system		33	60		595	688
Malignant neoplasms		80	103	244	873	1,300
Mental and behavioural disorders due to psychoactive substance use					27	27
External causes of morbidity and mortality		184	919	1,225	1,138	3,466
Transport accidents			399	325	224	948
Intentional self-harm			286	439	461	1,186

Note. Table generated by Totikidis from "Causes of Death, Australia, 2005. Cat no. 3303.0, datacube.", by Australian Bureau of Statistics, 2007. *2007*(21 May).

Table 29 shows the causes of mortality for older persons from 45 to 85 years and over. The greatest numbers of deaths for these age groups combined were from diseases of the circulatory system, followed by malignant neoplasms, ischaemic heart diseases, cerebrovascular diseases and diseases of the respiratory system.

Table 29

Causes of Death in Australia for Ages 45-85+

Age in Years	**45-54**	**55-64**	**65 - 74**	**75 - 84**	**85+**	**Totals**
Deaths from all causes	6,607	12,024	20,728	41,460	40,678	121,497
Ischaemic heart diseases	891	1,710	3,141	7,878	9,670	23,290
Acute myocardial infarction				4,131		4,131
Cerebrovascular diseases	182	398	1,139	4,037	5,701	11,457
Diseases of arteries, arterioles and capillaries				885	936	1,821
Diseases of the respiratory system	197	597	1,679	4,012	4,192	10,677
Chronic lower respiratory diseases			1,145	2,232	1,435	4,812
Diabetes mellitus				1,343	968	2,311
Diseases of the circulatory system	1,406	2,728	5,537	15,489	20,168	45,328
Diseases of the digestive system	373	533	653	1,300	1,344	4,203
Diseases of the genitourinary system					1,369	1,369
Diseases of the nervous system				1,613		1,613
Endocrine, nutritional and metabolic diseases			878			878
Malignant neoplasms	2,794	6,063	9,558	12,551	5,660	36,626
Breast	445	596	488	590		2,119
Digestive organs		1,661	2,729	3,429	1,598	9,417
Female genital organs			342	440	217	999
Male genital organs			635	1,341	710	2,686
Prostate				1,332		1,332
Trachea, bronchus, and lung	420	1,370	2,264	2,561		6,615
Mental and behavioural disorders				1,011	1,931	2,942
External causes of morbidity and mortality	976	691				1,667
Transport accidents	170					170
Intentional self-harm	396					396

Note. Table generated by Totikidis from "Causes of Death, Australia, 2005. Cat no. 3303.0, datacube.", by Australian Bureau of Statistics, 2007. *2007*(21 May).

5.2.4.4 Causes of Death of Indigenous and Non-indigenous Australians. The major causes of death of indigenous and non-indigenous Australians are shown in the next two tables following. Table 30 refers to deaths from major diseases and conditions in 2005 for all states and territories except Victoria, Tasmania and the Australian Capital Territory (see notes below table). The table was constructed by summing the numbers and proportions of deaths contained in the ABS data sheet for the available states and territories. In addition, the present researcher calculated the rates of death per 100,000 for indigenous and non-indigenous persons and the ratio in the final column.

The table shows that three main causes contributed to 55% and 59.1% of all indigenous deaths and non-indigenous deaths, respectively. These were: diseases of the circulatory system (25.5% and 25.3%), malignant neoplasms (15.5% and 20.9%) and ischaemic heart diseases (14.0% and 12.9%).

The rate and ratio statistics are useful for assessing inequities among indigenous and non-indigenous persons. For example, three main causes of death among indigenous people warrant further action. One of these is diabetes mellitus, with indigenous persons having more than twice the rate (2.13) of deaths than non-indigenous persons. Moreover, diseases of the digestive system had a 1.41 times higher death rate for indigenous persons and diseases of the liver had a 3.18 times higher rate. On the other hand, non-indigenous persons had more than twice the rate of death for malignant neoplasms, including of the digestive organs, trachea, bronchus and lung, and cerebrovascular diseases. Non-indigenous persons also had more than one and a half times the rate of death for diseases of the circulatory system, ischaemic heart diseases and diseases of the respiratory system. Knowing about these differences is useful for targeting health promotion activities, however, one limitation is that these figures do not say at what age people are dying of these causes. Knowing whether someone died at 40 from diabetes mellitus versus someone who died at 90 from ischaemic heart disease is critical to making judgments about inequity.

Table 31 shows more major causes of death for indigenous and non-indigenous people constructed from the ABS data cube. This table shows that the rate of indigenous deaths is higher than the non-indigenous rate of death for nearly all the causes listed. The most striking of these was death by assault which was 9.31 times higher and certain conditions originating in the perinatal period which were 4.40 times higher. Transport accidents were 2.55 times higher, intentional self-harm was 2.06 times higher, external causes of morbidity and mortality was 1.95 times higher and other external causes of death and congenital malformations, deformations and chromosomal abnormalities were 1.41 and 1.21 times higher, respectively. Efforts to prevent these deaths would go a long way towards addressing the present life expectancy gap between indigenous/non-indigenous people.

Table 30

Underlying Cause of Death of Indigenous and Non-Indigenous People in Selected Parts of Australia*

	Indigenous Deaths					**Non-Indigenous Deaths**					
	Males (no.)	**Females (no.)**	**Persons (no.)**	**% of total indigenous deaths**	**Death rate per 100,000**	**Males (no.)**	**Females (no.)**	**Persons (no.)**	**% of non-indigenous deaths**	**Death rate per 100,000**	**Ratio ****
Malignant neoplasms (C00-C97)	173	158	331	15.5	75.3	15,129	11,466	26,595	20.9	188.6	0.40
Digestive organs (C15-C26)	55	39	94	4.4	21.4	4,109	3,095	7,204	5.7	51.1	0.42
Trachea, bronchus, lung (C33, C34)	41	34	78	3.6	17.7	3,319	1,860	5,179	4.1	36.7	0.48
Diabetes mellitus (E10-E14)	54	59	140	6.5	31.9	1,055	1,043	2,107	1.7	14.9	**2.13**
Diseases of the circulatory system (I00-I99)	306	240	546	25.5	124.2	15,421	16,783	32,204	25.3	228.4	0.54
Ischaemic heart diseases (I20-I25)	190	109	299	14.0	68.0	8,689	7,733	16,422	12.9	116.5	0.58
Cerebrovascular diseases (I60-I69)	48	55	106	5.0	24.1	3,327	4,803	8,130	6.4	57.7	0.42
Diseases of the respiratory system (J00-J99)	88	67	155	7.2	35.3	4,022	3,563	7,585	6.0	53.8	0.66
Chronic lower respiratory diseases (J40-J47)	48	44	92	4.3	20.9	2,048	1,584	3,632	2.9	25.8	0.81
Diseases of the digestive system (K00-K93)	70	55	132	6.2	30.0	1,526	1,483	3,009	2.4	21.3	**1.41**
Diseases of liver (K70-K77)	52	34	93	4.3	21.2	664	274	938	0.7	6.7	3.18

Note. Table and statistics constructed from "Causes of Death, Australia, 2005. Cat no. 3303.0, datacube.", by Australian Bureau of Statistics, 2007. *Data are for “2005 for all states and territories except Vic., Tas. and the ACT, which are not separately published due to a combination of comparatively small numbers, and relatively low coverage of reported Indigenous deaths” (ABS, 2007h). ** Ratio of Indigenous/Non-Indigenous deaths.

Table 31

Underlying Cause of Death of Indigenous and Non-Indigenous People in Selected Parts of Australia – Continued*

	Indigenous Deaths					**Non-Indigenous Deaths**					
	Males (no.)	Females (no.)	Persons (no.)	% of total indigenous deaths	Death rate per 100,000	Males (no.)	Females (no.)	Persons (no.)	% of non-indigenous deaths	Death rate per 100,000	Ratio *
Certain conditions originating in the perinatal period (P00-P96)	34	24	58	2.7	13.2	235	188	423	0.3	3.0	4.40
Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)	3	0	12	0.6	2.7	171	142	317	0.2	2.2	1.21
Mental and behavioural disorders (F00-F99)	15	21	45	2.1	10.2	832	1,451	2,283	1.8	16.2	0.63
All other medical conditions (Remainder of A00-R99)	157	132	289	13.5	65.8	4,569	5,389	9,958	7.8	70.6	0.93
External causes of morbidity and mortality (V01-Y98)	227	90	317	14.8	72.1	3,524	1,682	5,206	4.1	36.9	1.95
Transport accidents (V01-V99)	43	21	82	3.8	18.7	773	260	1,033	0.8	7.3	2.55
Intentional self-harm (X60-X84)	54	11	88	4.1	20.0	934	247	1,369	1.1	9.7	2.06
Assault (X85-Y09)	15	5	27	1.3	6.1	70	34	93	0.1	0.7	9.31
Other external causes (remainder of V01-Y98)	72	37	118	5.5	26.9	1,590	1,103	2,693	2.1	19.1	1.41

Note. Table constructed from "Causes of Death, Australia, 2005. Cat no. 3303.0, datacube.", by Australian Bureau of Statistics, 2007. *Data are for “2005 for all states and territories except Vic., Tas. and the ACT, which are not separately published due to a combination of comparatively small numbers, and relatively low coverage of reported Indigenous deaths” (ABS, 2007h).

5.2.5 The National Health Survey - Australia. Subjective reports and surveys such as the National Health Survey (NHS) conducted by the ABS also yield useful information about the health status of Australians. The latest NHS was undertaken between 2004-2005. It included a sample of 25,900 people from all States and Territories across all age groups and the results of the survey were extrapolated to the Australian population as a whole (ABS, 2006b). One of the tables from the NHS appears in Table 32 and shows the self reported health status of various age groups as well as health actions and risk behaviors for Australians. Actions and risks are determinants of health (see models developed in Figures 6 & 9) and are essential to address in any health improvement strategy.

Table 32 (ABS, 2006b, p. 16) reveals that Australians rate their health positively with 82.4% of 15–17 olds, 58.6 of 18–64 olds, and 35.5 % of persons aged 65 and over assessing their health status as excellent/very good. On the other hand, the survey also showed that too many Australians engage in behaviours that are considered to be risk factors in the development of many diseases. For example, 24% of 15–17 olds and 7.2% of 18–64 olds were current daily smokers; 14.6% of 15–17 olds and 8.1% of 18–64 olds had a risky/high alcohol risk; approximately 55-75% of all persons aged 15-65 were sedentary/had a low exercise level and close to 50% of 18-64 year olds and those aged 65 and over were overweight or obese.

Adequate daily consumption of fruit and vegetables is considered to be protective in the development of many diseases, however, the survey showed that consumption of these was insufficient. This was especially evident for vegetables in that 90.7% of 15–17 olds, 86.3% of 18–64 olds, and 82.0 % of those aged 65 and over, did not consume enough vegetables.

Table 32

Selected Health Characteristics by Age, Persons, Australia 2004–05

	Children 0–14	**Children 15–17**	**18–64 yrs**	**65 & over**	**All persons**
Self assessed health status	%	%	%	%	000
Excellent/very good	. .	82.4	58.6	35.5	8,864.4
Good	. .	13.4	28.0	31.8	4,384.0
Fair/poor	. .	4.3	13.4	32.7	2,512.6
Selected long term conditions(a)					
Arthritis	**0.1	*0.6	14.4	49.4	3,020.1
Asthma	11.5	11.1	9.9	9.4	2,013.5
Back pain/problems neck, disc disorders	0.5	3.4	19.6	21.2	3,018.5
Deafness (complete/partial)	1.4	*1.6	9.0	33.5	2,014.3
Diabetes mellitus	*0.1	**0.4	2.9	13.7	699.6
Hayfever & allergic rhinitis	7.7	13.6	19.8	11.3	3,165.7
Heart, stroke & vascular diseases(b)	np	np	2.4	18.4	754.7
Hypertensive disease	np	np	9.1	39.4	2,100.7
Long sightedness	3.7	8.5	28.8	61.8	5,334.1
Malignant neoplasms	np	np	1.5	6.1	338.3
Mental and behavioural problems	6.7	9.4	12.3	9.5	2,108.3
Osteoporosis	np	np	1.9	14.1	585.8
Short sightedness	3.5	10.9	26.1	35.1	4,353.0
High/very high psychological distress(c)	. .	. .	13.4	11.0	1,940.8
Risk behaviours					
Current daily smoker	. .	. .	24.0	7.2	3,180.1
Risky/high alcohol risk	. .	. .	14.6	8.1	2,020.9
Sedentary/low exercise level	. .	55.3	69.4	75.2	10,966.4
Overweight/obese BMI	. .	13.1	49.5	47.8	7,470.8
1 or less serves of fruit	. .	48.3	48.3	34.6	(d)7,606.5
4 or less serves of vegetables	. .	90.7	86.3	82.0	(e)14 214.9
Actions taken in previous 2 weeks					
Hospital inpatient(f)	0.6	0.2	0.7	1.4	151.0
Visited casualty/outpatients/day clinic	2.9	3.5	4.7	8.3	932.4
Consulted GP/Specialist	14.9	13.7	22.1	42.2	4,487.6
Consulted dentist	6.4	9.2	5.6	5.6	1,158.9
Consulted OHP(g)	8.8	8.8	14.5	17.1	2,648.5
Days away from work/study	10.4	12.3	8.2	. .	1,531.8
Other days of reduced activity	5.1	7.8	10.9	15.5	2,009.9
All persons ('000)	3,920.6	797.9	1,523.0	2,440.1	19,681.5

Note. Reprinted from "*National health survey: Summary of results, Australia*", by Australian Bureau of Statistics, 2006. Canberra: Australian Bureau of Statistics. The following notes are from the original table: * estimate has a relative standard error of 25% to 50% and should be used with caution; ** estimate has a relative standard error greater than 50% and is considered too unreliable for general use; . . not applicable; np not available for publication but included in totals where applicable, unless otherwise indicated; (a) Conditions which have lasted or are expected to last for 6 months or more. (b) Includes ischaemic heart disease, cerebrovascular disease, oedema and heart failure, and diseases of the arteries, arterioles and capillaries. (c) Kessler 10 scores of 22 or more. See Psychological distress in Glossary. (d) Aged 12 years and over. Includes those who did not eat fruit. (e) Aged 12 years and over. Includes those who did not eat vegetables. (f) Discharged from a stay in hospital. (g) Other health professional. See Glossary. [‘000: multiply by 1000].

5.3 The Health of Victorians

5.3.1 Victorians: Who are we? As with the chapter on the health of Australians, this section begins with a brief profile of the Victorian people including country of birth, ages and incomes of Victorians. This chapter presents health statistics for the state of Victoria as a whole and includes tables and figures on life expectancy at birth for Victorians; summaries of three major Victorian health publications and statistics on hospital separations and bed days in Victoria. Statistics for specific regions and LGAs in Victoria are dealt with in the subsequent chapter.

5.3.1.1 Country of birth and sex of Victorians. Table 33 shows the number of Victorian residents born in Australia and in another top twenty countries as of the last (2006) census (ABS, 2007b). Victoria consists of 4,932,423 people, or nearly a quarter (24.84%) of the total Australian population. Of these, there were a total of 3,434,470 Australian born people with less than 1% of them Indigenous and 69.02% non-Indigenous. A further 23.79% were born in other countries and 6.58% did not state their country of birth.

5.3.1.2 Age of Victorians. The median age of Australians according to the census statistics for 2006 was 37 (ABS, 2007g). The percentages of people for each age range were 6.20% aged 0-4 years, 13.10% aged 5-14 years, 13.70% aged 15-24 years, 42.50% aged 25-54 years, 10.80% aged 55-64 years and 13.70% aged 65 years and over.

5.3.1.3 Income of Victorians. The ABS statistics for Victoria showed that the median gross weekly income of Victorians aged 15 years and over at the time of the 2006 census was $456 (ABS, 2007d). This is $10 lower than the Australian median. Of those aged 15 years and over 7.61% did not earn an income, while a further 34.20% earned between $1-$399 dollars (which is less than the median gross income). Another 13.57% of persons earned $400-$599, 18.74% earned $600-$999, 13.76% earned $1,000-$1,999, 3.35% earned over $2000 and 8.78% did not state their individual income.

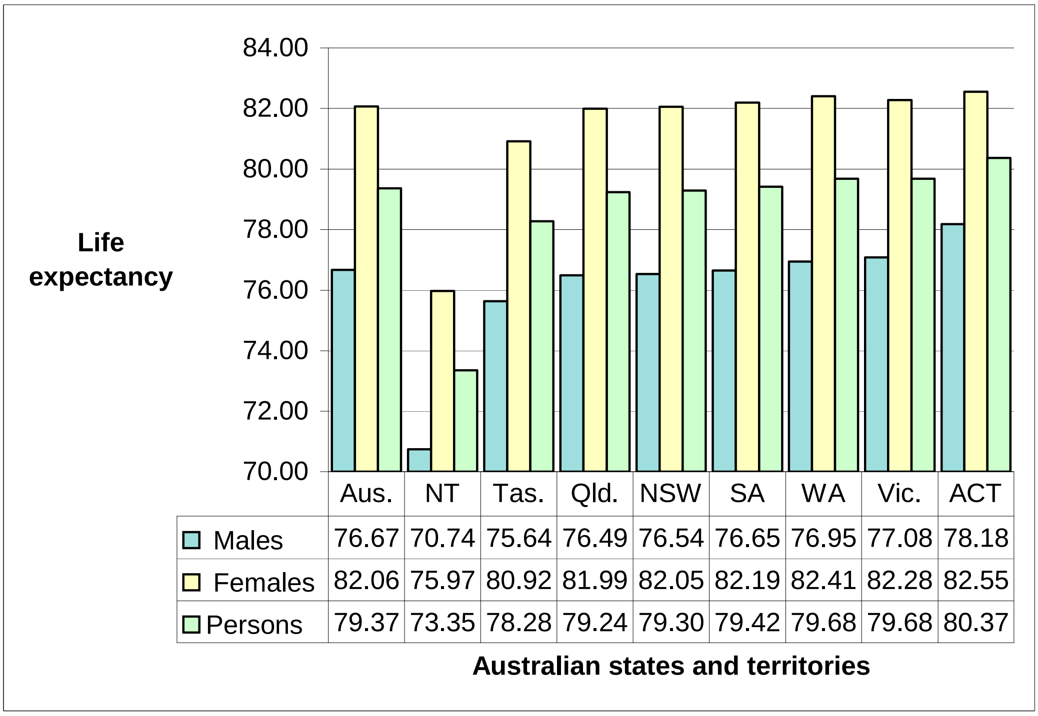
Table 33

Number of Victorian Residents Born in Australia and Other Top Twenty Countries

Country of Birth	**Males**	**Females**	**Persons**	**%**
Australia (Indigenous)	14,745	15,396	30,141	0.61%
Australia (non-Indigenous)	1,666,471	1,737,858	3,404,329	69.02%
United Kingdom	101,753	103,085	204,838	4.15%
Italy	41,874	40,975	82,849	1.68%
New Zealand	31,971	32,024	63,995	1.30%
Viet Nam	27,650	31,227	58,877	1.19%
China*	25,555	31,005	56,560	1.15%
Greece	26,621	27,703	54,324	1.10%
India	30,074	22,780	52,854	1.07%
Sri Lanka	15,933	15,552	31,485	0.64%
Malaysia	13,915	16,561	30,476	0.62%
Germany	13,515	14,608	28,123	0.57%
Philippines	10,148	17,189	27,337	0.55%
Netherlands	11,665	11,169	22,834	0.46%
Malta	10,608	10,239	20,847	0.42%
South Africa	9,421	9,927	19,348	0.39%
Former Yugoslav Republic of Macedonia	9,317	9,001	18,318	0.37%
Croatia	9,231	8,958	18,189	0.37%
Poland	8,097	9,972	18,069	0.37%
Hong Kong (SAR of China)(b)	8,460	8,967	17,427	0.35%
Turkey	7,769	7,515	15,284	0.31%
Lebanon	7,687	7,262	14,949	0.30%

Note. Table constructed from "2006 Census of Population and Housing Australia. Cat no. 2068.0. Age by Indigenous Status by Sex - Victoria (Excel file)", by Australian Bureau of Statistics, 2007. *China excludes Special Administrative Regions (SARs) and Taiwan Province.

5.3.2 Life expectancy at birth for Victorians. Life expectancies at birth for Victorians and the other Australian states and territories are shown in Figure 36. These represent average LEs, calculated from ABS (2006a) LE data for the period 1995-2004. The average LE for persons in Victoria was 79.68 years (77.08 for males and 82.28 for females). The LE for Victoria was slightly higher than the Australian average, Northern Territory, Tasmania, Queensland, New South Wales and South Australia and the same as Western Australia. The ACT had the highest overall LE (80.37) while the Northern Territory, which reflects the Indigenous population, was extremely low with an LE of 73.35.



	Aus.	NT	Tas.	Qld.	NSW	SA	WA	Vic.	ACT
Males	76.67	70.74	75.64	76.49	76.54	76.65	76.95	77.08	78.18
Females	82.06	75.97	80.92	81.99	82.05	82.19	82.41	82.28	82.55
Persons	79.37	73.35	78.28	79.24	79.30	79.42	79.68	79.68	80.37

Figure 36. Life expectancy in Australia and the states and territories.

Constructed from " Life expectancy, States and territories, 1995-2005. Cat no. 3303.0, datacube. TABLE 3 DEATHS.", by Australian Bureau of Statistics, 2006.

5.3.3 Top Twenty Causes of Death of Victorians. Table 34 shows the top twenty causes of death of Victorians in 2008 compared to the previous years 1999 and 2003 (ABS, 2010). Table 34 shows that ischaemic heart diseases, strokes, and dementia and

Table 34

Top Twenty Causes of Death of Victorians

Cause of Death (ICD code)	**1999 no.**	**Rank**	**2003 no.**	**Rank**	**2008**(c)(d) **no.**	**Rank**
Ischaemic heart diseases (I20-I25)	6,520	1	6,167	1	5,670	1
Strokes (I60-I69)	2,903	2	2,808	2	2,744	2
Dementia and Alzheimer's disease (F01, F03, G30)	924	8	1,133	6	2,208	3
Trachea and lung cancer (C33-C34)	1,679	3	1,805	3	1,973	4
Chronic lower respiratory diseases (J40-J47)	1,512	4	1,538	4	1,683	5
Colon and Rectum Cancer (C18-C21)	1,232	5	1,332	5	1,138	6
Diabetes (E10-E14)	975	6	1,053	7	1,110	7
Blood and lymph cancer (including leukaemia) (C81-C96)	941	7	954	8	1,021	8
Heart failure (I50-I51)	801	9	880	9	858	9
Prostate cancer (C61)	680	12	760	12	785	10
Diseases of the kidney and urinary system (N00-N39)	746	10	782	11	775	11
Breast cancer (C50)	689	11	752	13	710	12
Pancreatic cancer (C25)	447	16	500	15	613	13
Suicide (X60-X84)(e)	552	13	540	14	504	14
Falls (W00-W19)	101	44	147	39	472	15
Cardiac arrhythmias (I47-I49)	255	25	291	23	436	16
Influenza and pneumonia (J10-J18)	466	14	832	10	425	17
Hypertensive diseases (I10-I15)	326	19	334	17	400	18
Cirrhosis and other diseases of liver (K70-K77)	299	21	328	20	372	19
Skin cancers (C43-C44)	277	22	331	18	357	20

Note. Reprinted from "1367.2 - State and Regional Indicators, Victoria, Mar 2010 - Causes of Death, Victoria, 2008. From Table 3.1 Leading Causes of Death(a)(B), Victoria - Selected Years", by Australian Bureau of Statistics, 2010[11].

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[11] (a) Figures greater than zero and less than five are randomly adjusted to preserve confidentiality. (b) Causes listed are the leading causes of death for all deaths registered in 2008 based on the WHO recommended tabulation of leading causes. See Explanatory Notes 40-42 of Causes of Deaths, Australia (cat. no. 3303.0) for further information. (c) Causes of death data for 2008 are preliminary and subject to a revisions process. See Technical Note 2: Causes of Death - Revisions Process (cat. no. 3303.0) for further information. (d) 2008 data have been subject to process improvements which have increased the quality of these data. See Technical Note 1: 2008 COD Collection - Process Improvements (cat. no. 3303.0) for further information. (e) Excludes Sequelae of suicide (Y87.0) as per the WHO recommended

Alzheimer's disease, were the top three causes of death while various types of cancers, heart and lung conditions, and diabetes were among the top ten leading causes of death in Victoria. “The 10 leading causes of death accounted for 54% of all deaths registered in 2008, and the 20 leading causes accounted for 68%” (ABS, 2010, p. 1).

5.3.4 The National Health Survey – Victoria. The National Health Survey conducted by the ABS during 2004-2005 was introduced in the previous chapter and a table of selected health characteristics for Australians was presented. Table 35 following shows a table drawn from the ‘state’ data associated with this survey (ABS, 2006b). As with the table on the health of Australians, the present table shows the prevalence of some of the main conditions, which affect Victorians. When comparing some of these conditions, it appears that Victorians rate many aspects of their health better than that of the general Australian population. For example, 84.3% of children aged 15-17, 61.6% of adults aged 18-64 and 38.0% of adults aged 65 years and over rated their health status as excellent/very good compared to 82.4%, 58.6% and 35.5% for the same ages in Australia.

Despite the positive rating of health by Victorians, some areas that may need further health promotion attention can also be identified. One of these was hay fever and allergic rhinitis, which was around 2% higher in Victoria than for Australia for the 0–14, 15–17 and 18–64 year old age groups. In addition, 43.4%, 7.7% and 49.3% of Victorians in the 65 and over age group said they had hypertensive disease, malignant neoplasms and overweight/obese BMI scores compared with 39.4%, 6.1% and 47.8% of Australians in the same age group. Nevertheless, all age groups are at considerable risk of developing serious health problems as around 50-74.5% of Victorians have sedentary/low exercise level; 15.5-49.3% have overweight/obese BMI scores; 32.8-46.2% do not consume enough fruit and 81.0-86.8% do not consume enough vegetables. Higher percentages of Victorians in every age group also visited casualty, outpatients or

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tabulation of leading causes. Care needs to be taken in interpreting figures relating to Suicide due to limitations of the data, see Explanatory Notes 72-75 of Causes of Deaths, Australia (cat. no. 3303.0) for further information. Source: Causes of Deaths, Australia (cat. no. 3303.0). This is the only recent table added to this chapter since the original presentation of data to participants in Stage Two.

and day clinics in the 2 weeks prior to the survey compared with Australians on the whole (see previous table). Having such access to medical care could account for their more favourable self assessed health status.

Table 35

Selected Health Characteristics by Age, Persons, Victoria 2004–05

	Children 0–14 %	**Children 15–17 %**	**18–64 %**	**65 & over %**	**Total '000**
Self assessed health status					
Excellent/very good	. .	84.3	61.6	38.0	2330.7
Good	. .	12.7	26.8	31.9	1066.7
Fair/poor	. .	3.0	11.6	30.1	558.3
Selected long term conditions (a)					
Arthritis	np	np	12.9	50.0	719.6
Asthma	11.8	11.5	9.9	9.0	501.7
Back pain/problems nec/disc disorders	np	np	18.9	19.8	723.4
Deafness (complete/partial)	1.5	1.4	9.1	29.9	490.3
Diabetes mellitus	–	–	2.6	10.8	150.4
Hayfever & allergic rhinitis	9.6	15.2	22.3	11.3	892.6
Heart, stroke & vascular conditions(b)	np	np	1.9	17.8	172.5
Hypertensive disease	–	–	8.2	43.4	529.1
Long sightedness	3.4	7.1	25.6	55.8	1198.3
Malignant neoplasms	–	–	1.3	7.7	89.1
Mental & behavioural problems	4.9	9.1	11.9	8.5	492.5
Osteoporosis	np	np	1.9	11.8	134.4
Short sightedness	3.4	12.4	28.7	37.1	1188.2
High/very high psychological distress(c)	. .	. .	13.8	9.5	493.7
Risk behaviours					
Current daily smoker	. .	. .	24.1	5.7	792.3
Risky/high alcohol risk	. .	. .	13.2	6.9	459.1
Sedentary/low exercise level	. .	50.1	68.4	74.5	2710.7
Overweight/obese BMI	. .	15.5	48.8	49.3	1872.1
1 serve or less of fruit	. .	45.0	46.2	32.8	(d)1810.4
4 serves or less of vegetables	. .	86.8	85.4	81.0	(e)3504.0
Actions taken in previous 2 weeks					
Hospital inpatient(f)	np	np	0.7	0.8	28.9
Visited casualty/outpaitents/day clinic	3.1	5.4	5.6	10.6	281.5
Consulted GP/specialist	14.0	17.7	22.0	42.7	1126.9
Consulted dentist	5.2	13.6	5.6	5.2	282.6
Consulted OHP(g)	8.6	12.3	15.7	17.2	706.5
Days away from work/study	10.5	14.0	7.8	. .	371.3
Other days of reduced activity	5.1	10.1	10.6	15.7	498.7
All persons	958.6	186.9	3145.0	623.8	4914.2

Note. Reprinted from "*National Health Survey: Summary of Results, Australia*", by Australian Bureau of Statistics, 2006. Canberra: Australian Bureau of Statistics.

5.3.5 The Victorian Population Health Survey. The Victorian Population Health Survey is an annual survey on the health of Victorians conducted by the DHS since 2001. The 2005 survey involved computer-assisted telephone interviews with a representative statewide sample of 7500 adults aged 18 years or over, randomly selected from households in each of the eight departmental health regions in Victoria (DHS, 2005b). Table 36 shows the selected findings from the 2005 report[12]. Although some of the items are similar to those presented in the previous table produced by the National Health Survey, the present table shows health for males and females rather than by age categories. The table reports on a range of risk and protective factors, self-reported health status, health screening, psychological distress.

Some of the differences between males and females were that males had lower fruit and vegetable intake, took greater alcohol and smoking risks and were more likely to be obese or overweight. On the other hand, females reported greater rates of asthma and psychological distress, lower rates of membership in sports groups and community action groups and higher rates of membership in church and school groups.

One of the most pronounced health risks shown in Table 36 was the low intake of vegetables among both sexes, with only 6% of males and 12.9% of females meeting recommended intake levels[13].

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[12] The latest survey conducted was in 2006, however, the 2005 results are used here because the Social networks and participation variables were not available by gender in the 2006 report.

[13] Recommended daily intake of fruit and vegetables is 3 serves of fruit and 3 serves of vegetables for persons aged 12–18 years; and 2 serves of fruit and 5 serves of vegetables for persons aged 19 years or over (DHS, 2007).

Table 36

At a Glance: The Health and Lifestyle of Victorians, 2005 Selected Findings (Lifestyle Related)

Lifestyle related	**Measure**	**Males (%)***	**Females (%)***	**Persons (%)***
Fruit intake	Proportion meeting recommended intake levels	48.3	53.3	51.0
Vegetable intake	Proportion meeting recommended intake levels	6.0	12.9	9.5
Alcohol intake	Proportion drinking weekly at levels for short term risk from alcohol consumption	13.3	6.4	9.8
Abstainers from alcohol	Persons who had not had an alcoholic drink in the past 12 months or who no longer drink	15.0	22.3	18.8
Smoking	Prevalence of current smokers	21.9	18.9	20.4
Smoking in the home	Proportion of smoke free homes			88.4
Physical activity	Adequacy of physical activity - sufficient time and sessions	64.3	63.3	63.8
Health status				
Self-rated health	Proportion reporting excellent/very good/good health	81.9	83.1	82.5
Obesity/overweight	Proportion of persons obese/overweight according to body mass index	54.2	41.9	47.9
Asthma	Current asthma prevalence	9.5	13.0	11.3
Diabetes	Diabetes prevalence	4.8	5.1	4.6
Psychological distress	Proportion having high scores (>22 on Kessler 10 score; see section 7 of this report)	9.8	13.8	11.9
Screening				
Blood pressure check	Proportion aged 50 years or over having a test in the past two years	93.2	93.9	93.6
Cholesterol check	Proportion aged 50 years or over having a test in the past two years	78.6	74.2	76.3
Blood sugar test	Proportion aged 50 years or over having a test in the past two years	67.6	64.9	66.2

Note. Reprinted from "*Victorian Population Health Survey 2005 - Selected findings*", by Victorian State Government Department of Human Services Australia, 2005. Melbourne: Rural and Regional Health and Aged Care Services. Victorian Government Department of Human Services.

Table 37 is a continuation of the previous table reproduced from the Victorian Population Health Survey and shows the strength of social networks and participation for Victorians (DHS, 2005b). Although males and females were similar in many regards, the main differences were that a greater percentage of males than females were members of a sports group or community or action group and could raise $2000 within two days in an emergency. Females had lower rates of membership in sports groups and community action groups and higher rates of membership in church and school groups.

Table 37

At a Glance: The Health and Lifestyle of Victorians, 2005 selected findings (Social Networks and Participation)

Social networks and participation	**Males (%)***	**Females (%)***	**Persons (%)***
Attended a local community event in the past six months	52.2	56.2	54.2
Member of a sports group	33.4	21.7	27.4
Member of a church group	16.1	19.8	18.0
Member of a school group	11.9	19.0	15.5
Member of community or action group	25.6	20.3	22.9
Member of a professional group or academic society	18.8	20.4	19.7
Help out a local group as a volunteer**	34.3	36.0	35.1
Can get help from friends when needed**	93.4	93.0	93.2
Can get help from neighbours when needed**	71.6	71.0	71.3
Can get help from family when needed**	93.6	92.9	93.3
Enjoy living among people of different lifestyles**	90.6	90.2	90.4
Feel multiculturalism makes life in area better**	78.8	81.0	79.9
Feel valued by society**	81.5	83.8	82.6
Feel they have an opportunity to have a say on issues that are important to them**	70.4	74.9	72.7
Ability to raise $2000 within two days in an emergency	86.0	81.6	83.7

Note. *Aged 18 years or over unless otherwise specified. **Aggregated responses Yes, definitely and Sometimes. Reprinted from "*Victorian Population Health Survey 2005 - Selected Findings*", by Victorian State Government Department of Human Services Australia, 2005. Melbourne: Rural and Regional Health and Aged Care Services. Victorian Government Department of Human Services, p.2.

5.3.6 "Your Health" Report on the Health of Victorians. Your health: A report on the health of Victorians 2005 provides the most comprehensive picture of health in Victoria (DHS, 2005c). The report consists of five sections. Section one is on general health status and includes information on the burden of disease, life expectancy,

avoidable mortality, ambulatory care sensitive conditions and self-rated health status. Section two is on health-related behaviours and includes the topics of smoking, nutrition, alcohol consumption, physical activity and overweight/obesity.
Section three covers the health priority areas: cardiovascular disease, diabetes, cancer, asthma, mental health, injury and poisoning and musculoskeletal disorders and presents indicators on mothers' and children's health and key communicable diseases. Section four and five are on environmental and social health; and health inequalities, respectively. Some of the self assessed health topics appearing in Your Health have already been discussed in the previous two sections of this report and will not be repeated here. Some of the other topics that are especially relevant include the concept of burden of disease and health inequalities. These are discussed following.

The Victorian burden of disease studies were undertaken in 1996 and 2001 and were published in 1999 and 2005. Another is not expected to be produced in the foreseeable future. An obvious limitation is the time lag involved in producing such a large statistical work. The construct of 'burden of disease' combines mortality, disability, impairment, illness and injury arising from over 175 diseases, injuries and risk factors in a single indicator: the disability-adjusted life year (DALY) (DHS, 2005a). This DALY was introduced earlier and refers to both the years of life lost due to premature mortality and the number of years of healthy life lost (years lived with the disease). According to the *Your Health* summary of the 2001 BoD study:

- Cardiovascular disease, cancers and injuries were responsible for 73 per cent of the total mortality burden in both men and women but account for only about 20 per cent of the total years lost due to disability.
- In people aged 75 years and over, cardiovascular diseases are responsible for over 40 per cent of the number of years lost.
- Injuries are the main cause of years of life lost in young adults.
- Neonatal conditions form the greatest mortality burden in the age group five years and under.
- Mental disorders and neurological conditions account for over 40 per cent of the total non-fatal burden in both men and women.

- Mental disorders constituted the third leading cause of ill-health in Victoria after cancer and cardiovascular disease.
- Tobacco smoking is the risk factor responsible for the greatest burden of disease in Victoria and forms about 10 per cent of the total burden of disease in males and 6.2 per cent in females (DHS, 2005c).

The fore mentioned report contained a useful summary on health inequalities which focused on Aboriginal and Torres Strait Islander peoples and socio-economic determinants of health in Victoria. Some of major differences among Indigenous people compared to non-Indigenous people were that the Indigenous population has 22% more children aged 15 years or younger, 10% fewer persons aged 65 years or over and $234 less mean equivalised gross household income per week. The results also reveal that:

- Indigenous mothers had more than twice the rate of low birth weight babies and perinatal mortality rates,
- A high proportion (51.8%) of the Indigenous population were current smokers
- Hospital admission rates were more than 4.5 times greater with higher rates of admissions for various health problems and diseases including diabetes, ischaemic heart disease, asthma, and injury and poisoning (DHS, 2005c).

Inequalities attributed to socio-economic determinants of health among Indigenous persons were also reported. These results showed a gap in the health of the most disadvantaged and the most advantaged Indigenous quintiles with the former having lower life expectancies, higher hospital admission rates, higher rates of avoidable mortality, higher hospital admission rates for diabetes on first diagnosis, ischaemic heart disease, stroke and asthma. Some risk factors were also greater for the most disadvantaged Indigenous quintiles, and included higher rates of smoking and alcohol consumption and significantly more overweight or obese females (DHS, 2005c).

5.3.7 Hospital Separations and Bed Days in Victoria. Another way to gauge the health of populations is through data on hospital separations and days spent in a hospital bed (bed days). This section presents hospital separation and bed day data for public and private hospitals in Victoria for the 2004/05 period. The data were generated by the present researcher using the HealthWiz CD database (Australian Government Department of Health and Ageing, 2005). The data were then entered into an Excel worksheet for further viewing and analysis. The Healthwiz query design notes used to generate the data can be seen Appendix J.

The main question guiding the analysis in this section was:

- What are the hospital separation and bed day numbers for each of the seven NHPAs in Victoria?

Two more specific questions regarding inequalities were:
Are there any gender differences in hospital separations and bed day numbers for the NHPAs in Victoria?

Are there any age related differences in hospital separations and bed days for the NHPAs and total conditions in Victoria?

5.3.7.1 Hospital separations. A separation is an episode of care that begins with the admission of a patient to hospital and ends when the person is discharged, dies or is transferred (AIHW, 2008). The number of hospital separations for male and female residents of Victoria for the NHPAs is shown in Table 38. The data showed that the total number of separations for Victoria was 1,890,548 (877,863 males and 1,012,685 females) with 527,304 of these or 27.89% for the seven NHPAs shown in the table and 1,362,013 (609,182 males and 752, females) or 72.04% for all other conditions and diseases. The highest number of admissions for males and females combined for the NHPA were for cardiovascular disease (118,902 persons), followed by admissions related to the injury prevention and control priority (112,064), arthritic and musculo-skeletal conditions (100,641), cancer (84,579), mental health conditions (83,743), diabetes (18,315) and asthma (9,060).

The main gender differences were that females had higher numbers of separations for asthma, mental health, arthritic and musculo-skeletal conditions and other conditions and diseases while males had higher numbers of separations for cancer, cardiovascular disease, diabetes and injuries.

Table 38

Number of Hospital Separations for NHPAS in Victoria

	0-14 years	15-34 years	35-64 years	65+ years	Total
Males	**72,659**	**107,593**	**341,474**	**356,137**	**877,863**
(J45,J46) Asthma	2,929	468	530	235	4,162
(C00-C96) Cancer	729	1,403	15,977	28,739	46,848
(G45,G46,I00-I99) Cardiovascular disease	330	2,293	25,385	38,453	66,461
(E10-E14) Diabetes	286	564	3,003	5,897	9,750
(F00-F99) Mental health	673	10,829	15,014	4,576	31,092
(M00-M99) Arthritic and musculo-skeletal conditions	1,423	8,721	24,523	13,376	48,043
(S00-T89) Injury prevention and control	9,224	20,660	19,587	12,330	61,801
Other conditions and diseases	57,042	62,570	237,211	252,359	609,182
Not known, not stated	23	85	244	172	524
Females	**54,224**	**227,013**	**399,100**	**332,348**	**1,012,685**
(J45,J46) Asthma	1,730	1,022	1,385	761	4,898
(C00-C96) Cancer	762	1,322	15,821	19,826	37,731
(G45,G46,I00-I99) Cardiovascular disease	348	2,182	15,564	34,347	52,441
(E10-E14) Diabetes	294	727	1,932	5,612	8,565
(F00-F99) Mental health	855	15,656	26,873	9,267	52,651
(M00-M99) Arthritic and musculo-skeletal conditions	1,311	6,005	25,119	20,163	52,598
(S00-T89) Injury prevention and control	5,486	9,405	14,690	20,682	50,263
Other conditions and diseases	43,417	190,544	297,460	221,410	752,831
Not known, not stated	21	150	256	280	707
Total	**126,883**	**334,606**	**740,574**	**688,485**	**1,890,548**

Note. Table constructed by Totikidis from the HealthWiz database. Calculated from "Healthwiz [Cd-Rom Computer Disks/Diskettes]: Australia's National Social Health Statistical Data Library.", [CD-Rom computer disks/diskettes], by Australian Government Department of Health and Ageing, 2005.

Other gender by age differences included the higher prevalence of asthma hospitalizations for boys aged 0-14 and girls and women over 15 years of age; a high rate of cancer for males over 65; and higher rates of cardiovascular disease and diabetes for males in the 35-64 year old age group. Females had higher separation rates for mental health conditions in every age category whereas males had higher separation rates for injuries in every age category from 0-64 years of age except the 65+ age group where females were higher.

Four age related trends were identified in the separation data. These were:

1. Cancer, cardiovascular disease, diabetes, other conditions and diseases and the number of unknown, not stated conditions, were all low in infancy and childhood but increased with age for both males and females.
2. Higher numbers of asthma separations for the 0-14 age group followed by 35-64, 15-34 and then the 65+ age group for both sexes.
3. Decrease in the numbers of separations for mental health and arthritic and musculo-skeletal conditions for the 65+ age group for both sexes.
4. Separations related to injuries were higher in the 15-34 age group and lower in the 65+ age group for males but incrementally increased with age for females.

Decreases in the older age group are most likely to reflect increasing deaths in this age group rather than a health improvement or real decrease in disease prevalence.

5.3.7.2 Hospital bed days. Table 39 shows the number of hospital bed days for NHPAs in Victoria. The total number of bed days for Victoria was 6,027,882 (2,730,713 males and 3,297,169 females) with 2,471,172 of these (41%) for the seven NHPAs and 3,545,429 (1,510,546 males and 2,034,883 females) or 59% for all other conditions and diseases. The NHPA conditions with the highest number of bed days for males and females combined were mental health conditions (585,383), followed by cardiovascular disease (561,463), injuries (453,359), cancer (421,077), arthritic and musculo-skeletal conditions (339,055), diabetes (90,318) and asthma (20,517). As with the separations shown previously, females occupied more bed days for mental health conditions, arthritic and musculo-skeletal conditions, asthma and other conditions and diseases; while males occupied more bed days for cardiovascular disease, cancer, injuries and diabetes. Again four age related trends were found in the number of bed days. These were:

1. The number of bed days for cancer, cardiovascular disease, diabetes, arthritic and musculo-skeletal conditions, injuries, and the number of unknown and not stated conditions, all increased with age for both males and females.

2. An age related increase was also evident for the other conditions and diseases category for females whereas for males, there were more bed days for the 0-14 age group than the 15-34 age group.

Table 39

Number of Hospital Bed Days for NHPAS in Victoria

	0-14 years	**15-34 years**	**35-64 years**	**65+ years**	**Total**
Males	**185,407**	**292,595**	**858,401**	**1,394,310**	**2,730,713**
(J45,J46) Asthma	4,146	1,029	1,377	816	7,368
(C00-C96) Cancer	2,666	5,454	68,408	147,141	223,669
(G45,G46,I00-I99) Cardiovascular disease	1,283	6,429	82,386	209,577	299,675
(E10-E14) Diabetes	900	1,566	15,872	33,167	51,505
(F00-F99) Mental health	2,949	99,690	122,402	53,731	278,772
(M00-M99) Arthritic and musculo-skeletal conditions	3,514	15,020	60,031	68,965	147,530
(S00-T89) Injury prevention and control	14,333	43,440	64,285	85,803	207,861
Other conditions and diseases	155,558	119,147	442,308	793,533	1,510,546
Not known, not stated	58	820	1,332	1,577	3,787
Females	**149,364**	**536,248**	**955,518**	**1,656,039**	**3,297,169**
(J45,J46) Asthma	2,541	2,275	4,745	3,588	13,149
(C00-C96) Cancer	2,615	4,793	70,058	119,942	197,408
(G45,G46,I00-I99) Cardiovascular disease	1,213	6,336	46,137	208,102	261,788
(E10-E14) Diabetes	907	2,270	8,858	26,778	38,813
(F00-F99) Mental health	5,306	82,053	134,257	84,995	306,611
(M00-M99) Arthritic and musculo-skeletal conditions	3,299	10,983	64,235	113,008	191,525
(S00-T89) Injury prevention and control	8,811	19,653	48,920	168,114	245,498
Other conditions and diseases	124,630	406,842	576,916	926,495	2,034,883
Not known, not stated	42	1,043	1,392	5,017	7,494
Total	**334,771**	**828,843**	**1,813,919**	**3,050,349**	**6,027,882**

Note. Table constructed by Totikidis from the HealthWiz database. Calculated from "Healthwiz [Cd-Rom Computer Disks/Diskettes]: Australia's National Social Health Statistical Data Library.", [CD-Rom computer disks/diskettes], by Australian Government Department of Health and Ageing, 2005.

3. There was a higher number of bed days for asthma for the 0-14 age group followed by 35-64, 15-34 and then the 65+ age group for males whereas for females it was higher in the 35-64 age group followed by 65+, 0-14 and 15-34.

4. Incremental age increases in bed days for mental health were evident for males and females up to 35-64 years with a decrease at 65+.

5.4 The Health of Victorian Communities

5.4.1 Victorian Communities: Who are we? The state of Victoria is often divided into a number of smaller geographic units by various government agencies for various statistical, planning, and intervention purposes. Some of these geographic units (in order of descending size) include the regional or rural/metropolitan distinction, Department of Human Service Regions, Primary Care Partnerships, Divisions of General Practice, Local Government Areas, Statistical Local Areas and suburbs. Although it is easier to describe and analyse statistics for larger geographical units (e.g., Australia and Victoria), there can be a considerable loss of information when focusing only on larger areas. On the other hand, small areas such as suburbs are too numerous, and analysis can be unmanageable. LGAs seem to provide the middle ground between the two approaches and form the preferred unit of analysis where applicable in this research. The terms community and LGA are sometimes used interchangeably in this document but community is the preferred term when discussing people rather than a geographical or political area. There are 79 LGAs in the state of Victoria. These are shown in the two rural and metropolitan maps that follow. The maps will assist understanding of the community level statistics presented in this section.

5.4.1.1 LGAs and DHS regions in rural Victoria. A map illustrating the LGAs and DHS regions in rural (or regional) Victoria is shown in Figure 37. There are five DHS regions (Barwon-South Western, Gippsland, Grampians, Hume and Loddon Mallee) and 49 LGAs in regional Victoria (Shaw, 2004b).

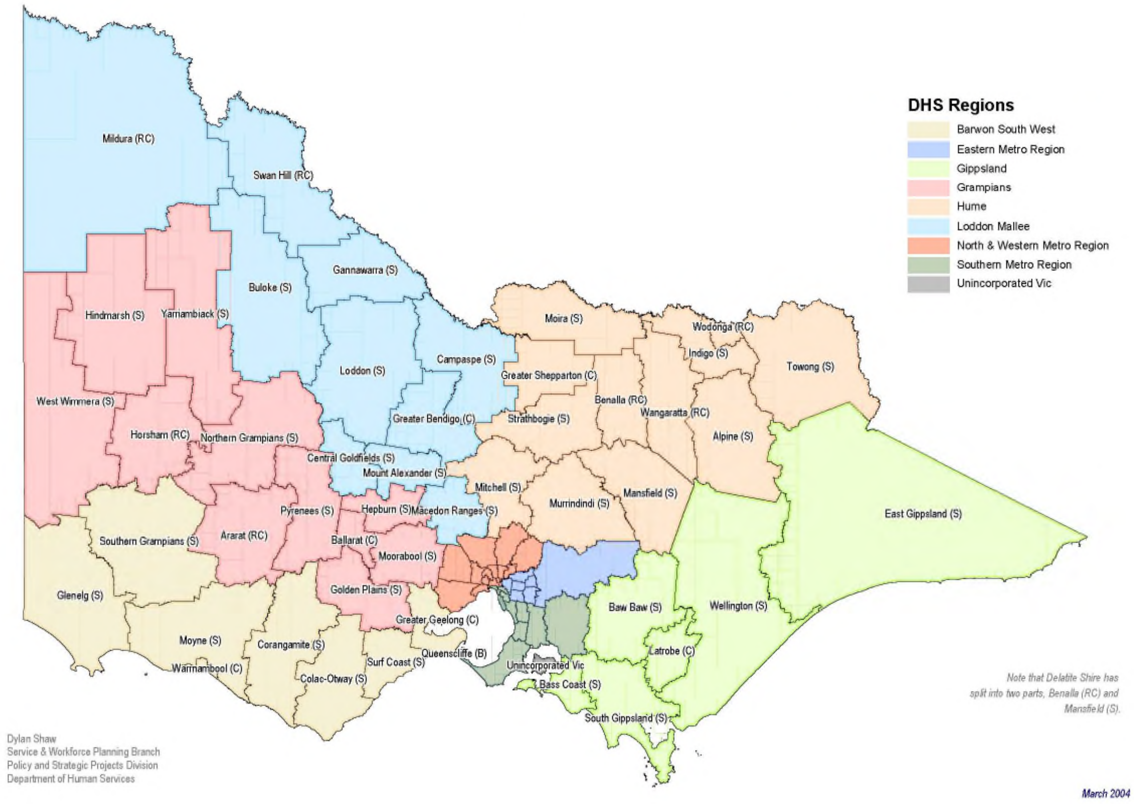

Figure 37. Local government areas and DHS regions, rural and regional Victoria.

Reprinted from "Local Government Areas and DHS Regions, Rural and Regional Victoria", by D. Shaw, 2004. Melbourne: Department of Human Services Funded Agency Channel.

5.4.1.2 LGAs and DHS regions in metropolitan Victoria. A map illustrating the LGAs and DHS regions in metropolitan Victoria (Shaw, 2004a) is shown in Figure 38. There are three DHS regions (Eastern, Southern and North and West) and 30 LGAs in metropolitan Victoria. The Northern and Western region were previously mapped separately by the DHS. The Western region is roughly outlined by the dashed line.

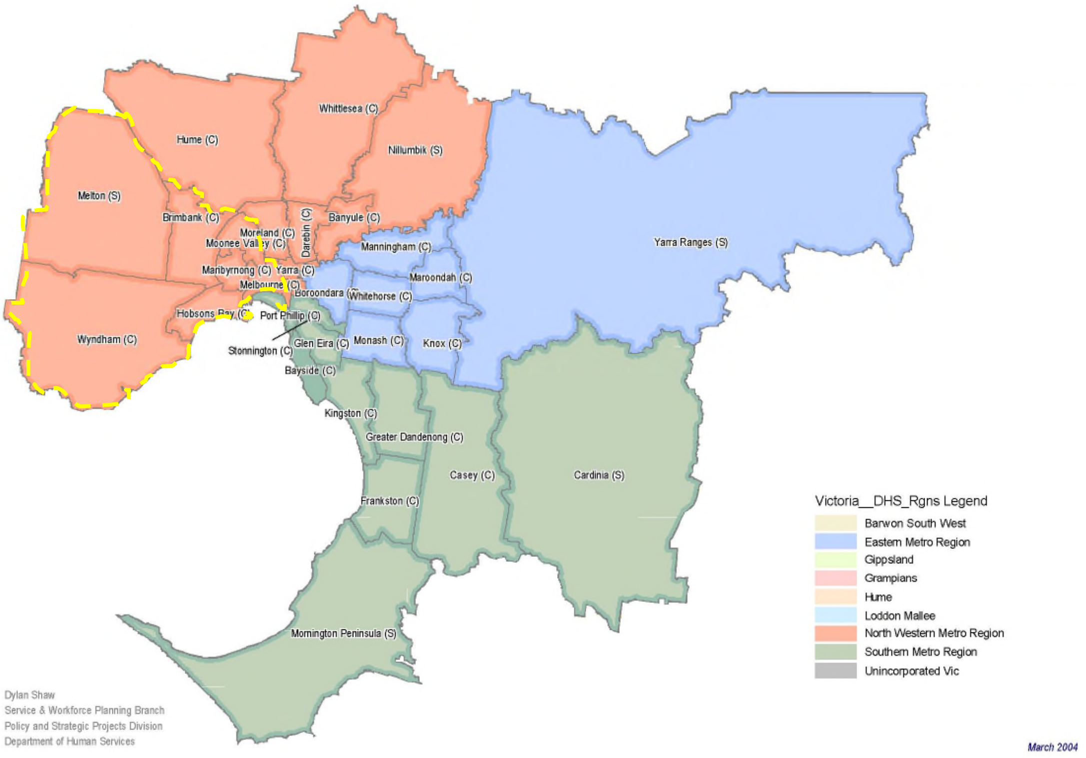

Figure 38. Local government areas and DHS regions, metropolitan area.

Reprinted from "Local Government Areas and DHS Regions, Metropolitan Area", by D. Shaw, 2004. Melbourne: Department of Human Services Funded Agency Channel.

5.4.2 Life Expectancy at Birth in Metropolitan and Rural Regions in Victoria. Figure 39 shows LE for males and females and metropolitan and rural regions in Victoria for the years 1996-2004 (DHS, 2006b). This graph shows increasing life expectancy for most of the years from 1996-2004 but also a consistent pattern of gender and regional inequality. As shown in the 2004 figures, rural males have the lowest LE at 78.24 years; followed by metropolitan males with 80.15 years; rural females with 83.47; and metropolitan females with the highest LE of 84.67 years.

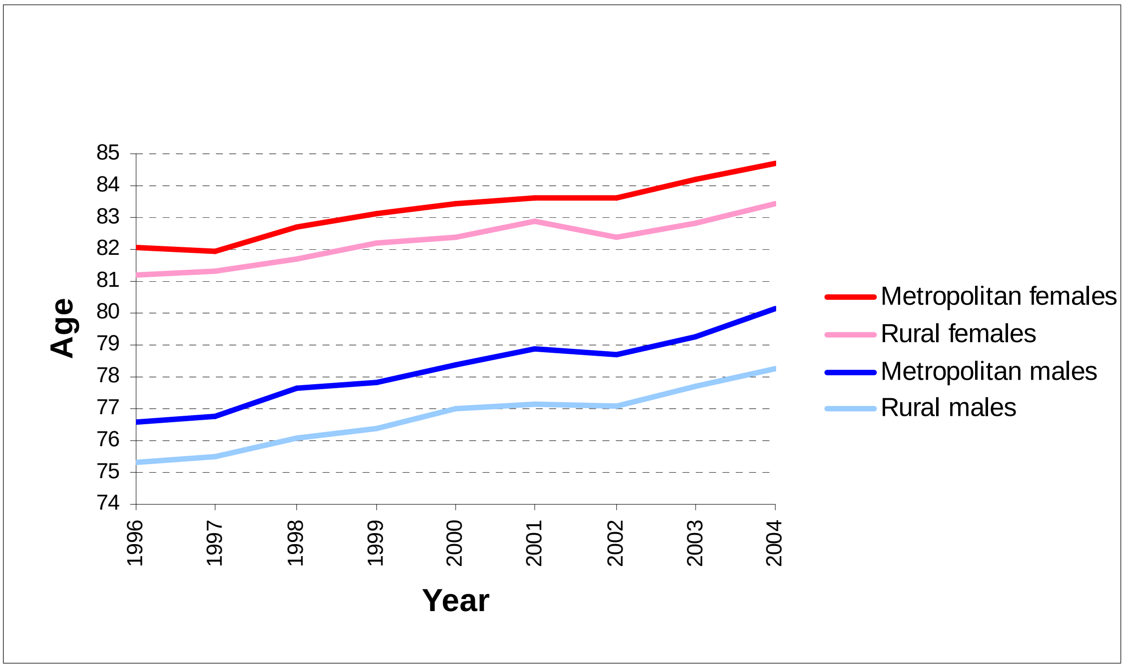

Figure 39. Life expectancy at birth, by sex, Victoria 1996-2004 Metropolitan vs. Rural comparison.

Reprinted from "Life Expectancy at Birth, by Sex, Victoria 1996-2004 Metropolitan Vs. Rural Comparison (Graph)", by Victorian State Government Department of Human Services Australia. Health Promotion and Chronic Disease Prevention. Public Health Branch. Rural & Regional Health & Aged Care Services Division., 2006, Victorian Metropolitan and Rural Life Expectancy at Birth (Excel sheet). 2007(10 May).

5.4.3 LGAs in Victoria with LEs Below and Above the Average Means.

Table 40 and Table 41 following illustrate precisely which communities/LGAs had lower and higher LEs. The mean average LE for all LGAs in Victoria for 2004 was 78.03 for males and 83.27 for females.

Table 40 shows the LGAs with LEs below the average means for male and females and includes the mean and the difference from the mean. The rural inequalities reflected in the previous graph are even clearer in this table, however there are also a number of metropolitan LGAs with LEs below the Victorian mean. The metropolitan LGAs with LEs below the Victorian mean are marked with an asterisk in the table. They include Maribyrnong and Darebin for males; Melton, Knox, Hume and Kingston for females; and Port Phillip, Yarra, Frankston and Hobsons Bay for both males and females.

Table 41 shows the LGAs with average means above the Victorian means of 78.03 (males) and 83.27 (females). The five highest LEs for males were in Nillumbik (81.60), Manningham (81.12), Stonnington (80.67), Boroondara (80.62) and Monash (80.55). The five highest LEs for females were in Melbourne (86.50), Golden Plains (86.42), Surf Coast (85.69), Glen Eira (85.12) and Whitehorse (84.96).

Table 40

LGAs with LEs Below the Average Means for Males and Females, 2004

LGA	Male LE	Mean Diff.	LGA	Female LE	Mean Diff.
Northern Grampians	74.65	-3.39	Hindmarsh	80.90	-2.37
Loddon	75.45	-2.59	Glenelg	81.10	-2.16
Glenelg	75.48	-2.55	Yarriambiack	81.11	-2.16
Latrobe	75.69	-2.35	Corangamite	81.23	-2.04
Corangamite	75.88	-2.16	Central Goldfields	81.34	-1.93
Moira	76.11	-1.92	*Latrobe	81.49	-1.78
Indigo	76.24	-1.80	Hepburn	81.77	-1.50
East Gippsland	76.29	-1.74	*Melton	81.94	-1.33
West Wimmera	76.36	-1.68	Ballarat	81.97	-1.29
Mount Alexander	76.50	-1.53	Campaspe	82.12	-1.15
Southern Grampians	76.62	-1.41	Wellington	82.12	-1.15
Wellington	76.66	-1.38	East Gippsland	82.17	-1.10
*Maribyrnong	76.67	-1.36	Northern Grampians	82.33	-0.94
Ballarat	76.74	-1.29	Baw Baw	82.49	-0.77
Mildura	76.92	-1.12	Alpine	82.50	-0.77
Strathbogie	77.06	-0.98	*Yarra	82.50	-0.77
Horsham	77.07	-0.97	*Knox	82.51	-0.75
Wodonga	77.13	-0.90	Wodonga	82.54	-0.73
Murrindindi	77.15	-0.88	*Port Phillip	82.54	-0.72
Swan Hill	77.23	-0.80	Benalla	82.58	-0.69
Gannawarra	77.40	-0.63	Buloke	82.59	-0.68
*Darebin	77.41	-0.63	Pyrenees	82.64	-0.62
South Gippsland	77.42	-0.61	Greater Bendigo	82.68	-0.58
Hindmarsh	77.45	-0.58	Ararat	82.70	-0.57
Campaspe	77.48	-0.55	West Wimmera	82.72	-0.55
Moorabool	77.52	-0.52	*Hume	82.75	-0.52
*Port Phillip	77.53	-0.50	Cardinia	82.76	-0.51
Buloke	77.56	-0.47	Moira	82.79	-0.47
Mitchell	77.58	-0.46	Moyne	82.85	-0.42
Towong	77.58	-0.45	South Gippsland	82.86	-0.41
Pyrenees	77.58	-0.45	Indigo	82.87	-0.40
*Yarra	77.66	-0.38	Towong	82.90	-0.37
Greater Bendigo	77.71	-0.33	Strathbogie	82.98	-0.28
Ararat	77.71	-0.32	Mitchell	82.99	-0.27
Hepburn	77.73	-0.30	*Frankston	83.01	-0.26
Colac-Otway	77.76	-0.28	*Kingston	83.01	-0.26
*Frankston	77.76	-0.27	Mount Alexander	83.05	-0.22
Greater Dandenong	77.77	-0.26	Southern Grampians	83.05	-0.22
*Hobsons Bay	77.86	-0.18	Swan Hill	83.06	-0.21
Yarriambiack	77.88	-0.16	*Hobsons Bay	83.06	-0.20
Warrnambool	77.89	-0.14	Midura	83.07	-0.19
Wangaratta	77.91	-0.12	Greater Geelong	83.08	-0.19
Baw Baw	77.93	-0.10	Murridindi	83.20	-0.07
Greater Shepparton	77.98	-0.05			
Central Goldfields	78.02	-0.01			

Note: Life expectancies were calculated by Leonard Sunil Piers from "Life Expectancy at Birth by DHS Region, PCP and LGA (Excel)", by Victorian State Government Department of Human Services Australia. Health Promotion and Chronic Disease Prevention. Public Health Branch. Rural & Regional Health & Aged Care Services Division., 2006. 2007(10 May). (DHS, 2006a). Table constructed by Totikidis. The mean average was computed by Totikidis using the LE data in Tables 40 and 41 for males and females separately.

Table 41

LGAs with LES Above the Average Means for Male and Females, 2004

LGA	**Male LE**	**Mean Diff.**	**LGA**	**Female LE**	**Mean Diff.**
*Moreland	78.04	0.01	Greater Shepparton	83.29	0.02
Alpine	78.11	0.08	*Greater Dandenong	83.30	0.03
Benalla	78.15	0.12	Colac-Otway	83.38	0.12
*Brimbank	78.20	0.17	*Brimbank	83.39	0.12
Bass Coast	78.21	0.18	*Maribyrnong	83.45	0.19
*Melton	78.26	0.23	Loddon	83.47	0.20
Greater Geelong	78.26	0.23	*Wyndham	83.48	0.21
*Wyndham	78.51	0.48	*Darebin	83.51	0.24
*Knox	78.55	0.52	*Moreland	83.51	0.25
*Moonee Valley	78.56	0.53	Macedon Ranges	83.54	0.27
*Hume	78.59	0.55	*Maroondah	83.57	0.30
Moyne	78.75	0.72	Moorabool	83.60	0.33
*Maroondah	78.80	0.77	*Mornington Peninsula	83.67	0.40
Golden Plains	78.84	0.81	Queenscliff	83.69	0.42
Macedon Ranges	78.93	0.89	*Banyule	83.70	0.43
*Mornington Peninsula	78.94	0.91	Warrnambool	83.81	0.54
*Kingston	79.02	0.99	Wangaratta	83.87	0.60
Queenscliff	79.10	1.06	Bass Coast	84.03	0.76
*Yarra Ranges	79.16	1.12	*Whittlesea	84.05	0.78
*Melbourne	79.42	1.39	Horsham	84.08	0.82
*Glen Eira	79.45	1.42	Mansfield	84.22	0.96
*Cardinia	79.48	1.45	*Yarra Ranges	84.35	1.09
Mansfield	79.55	1.52	*Casey	84.39	1.12
Surf Coast	79.59	1.55	*Boroondara	84.43	1.17
*Banyule	79.59	1.55	Gannawarra	84.51	1.24
*Whittlesea	79.60	1.57	*Manningham	84.83	1.57
*Casey	79.82	1.78	*Monash	84.84	1.57
*Whitehorse	80.29	2.26	*Moonee Valley	84.85	1.58
*Bayside	80.31	2.27	*Nillumbik	84.85	1.58
*Monash	80.55	2.52	*Bayside	84.90	1.64
*Boroondara	80.62	2.59	*Stonnington	84.95	1.68
*Stonnington	80.67	2.64	*Whitehorse	84.96	1.69
*Manningham	81.12	3.09	*Glen Eira	85.12	1.85
*Nillumbik	81.60	3.57	Surf Coast	85.69	2.42
			Golden Plains	86.42	3.15
			*Melbourne	86.50	3.23

Note. Life expectancies were calculated by Leonard Sunil Piers (DHS, 2006a). Table constructed by Totikidis. The mean average was computed by Totikidis using the LE data in Tables 40 and 41 for males and females separately.

5.4.4 Causes of Death in Victorian Communities. Data on causes of death or mortality comes from death registries in each state and territory and is provided to statistics and government organisations such as the Australian Bureau of Statistics, Australian Institute of Health and Welfare, and the Australian Government Department of Health and Ageing. Such data are readily available to the public at the Australian and state and territory levels from the ABS but not for smaller local areas without significant cost. This puts local data out of the reach of many social researchers and community based organisations.

Two alternative ways of obtaining causes of death data for the community or local government area level are from the HealthWiz database and Victorian Burden of Disease (BoD) database, although both have limitations. HealthWiz is produced on CD by the Department of Health and Ageing and is available for a cost or from university libraries. A limitation of HealthWiz is that it only produces results for a two year period (e.g., 2002-2004). This results in small numbers for many of the diseases and conditions so a meaningful comparative analysis cannot be conducted. Morevoer, due to ethical issues such as the possibility of an individual being identified, small numbers for certain conditions are replaced with an asterisk. The BoD database is an online database managed by the Department of Human Services. This is available freely but the latest data on it (2001) is now several years old.

The Australian Institute of Health and Welfare and the Victorian Department of Human Services (DHS) are acknowledged for their assistance with data issues and with the supply of data on causes of death for Victoria for the present study.

Data on 20 diseases and conditions for a five year period (2001-2005) were requested from the DHS and were analysed in the present study (2007). The data consisted of an excel dataset of approximately 14,000 rows of data for all LGAs in Victoria for both males and females and for the broad age groups: 0-14, 15-34, 35-64, and 65+. Population estimates for the years 2001-2005 by age and LGA were also supplied by the DHS. The dataset included conditions and diseases from the WHO International Statistical classification of Diseases and Related Health Problems (ICD):

- Malignant neoplasms (C00-C97)
- Digestive organs (C15-C26)
- Trachea, bronchus, lung (C33, C34)
- Diabetes mellitus (E10-E14)
- Diseases of the circulatory system (I00-I99)
- Ischaemic heart diseases (I20-I25)
- Cerebrovascular diseases (I60-I69)
- Diseases of the respiratory system (J00-J99)
- Chronic lower respiratory diseases (J40-J47)
- Diseases of the digestive system (K00-K93)
- Diseases of liver (K70-K77)
- Certain conditions originating in the perinatal period (P00-P96)
- Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)
- Mental and behavioural disorders (F00-F99)
- All other medical conditions (Remainder of A00-R99)
- External causes of morbidity and mortality (V01-Y98)
- Transport accidents (V01-V99)
- Intentional self-harm (X60-X84)
- Assault (X85-Y09)
- Other external causes (remainder of V01-Y98)

The selection represents the National Health Priority Areas as well as other diseases and conditions of interest in the present study. The overall or total number of deaths was also included in the dataset.

The data were analysed to determine the extent of gender, geographic, and age differences in death from major diseases and conditions in Victorian communities. The analysis can be described as exploratory and descriptive. The exploratory stage involved studying the data, reformatting and creating smaller datasets, and finally the development of several specific questions which were used to interrogate the data and present the results in a descriptive or graphical form. The questions and results are presented following.

5.4.4.1 Total deaths in rural and metropolitan Victoria. The following question was addressed in this section:

- What was the male, female and total number and rate of deaths in rural and metropolitan Victoria for each age group for the years 2001-2005?

The results are shown in Table 42. This table was derived by classifying the LGAs as either rural or metropolitan and writing formulas to calculate the numbers and rates of death for males and females and each age group.

Table 42

Male, Female and Total Number of Deaths in Rural and Metropolitan Victoria for Each Age Group, 2001-2005

Age	**Number of deaths**			**Population***			**Death rate (100,000)**		
Males	**Rural**	**Metro.**	**Vic**	**Rural**	**Metro.**	**Vic**	**Rural**	**Metro.**	**Vic**
0-14	421	773	1,194	178,234	314,778	493,011	236	246	242
15-34	982	1,821	2,803	205,502	506,647	712,148	478	359	394
35-64	5,751	9,833	15,584	328,431	610,756	939,187	1,751	1,610	1,659
65+	23,623	39,723	63,346	105,996	182,631	288,626	22,287	21,750	21,947
All ages	**30,777**	**52,150**	**82,927**	**818,161**	**1,614,811**	**2,432,972**	**3,762**	**3,229**	**3,408**
Females									
0-14	433	430	863	168,789	302,224	471,013	257	142	183
15-34	577	529	1,106	202,933	510,221	713,154	284	104	155
35-64	5,015	4,608	9,623	328,680	621,972	950,652	1,526	741	1,012
65+	36,306	32,899	69,205	128,486	238,201	366,687	28,257	13,811	18,873
All ages	**42,331**	**38,466**	**80,797**	**828,887**	**1,672,618**	**2,501,505**	**5,107**	**2,300**	**3,230**

Note. Table constructed by Totikidis from data supplied by the Victorian Department of Human Services (DHS). The metropolitan region included 30 Victorian LGAs from city areas (C). The rural region included 51 LGAs referred to as shires (S) and rural cities (RC) and Greater Bendigo, Geelong and Shepparton and the 'unincorporated' Victoria region. Deaths are for a five-year period (2001-2005); Population data was calculated from the average of the 2001 and 2005 population estimates.

One would expect the number of deaths in rural areas to be lower due to the smaller population of people who reside in rural areas, however, this is always not so. As shown in the second and third columns, rural females are dying in greater numbers than their metropolitan sisters in every age group. This is also true for the 'rate' of female deaths in comparison with metropolitan females. Rural males on the hand had a lower number of deaths than metropolitan males for every age category but a higher ‘rate’ of death for every age category except for the 0-14 age group which was only slightly less. Rural males also had a greater death rate than rural females for the 15-34 and 35-64 age groups but not for the youngest and oldest age groups (0-14 and 65+).

5.4.4.2 LGAs with high numbers and rates of death. The question addressed in this section was:

- Which LGAs have the highest numbers and rates of death in each age category?

The results are shown in the next five tables for each of the age groups. Only the top 30 LGAs with the highest number of deaths in each age group were included in the analyses, both for manageability and to conceal small numbers and avoid possible identification of individuals[14].

The tables show both numbers and rates. Numbers and rates yield different information but are both important in the study of inequalities and inequities. High *numbers* are more suggestive of inequalities while high *rates* may be more indicative of inequities because they point to higher figures than what would be expected relative to the population size. A low population and high death rate (among younger persons in particular) suggests an oddity that should be investigated. However, inequity can also result when areas with high numbers of deaths are not well resourced with the necessary services. For example, an area with high numbers of young children might also be expected to have higher numbers of deaths of young children but this makes it no less needful of adequate health and preventative services. LGAs with both high numbers and high rates could also need more health interventions. Early age of death and gender differences can also serve as measures of inequity.

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[14] Steps to protect confidentiality were also ensured by the DHS by the inclusion of an asterisk for any number less than five in the dataset.

Table 43 shows the results for the 0-14 age group for males and females separately. The table is sorted by the highest number deaths and a rate per 100,000 of the LGA population. The highest number deaths for this age group for males were in Brimbank, Hume, Casey, Greater Geelong and Moreland while Moira, Campaspe, Melbourne, Moreland and Wellington had the highest death *rates*. Greater Geelong, Brimbank, Hume, Casey, Knox had the highest *numbers* for females while Greater Shepparton, Swan Hill, Hobsons Bay, Yarra and Maribyrnong had the highest rates for females.

Table 44 shows the results for the 15-34 age group. Casey, Greater Geelong, Brimbank, Knox and Greater Dandenong had the highest number of deaths for males in this age group while Moira, East Gippsland, Latrobe, Greater Shepparton and Macedon Ranges had the highest death rates for males. Casey, Greater Geelong, Moreland, Brimbank and Frankston had the highest number of deaths for females while Glenelg, Swan Hill, Wellington, Greater Shepparton and Campaspe had the highest rates.

Table 45 shows the results for the 35-64 age group. Greater Geelong, Brimbank, Casey, Greater Dandenong and Darebin had the highest number of deaths for males in this age group while Maribyrnong, Moira, Latrobe, Yarra and East Gippsland had the highest rates. Greater Geelong, Casey, Mornington Peninsula, Frankston and Knox had the highest number of deaths for females while East Gippsland, Campaspe, Mildura, Yarra and Latrobe had the highest rates for females.

Table 43

Top 30 LGAs with the Highest Number of Deaths of the 0-14 Age Group

Males				Females			
LGA	**Pop.**	**Deaths**	**Death Rate**	**LGA**	**Pop.**	**Deaths**	**Death Rate**
Brimbank	18,520	56	302	Greater Geelong	18,994	43	226
Hume	17,708	53	299	Brimbank	17,858	37	207
Casey	25,108	53	211	Hume	17,323	35	202
Greater Geelong	20,034	51	255	Casey	23,617	35	148
Moreland	11,366	46	405	Knox	15,650	32	204
Knox	16,156	36	223	Mornington Peninsula	12,691	29	229
Yarra Ranges	16,177	36	223	Whitehorse	12,445	28	225
Whittlesea	13,864	33	238	Wyndham	11,704	27	231
Darebin	10,390	31	298	Greater Dandenong	11,713	26	222
Whitehorse	12,645	31	245	Frankston	11,881	26	219
Greater Dandenong	12,450	29	233	Hobsons Bay	7,783	25	321
Mornington Peninsula	13,379	28	209	Glen Eira	10,097	25	248
Ballarat	9,227	27	293	Boroondara	13,961	23	165
Manningham	10,259	27	263	Greater Shepparton	6,416	22	343
Wyndham	12,253	26	212	Moreland	10,753	22	205
Boroondara	14,420	26	180	Kingston	11,665	22	189
Moonee Valley	9,392	25	266	Greater Bendigo	9,588	21	219
Banyule	11,057	25	226	Latrobe	7,522	20	266
Frankston	12,163	25	206	Darebin	10,042	20	199
Monash	13,525	25	185	Monash	12,747	20	157
Greater Shepparton	6,698	22	328	Yarra Ranges	15,510	20	129
Kingston	12,109	22	182	Melton	7,619	19	249
Latrobe	7,762	21	271	Whittlesea	13,205	18	136
Hobsons Bay	8,164	21	257	Maribyrnong	4,957	14	282
Greater Bendigo	9,863	21	213	Ballarat	8,998	14	156
Campaspe	4,169	20	480	Banyule	10,546	14	133
Mildura	5,680	20	352	Cardinia	6,033	13	215
Bayside	8,500	19	224	Manningham	9,841	13	132
Maribyrnong	5,207	18	346	Yarra	3,933	12	305
Glen Eira	10,659	18	169	Stonnington	6,056	12	198

Note. Death rates calculated and table constructed by Totikidis, 2008 from "Reduced VIC mortality 2001-05 by LGA (Excel datasheet)", by Victorian State Government Department of Human Services, 2007.

Table 44

Top 30 LGAs with the Highest Number of Deaths of the 15-34 Age Group

Males				Females			
LGA	Pop.	Deaths	Death Rate	LGA	Pop.	Deaths	Death Rate
Casey	29,980	128	427	Casey	30,968	47	152
Greater Geelong	26,789	115	429	Greater Geelong	26,857	45	168
Brimbank	26,440	99	374	Moreland	22,954	40	174
Knox	21,531	92	427	Brimbank	26,403	39	148
Greater Dandenong	19,436	90	463	Frankston	16,692	38	228
Frankston	16,715	87	521	Knox	21,311	38	178
Monash	24,815	85	343	Darebin	21,500	35	163
Mornington Peninsula	15,724	80	509	Port Phillip	18,003	34	189
Moreland	22,507	78	347	Kingston	19,147	34	178
Whitehorse	20,621	75	364	Greater Bendigo	12,669	33	260
Darebin	20,762	75	361	Mornington Peninsula	15,574	31	199
Yarra Ranges	19,673	74	376	Whitehorse	20,820	29	139
Whittlesea	19,177	72	375	Hume	22,135	28	126
Kingston	19,332	70	362	Ballarat	12,461	26	209
Hume	21,766	70	322	Banyule	16,563	26	157
Greater Bendigo	12,222	67	548	Yarra Ranges	19,273	26	135
Boroondara	22,328	63	282	Whittlesea	19,199	24	125
Moonee Valley	16,549	62	375	Greater Shepparton	8,000	23	288
Latrobe	9,057	59	651	Manningham	14,806	23	155
Wyndham	16,172	58	359	Wyndham	16,092	23	143
Ballarat	12,056	55	456	Moonee Valley	17,124	23	134
Maroondah	14,668	54	368	Boroondara	22,867	23	101
Banyule	17,001	52	306	Monash	23,436	23	98
Glen Eira	18,158	51	281	Latrobe	9,470	22	232
Manningham	15,295	49	320	Maroondah	14,530	22	151
Greater Shepparton	8,119	48	591	Glen Eira	18,276	22	120
Hobsons Bay	11,932	46	386	Hobsons Bay	12,341	21	170
Port Phillip	17,346	46	265	Greater Dandenong	18,848	20	106
Yarra	15,305	41	268	Stonnington	16,854	19	113
Melton	10,680	40	375	Maribyrnong	10,345	17	164

Note. Death rates calculated and table constructed by Totikidis, 2008 from "Reduced VIC mortality 2001-05 by LGA (Excel datasheet)", by Victorian State Government Department of Human Services, 2007.

Table 45

Top 30 LGAs with the Highest Number of Deaths of The 35-64 Age Group

Males				Females			
LGA	Pop.	Deaths	Death Rate	LGA	Pop.	Deaths	Death Rate
Greater Geelong	37,198	664	1,785	Greater Geelong	38,527	427	1,108
Brimbank	33,381	530	1,588	Casey	37,273	334	896
Casey	38,078	518	1,360	Mornington Peninsula	27,382	322	1,176
Greater Dandenong	24,743	506	2,045	Frankston	22,893	290	1,267
Darebin	21,958	453	2,063	Knox	30,308	286	944
Yarra Ranges	29,203	444	1,520	Greater Dandenong	23,888	282	1,181
Mornington Peninsula	25,785	424	1,644	Brimbank	32,925	279	847
Hume	27,322	420	1,537	Kingston	26,432	278	1,052
Kingston	25,837	416	1,610	Monash	31,881	273	856
Knox	29,577	412	1,393	Yarra Ranges	29,456	265	900
Moreland	22,505	408	1,813	Hume	27,068	259	957
Monash	30,118	400	1,328	Whitehorse	28,278	259	916
Frankston	22,114	374	1,691	Darebin	22,529	258	1,145
Banyule	22,179	363	1,637	Boroondara	31,483	247	785
Boroondara	29,223	360	1,232	Moreland	23,139	246	1,063
Moonee Valley	20,103	336	1,671	Banyule	23,553	245	1,040
Whittlesea	23,367	326	1,395	Manningham	24,674	218	884
Latrobe	13,758	325	2,362	Greater Bendigo	18,037	217	1,203
Ballarat	15,315	319	2,083	Glen Eira	23,020	216	938
Glen Eira	22,545	319	1,415	Whittlesea	23,596	207	877
Maroondah	18,802	318	1,691	Ballarat	16,002	197	1,231
Greater Bendigo	17,374	316	1,819	Maroondah	19,876	192	966
Whitehorse	26,134	308	1,179	Moonee Valley	21,005	177	843
Port Phillip	15,001	303	2,020	Latrobe	13,762	176	1,279
Wyndham	19,529	295	1,511	Hobsons Bay	15,878	163	1,027
Hobsons Bay	16,080	294	1,828	Port Phillip	13,646	158	1,158
Manningham	22,879	287	1,254	Stonnington	16,300	157	963
Maribyrnong	11,158	279	2,500	Wyndham	19,056	149	782
Yarra	11,654	271	2,325	Bayside	18,777	146	778
Bayside	17,805	231	1,297	Yarra	11,149	144	1,292

Note. Death rates calculated and table constructed by Totikidis, 2008 from "Reduced VIC mortality 2001-05 by LGA (Excel datasheet)", by Victorian State Government Department of Human Services, 2007.

Table 46 shows the results for the 65+ age group. The highest *numbers* of deaths for males in this older age group were in Greater Geelong, Mornington Peninsula, Moreland, Whitehorse and Boroondara with the highest *rates* in Ballarat, Maribyrnong, Warrnambool, Latrobe and Glen Eira. The highest *numbers* of deaths for females were in Greater Geelong, Boroondara, Mornington Peninsula, Whitehorse and Kingston with the highest *rates* in Boroondara, Knox, Port Phillip, Ballarat and Bayside.

Table 46

Top 30 LGAS with the Highest Number of Deaths of the 65+ Age Group, 2001-2005

Males				**Females**			
LGA	Pop.	Deaths	Death Rate	LGA	Pop.	Deaths	Death Rate
Greater Geelong	13,602	3,213	23,622	Greater Geelong	17,685	3,509	19,842
Mornington Peninsula	11,555	2,537	21,956	Boroondara	14,086	3,207	22,767
Moreland	10,103	2,280	22,569	Mornington Peninsula	13,911	2,649	19,043
Whitehorse	10,402	2,223	21,372	Whitehorse	14,423	2,626	18,207
Boroondara	9,244	2,163	23,399	Kingston	11,980	2,502	20,886
Monash	11,794	2,148	18,213	Monash	14,117	2,323	16,455
Darebin	8,939	2,146	24,007	Glen Eira	11,954	2,227	18,630
Glen Eira	8,214	2,098	25,543	Darebin	11,691	2,185	18,690
Kingston	8,826	2,071	23,465	Moreland	12,797	2,176	17,004
Greater Dandenong	7,510	1,604	21,358	Bayside	9,137	1,997	21,856
Moonee Valley	7,127	1,562	21,917	Banyule	9,843	1,922	19,527
Banyule	7,337	1,542	21,017	Knox	8,118	1,820	22,421
Brimbank	7,574	1,487	19,634	Greater Dandenong	9,297	1,646	17,706
Frankston	6,345	1,485	23,406	Frankston	8,484	1,588	18,719
Bayside	6,156	1,449	23,540	Ballarat	7,095	1,582	22,297
Knox	6,031	1,379	22,865	Greater Bendigo	7,645	1,535	20,080
Greater Bendigo	5,814	1,358	23,359	Moonee Valley	9,193	1,522	16,556
Ballarat	5,035	1,317	26,157	Maroondah	7,494	1,473	19,656
Yarra Ranges	6,165	1,249	20,261	Brimbank	9,014	1,465	16,252
Manningham	7,606	1,233	16,211	Yarra Ranges	7,521	1,385	18,416
Maroondah	5,362	1,197	22,326	Manningham	8,426	1,385	16,437
Casey	6,546	1,133	17,308	Stonnington	7,502	1,384	18,450
Hobsons Bay	4,881	1,125	23,051	Casey	7,886	1,221	15,483
Stonnington	5,318	1,108	20,837	Port Phillip	5,110	1,144	22,387
Latrobe	4,068	1,041	25,593	Hobsons Bay	6,224	1,103	17,723
Port Phillip	4,199	987	23,508	Latrobe	5,197	1,093	21,031
Maribyrnong	3,674	952	25,912	Maribyrnong	4,967	953	19,187
Hume	5,020	936	18,645	Hume	5,661	897	15,845
Whittlesea	5,052	841	16,647	Whittlesea	5,558	801	14,413
East Gippsland	3,800	833	21,921	East Gippsland	4,150	777	18,723

Note. Death rates calculated and table constructed by Totikidis, 2008 from "Reduced VIC mortality 2001-05 by LGA (Excel datasheet)", by Victorian State Government Department of Human Services, 2007.

Table 47 shows a summary of the four tables just presented and features the top five LGAs with the highest numbers and rates of death for each age group. This information could assist further targeting of interventions at particular age groups and LGAs. The table represents the most disadvantaged areas in terms of the number and rate of death; and those in the first three (younger age) categories may be particularly disadvantaged. There are limitations in the analysis of the 65+ age category because of the inability to determine whether death occurred at 65 or at 100. Dying at 65 may be associated with inequities, whereas dying at 100 may be considered acceptable. Further analysis of the causes of death in future studies could reveal whether some deaths in this age group were ‘potentially’ avoidable or preventable.

Table 47

Top Five LGAs with the Highest Number and Rate of Death for Males and Females in Each Age Group

	Males	**Females**
0-14		
Number	Brimbank, Hume, Casey, Greater Geelong, Moreland	Greater Geelong, Brimbank, Hume, Casey, Knox
Rate	Moira, Campaspe, Melbourne, Moreland, Wellington	Greater Shepparton, Swan Hill, Hobsons Bay, Yarra, Maribyrnong
15-34		
Number	Casey, Greater Geelong, Brimbank, Knox, Greater Dandenong	Casey, Greater Geelong, Moreland, Brimbank, Frankston
Rate	Moira, East Gippsland, Latrobe, Greater Shepparton, Macedon Ranges	Glenelg, Swan Hill, Wellington, Greater Shepparton, Campaspe
35-64		
Number	Greater Geelong, Brimbank, Casey, Greater Dandenong, Darebin	Greater Geelong, Casey, Mornington Peninsula, Frankston, Knox
Rate	Maribyrnong, Moira, Latrobe, Yarra, East Gippsland	East Gippsland, Campaspe, Mildura, Yarra, Latrobe
65+		
Number	Greater Geelong, Mornington Peninsula, Moreland, Whitehorse, Boroondara	Greater Geelong, Boroondara, Mornington Peninsula, Whitehorse, Kingston
Rate	Ballarat, Maribyrnong, Warrnambool, Latrobe, Glen Eira	Boroondara, Knox, Port Phillip, Ballarat, Bayside

Note. Death rates calculated and table constructed by Totikidis, 2008 from "Reduced VIC mortality 2001-05 by LGA (Excel datasheet)", by Victorian State Government Department of Human Services, 2007.

5.4.4.3 Main causes of death among age groups and LGAs. The question addressed in this section was:

- What are the main causes of death among males and females of different age groups and LGAs?

In order to address this question, firstly, a table consisting of the total number of deaths for each disease and age group was constructed (Table 48). This table revealed a number of sizeable figures (main causes of death for each age group) that could be compared at the LGA level as well as low figures that were not suitable for further analysis at the LGA level. The main causes of death for each age group and gender identified from this table, are discussed in further detail and presented in bar charts where appropriate.

Table 48 shows that there were two main causes of death for the *0-14 age group* for both males and females. These were certain conditions originating in the perinatal period and congenital malformations, deformations and chromosomal abnormalities. More males died of these conditions (423 & 225, for each condition respectively) than females (317 & 176). The LGAs with higher numbers and rates of death for this age group were identified previously (see Table 47) and are not discussed further here.

Table 48

Causes and Number of Deaths for Males and Females for Each Age Group

	Males				**Females**			
Causes of Death	0-14	15-34	35-64	65+	0-14	15-34	35-64	65+
Malignant neoplasms (C00-C97)	59	208	6,187	20,090	35	213	5,521	15,723
Digestive organs (C15-C26)	9	30	2,086	5,696	7	29	1,183	4,992
Trachea, bronchus, lung (C33, C34)	6	11	1,295	4,364	6	5	780	2,417
Diabetes mellitus (E10-E14)	7	16	369	2,234	7	11	145	2,292
Diseases of the circulatory system (I00-I99)	31	112	3,943	23,574	26	45	1,333	29,731
Ischaemic heart diseases (I20-I25)	7	33	2,614	13,245	6	12	547	13,873
Cerebrovascular diseases (I60-I69)	13	27	506	5,100	9	19	294	8,279
Diseases of the respiratory system (J00-J99)	25	25	474	6,585	28	20	401	6,036
Chronic lower respiratory diseases (J40-J47)	10	16	264	3,968	14	9	267	3,008
Diseases of the digestive system (K00-K93)	17	21	719	1,816	17	18	284	2,555
Diseases of liver (K70-K77)	9	17	547	415	7	7	168	227
Certain conditions originating in the perinatal period (P00-P96)	423	*	*	-	317	*	-	-
Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)	225	31	47	34	176	26	35	25
Mental and behavioural disorders (F00-F99)	7	38	122	1,357	7	21	33	2,705
All other medical conditions (Remainder of A00-R99)	142	205	1,220	6,091	100	111	787	8,475
External causes of morbidity and mortality (V01-Y98)	85	2,021	2,293	1,540	56	527	821	1,652
Transport accidents (V01-V99)	51	704	503	167	34	114	142	96
Intentional self-harm (X60-X84)	7	666	977	229	12	173	291	44
Assault (X85-Y09)	15	56	49	13	11	19	30	9

Note. The totals were derived by summing the number of deaths for all LGAs for each condition and age group. Cells with asterisks in the original dataset (which represent small numbers between 1-4) were converted to a 1 before summing. Any resulting totals less than 5 were then converted back to asterisks. The totals above include small numbers of deaths in Victoria – undefined, deaths in Victoria of no fixed address and deaths in Victoria of overseas origin.

For the *15-34 year old age group*, Table 48 showed that the top five causes of death for males were external causes of morbidity and mortality (2021), transport accidents (704), intentional self-harm (666), malignant neoplasms (208) and other medical conditions (205). The causes of death for males in this age group (Figure 40) shows that the total number of deaths for the top five causes in 30 LGAs with the highest numbers of overall deaths in Casey (178), Greater Geelong (157), Knox (134), Frankston (133) and Brimbank (130).

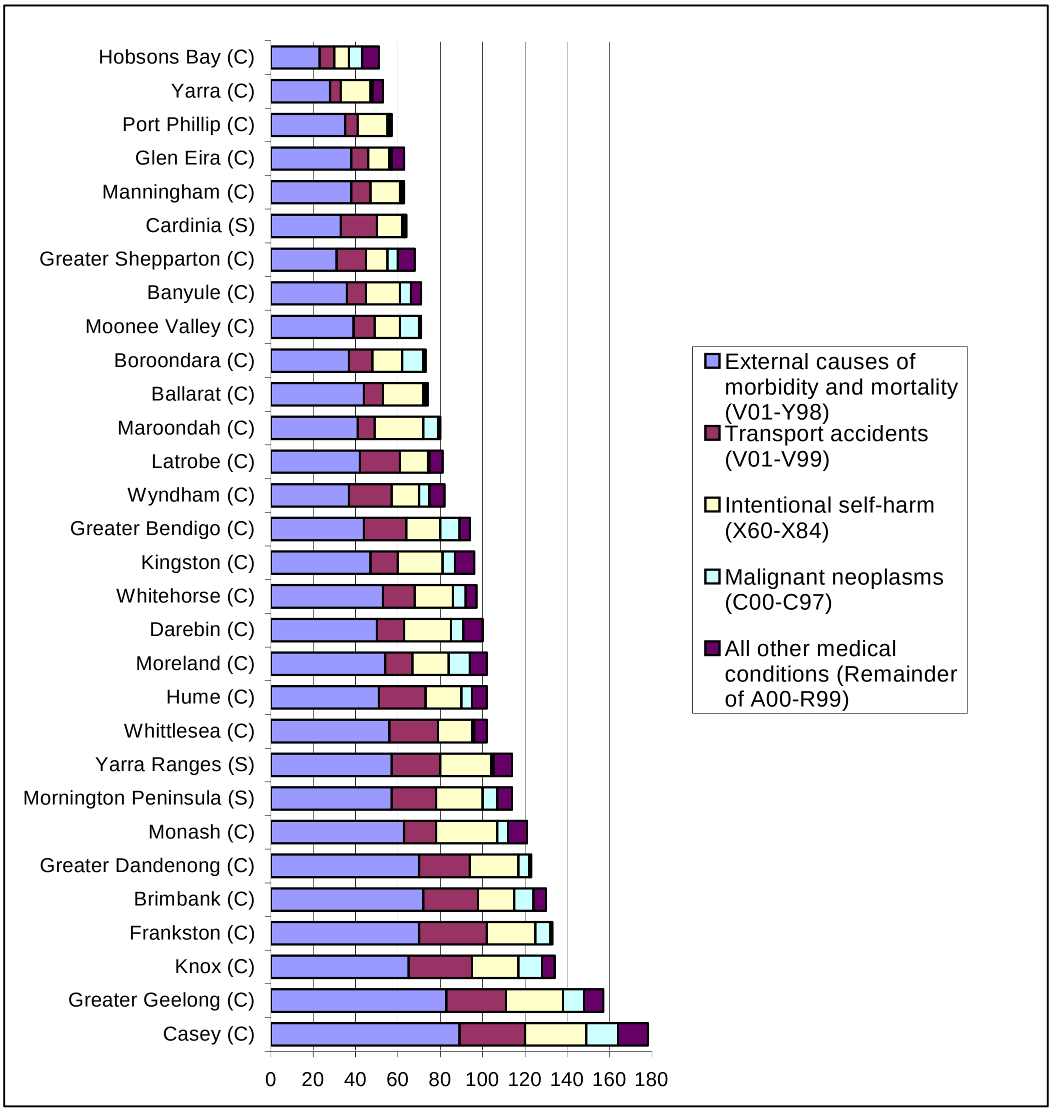

Figure 40. Top five main causes of death among males in the 15-34 year old age group in 30 LGAs.

Females in the *15-34 year old age group* had the same five main causes of death as males but in lower numbers and in a slightly different order. The highest number of deaths were for external causes of morbidity and mortality (527), malignant neoplasms (213), intentional self-harm (173), transport accidents (114) and other medical conditions (111). The total number of deaths for the top five causes combined ranged from 0-59 with the highest 30 LGAs shown in Figure 41. The highest numbers of overall deaths from these causes were in Greater Geelong (59), Brimbank (47), Casey (44), Frankston (40) and Darebin (38).

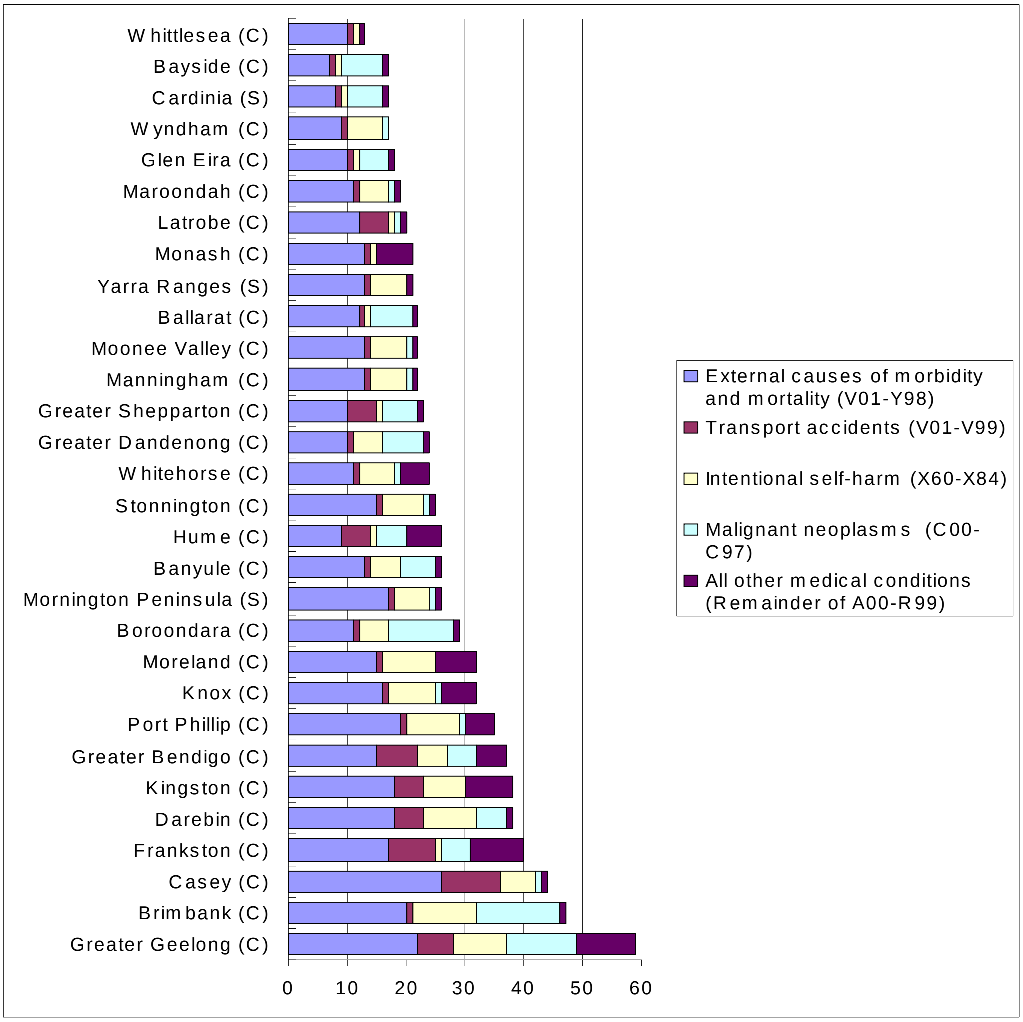

Figure 41. Top five main causes of death among females in the 15-34 year old age group in 30 LGAs.

The top five causes of death for males in the *35-64 year old age group* (as shown previously in Table 48) were malignant neoplasms (6,187), diseases of the circulatory system (3,943), ischaemic heart diseases (2,614), external causes of morbidity and mortality (2,293) and cancer of the digestive organs (2,086). Figure 42 shows the top 30 LGAs with the highest numbers of deaths from these causes. The highest five LGAs were Greater Geelong (747), Brimbank (562), Casey (562), Greater Dandenong (551) and Yarra Ranges (503).

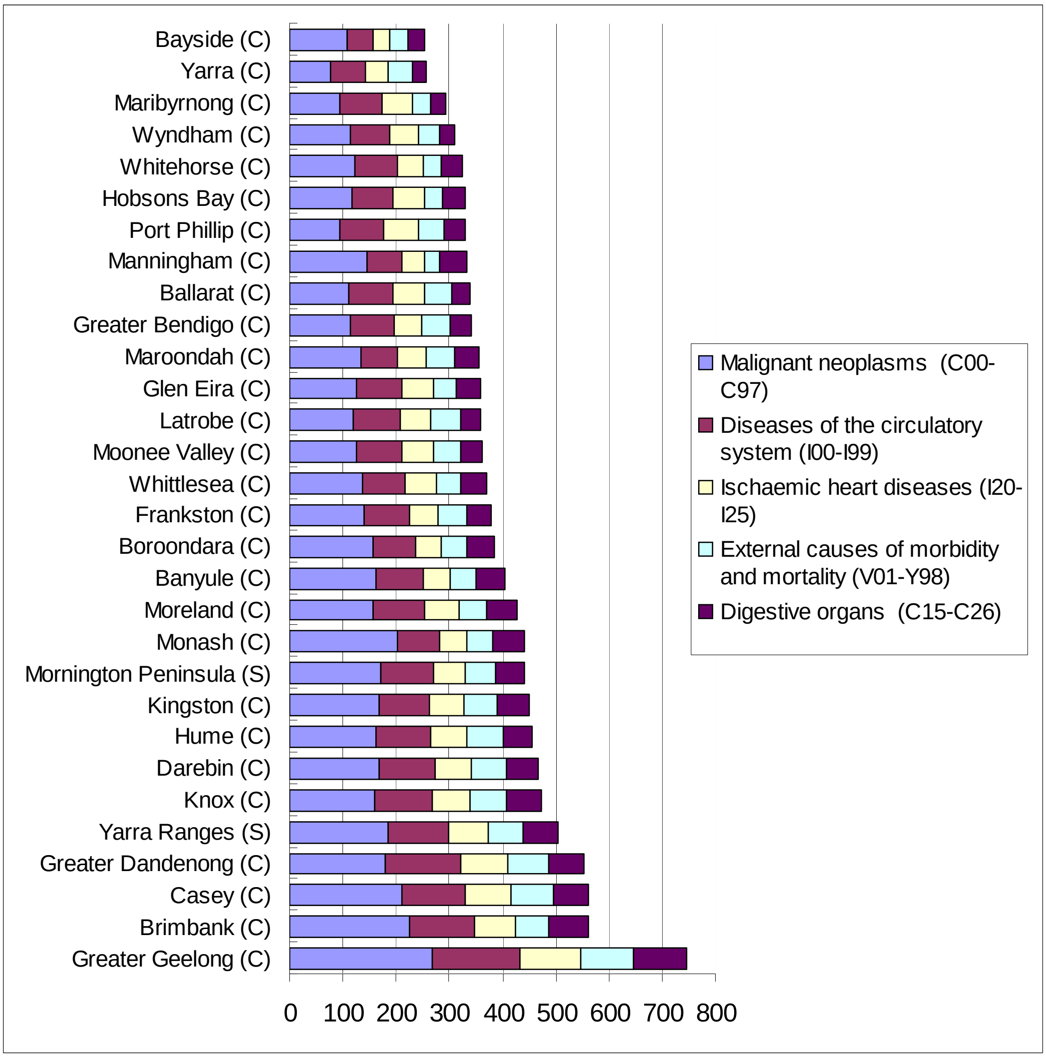

Figure 42. Top five main causes of death among males in the 35-64 year old age group in 30 LGAs.

The top five causes of death for females in the *35-64 year old age group* (see Table 48 presented earlier) were malignant neoplasms (5,521), diseases of the circulatory system (1,333), cancer of the digestive organs (1,183), external causes of morbidity and mortality (821) and all other medical conditions (787). The top 30 LGAs with the highest numbers of deaths from these causes are shown in Figure 43. The top five greatest numbers of deaths from these causes were in Greater Geelong (194), Casey (153), Darebin (152), Mornington Peninsula (147) and Greater Dandenong (146).

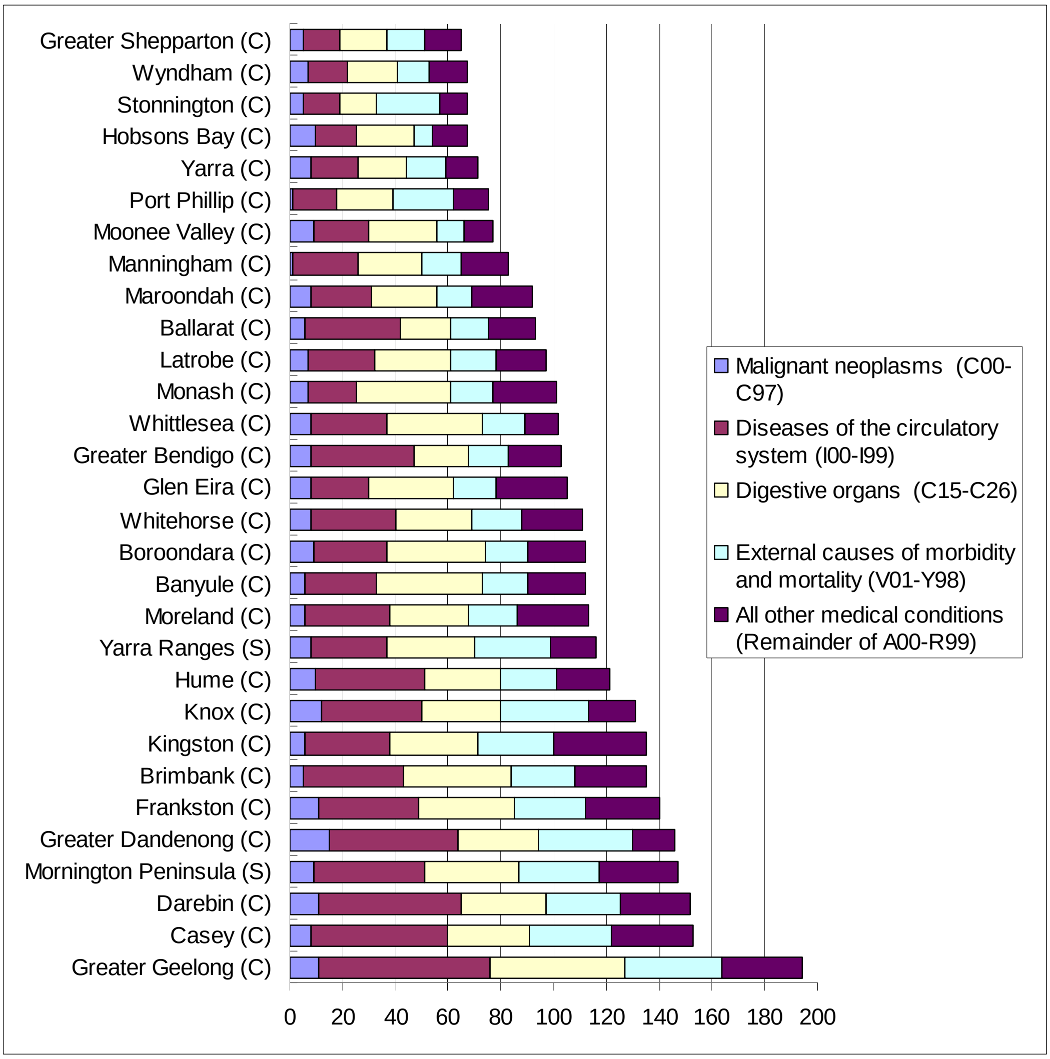

Figure 43. Top five main causes of death among females in the 35-64 year old age group in 30 LGAs.

The top five causes of death for males in the *65+ age group* (see Table 48) were diseases of the circulatory system (23,574), malignant neoplasms (20,090), ischaemic heart diseases (13,245), diseases of the respiratory system (6,585) and all other medical conditions (6,091). The top 30 LGAs with the highest numbers of deaths from these causes are shown in Figure 44.

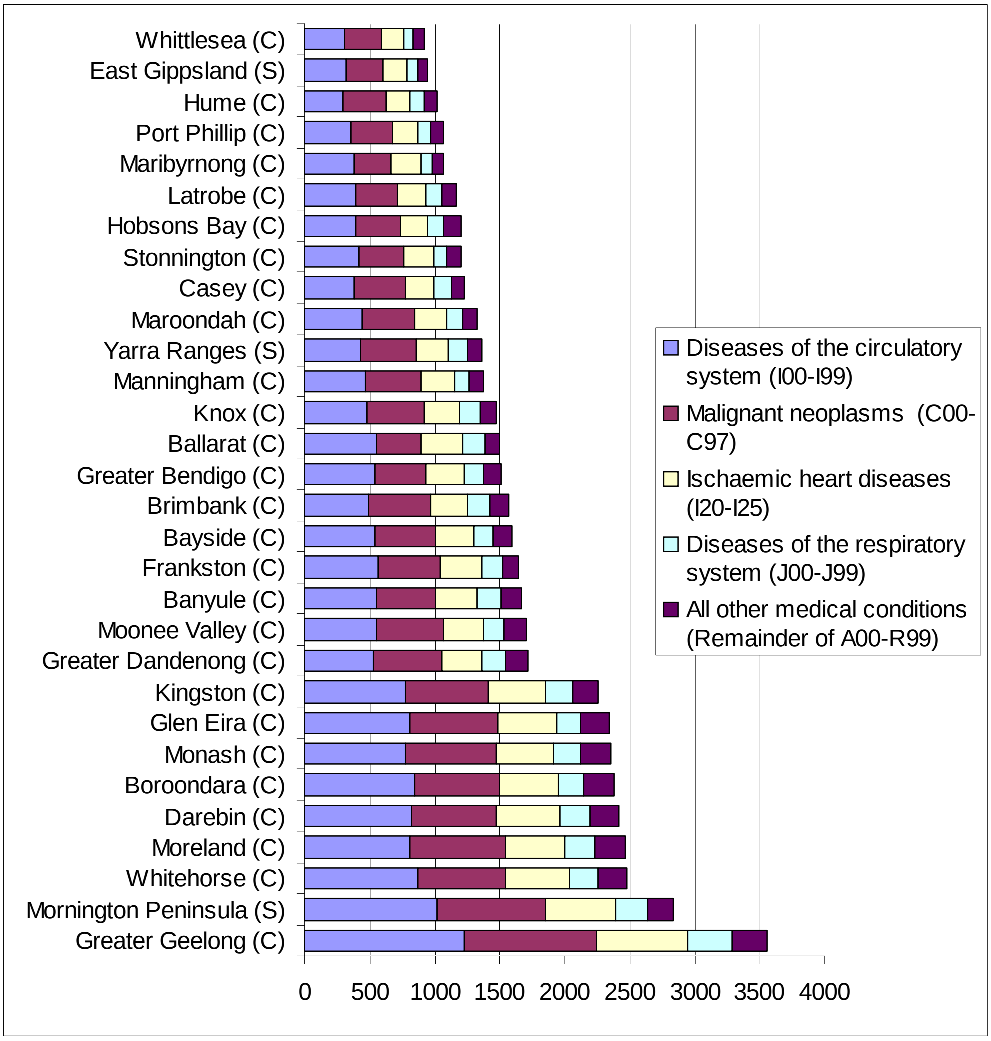

Figure 44. Top five main causes of death among males in the 65+ age group in 30 LGAs.

The top five causes of death for females in the *65+ age group* (see Table 48) were diseases of the circulatory system (29,731), malignant neoplasms (15,723), ischaemic heart diseases (13,873), all other medical conditions (8,475) and cerebrovascular diseases (8,279). The top 30 LGAs with the highest numbers of deaths from these causes are shown in Figure 45.

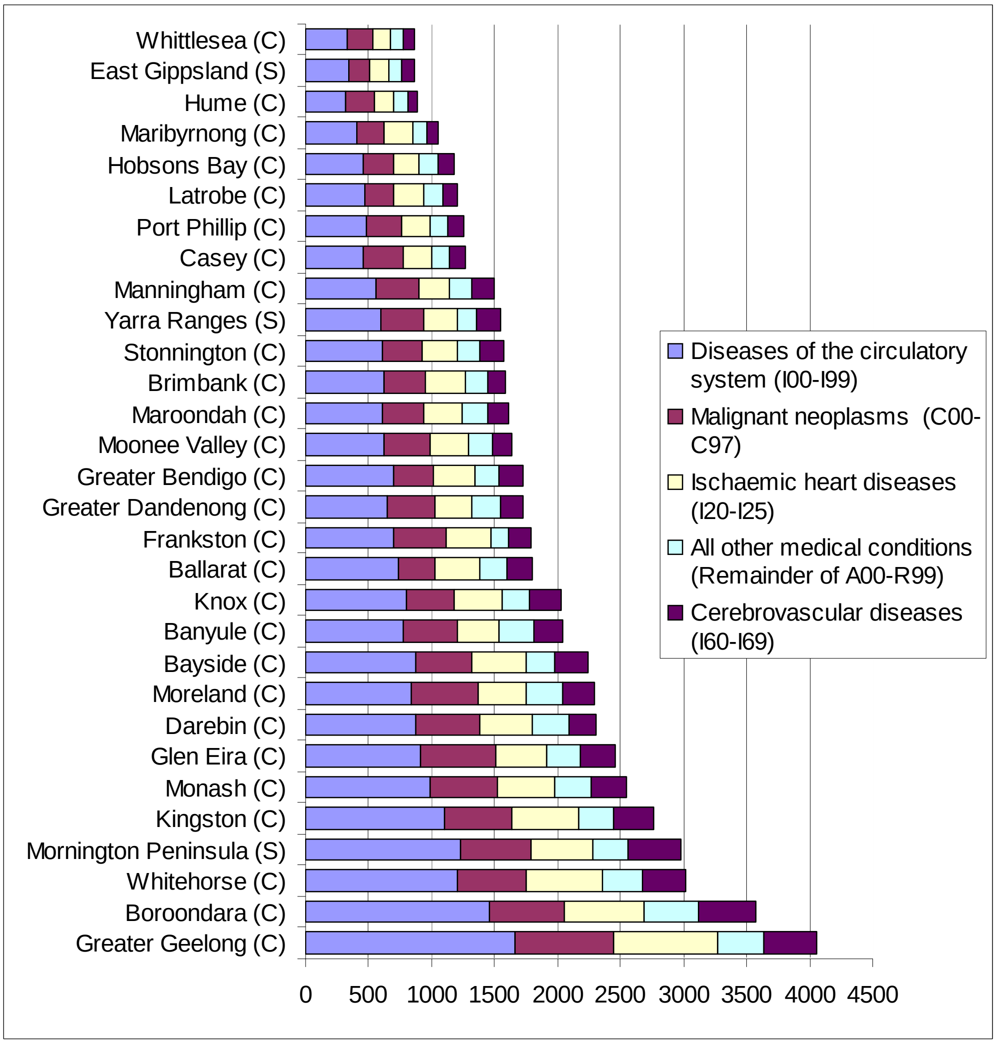

Figure 45. Top five main causes of death among females in the 65+ age group in 30 LGAs.

5.4.5 Hospital Separations and Bed Days in Victorian Communities.

Hospital separation and bed day statistics for the NHPAs for the state of Victoria as a whole were presented at the end of Chapter 4. This section consists of similar statistics for individual communities in Victoria. Age and gender differences in the NHPAs were explored at the state level in Chapter 4 and are not further explored at the LGA level in this section. Once again, the data were generated from the HealthWiz database by the present author and graphs were constructed using Excel. As data for local government areas were not available from HealthWiz, data for statistical local areas (SLAs) are presented in this section. There were over 140 SLAs in the analysis. A full list of the SLAs can be seen in Appendix K.

The main questions guiding the analysis in this section was:

- What are the hospital separation and bed day numbers for each of the NHPAs in Victorian communities?
- Are there any inequalities among communities when compared on the dimensions of overall separations, bed day numbers and NHPAs?

A total of 14 bar charts are presented in this section to address these questions; one for separations and one for bed days for each of the seven NHPAs. Each chart shows only 20 Victorian SLAs, those with the highest number of separations or bed days.

5.4.5.1 Separations and bed-days for arthritic and musculo-skeletal conditions. Figure 46 shows the number and rate of separations for the NHPA - athritic and musculo-skeletal conditions. It may be recalled from Chapter 4 that the total separations for this NHPA for the state was 100,641. SLAs with the highest numbers included Knox (North), Frankston (West) and Whittlesea (South). High rates should also be observed as these indicate high numbers relative to the population size of the SLA. SLAs with the highest rates included Mornington Peninsula (East), Frankston (East) and Gtr Shepparton (PtA).

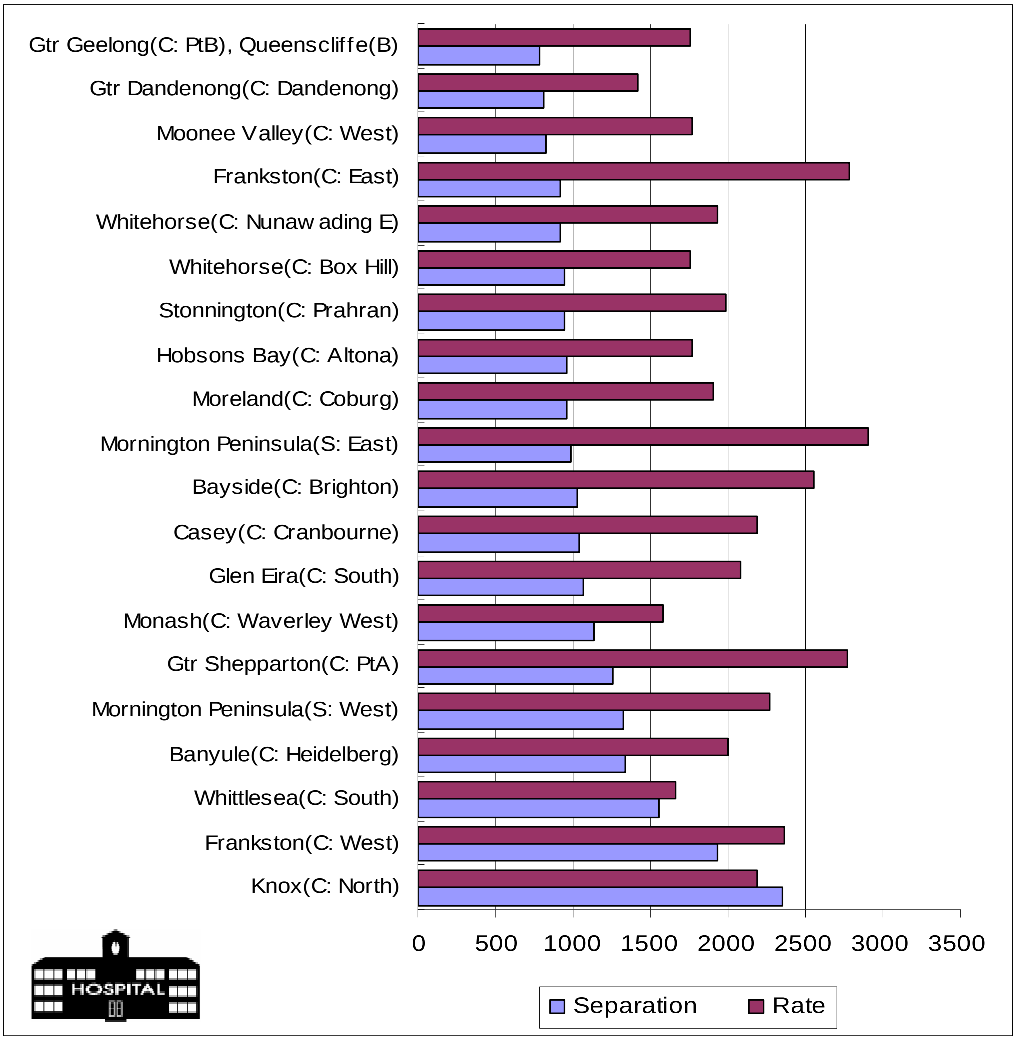

Figure 46. Number and rate of separations for arthritic and musculo-skeletal conditions in top twenty Victorian SLAs.

Figure 47 shows the number and rate of bed days for arthritic and musculo-skeletal conditions. The total number of bed days for this NHPA for the state of Victoria was 339,055. SLAs with the highest numbers included Frankston (West), Knox (North) and Kingston (North). SLAs with the highest rates included Hindmarsh, West Wimmera and Yarriambiack (together) and Frankston (West and East).

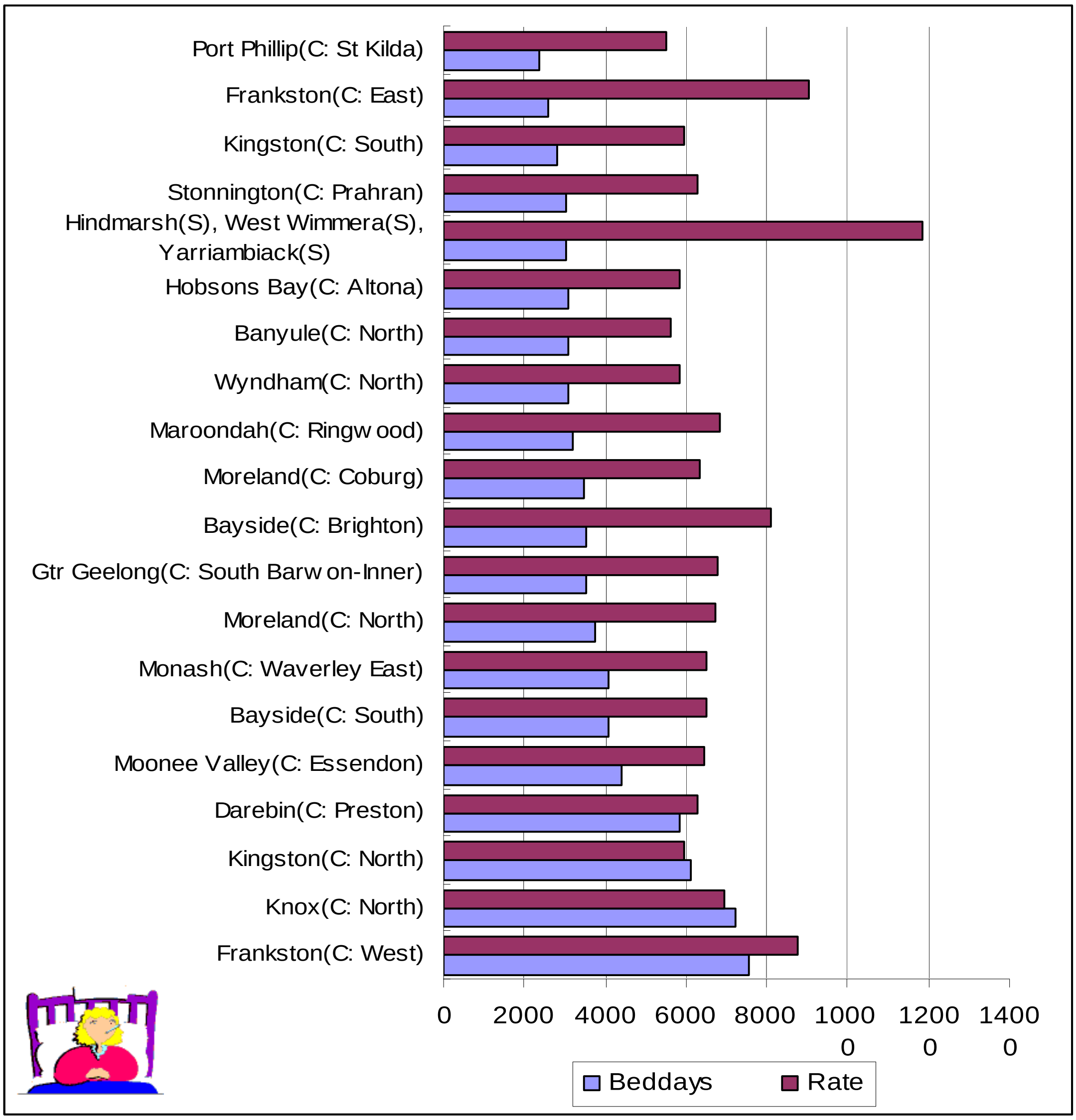

Figure 47. Number and rate of bed days for arthritic and musculo-skeletal conditions in top twenty Victorian SLAs.

5.4.5.2 Separations and bed-days for asthma. The number and rate of separations for asthma is shown in Figure 48. The total number of separations for this NHPA for the state of Victoria was 9,060. SLAs with the highest numbers included Yarra Ranges (South-West), Knox (North) and Casey (Berwick). SLAs with the highest rates included Moira, Warrnambool and Moreland (North).

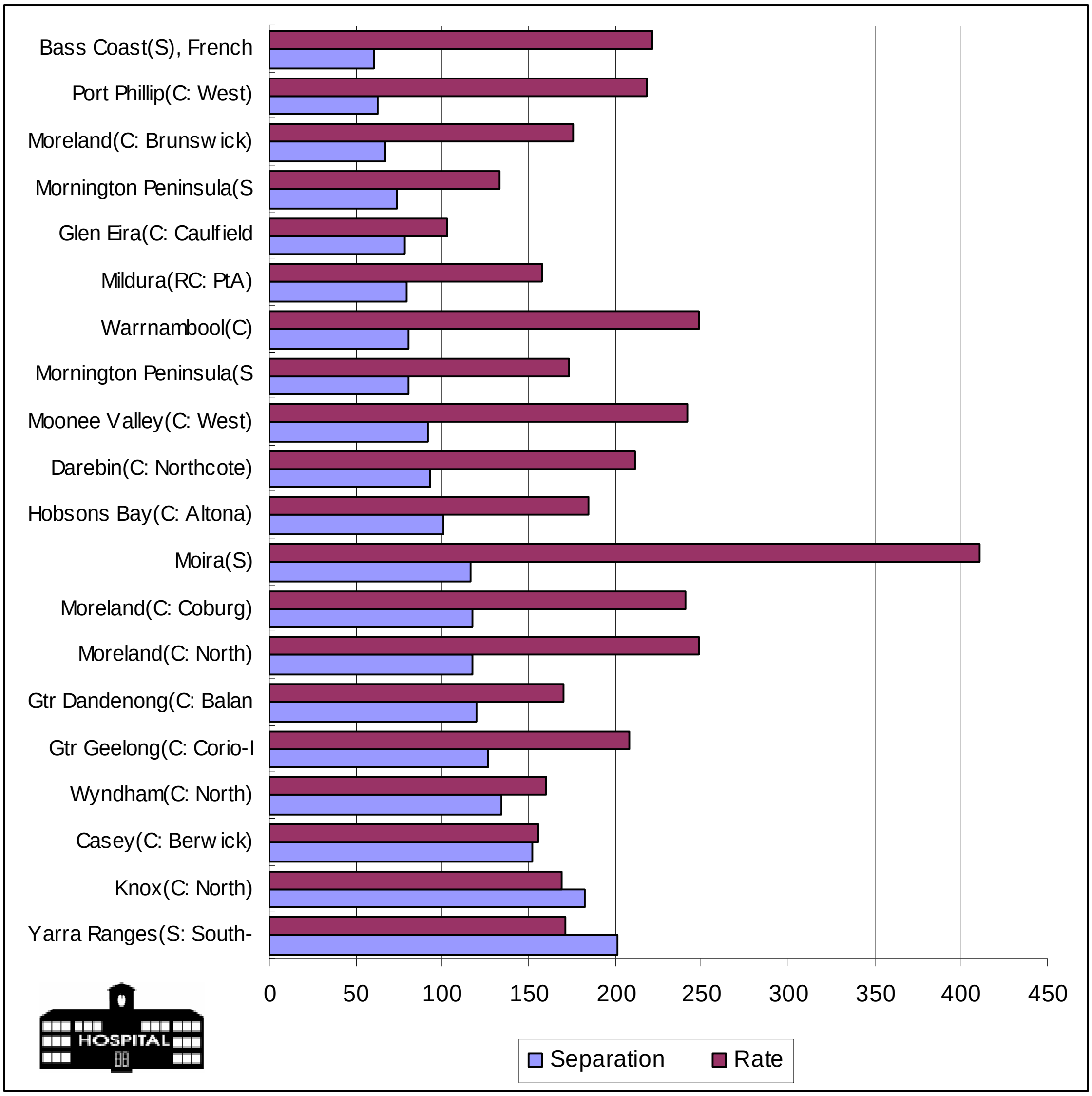

Figure 48. Number and rate of separations for asthma in top twenty Victorian SLAs.

The number and rate of bed days for the NHPA of asthma is shown in Figure 49. The total number of bed days for this NHPA for the state was 20,517. SLAs with the highest numbers included Knox (North), Brimbank (Sunshine) and Maroondah (Croydon). SLAs with the highest rates included Corangamite, Moreland (North) and Maroondah (Croydon).

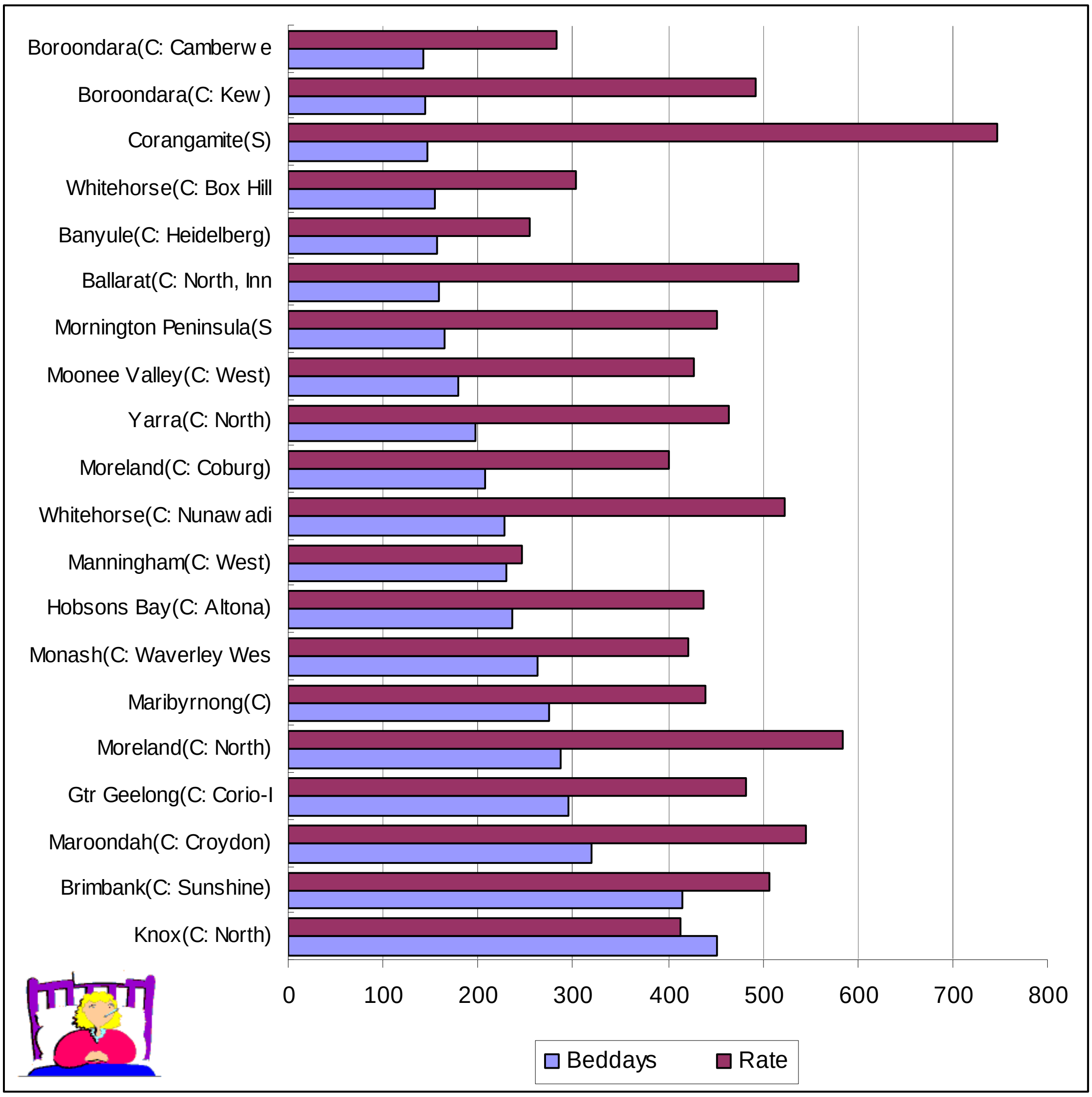

Figure 49. Number and rate of bed days for asthma in top twenty Victorian SLAs.

5.4.5.3 Separations and bed-days for cancer. The number and rate of separations for the NHPA of cancer is shown in Figure 50. The total number of separations for cancer for the state was 84,579. SLAs with the highest numbers included Manningham (West), Kingston (North) and Yarra Ranges (South-West). SLAs with the highest rates included Warrnambool, Maroondah (Croydon) and Banyule (North).

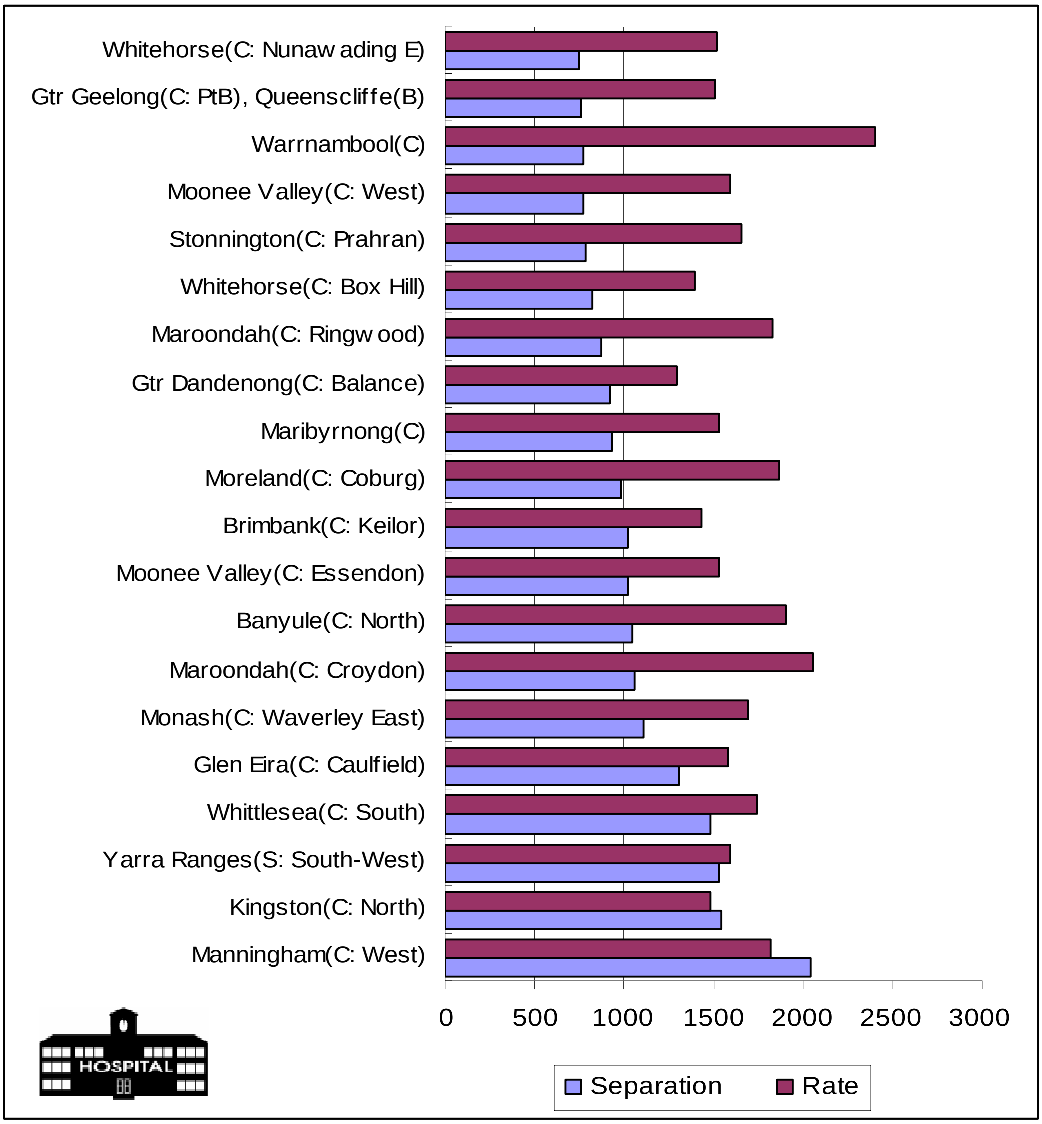

Figure 50. Number and rate of separations for cancer in top twenty Victorian SLAs.

The number and rate of bed days for cancer is shown in Figure 51. The total number of bed days for cancer for the state was 421,077. SLAs with the highest numbers included Whittlesea (South), Knox (North), Kingston (North). SLAs with the highest rates included Warrnambool, Port Phillip (St Kilda) and Moreland (Coburg).

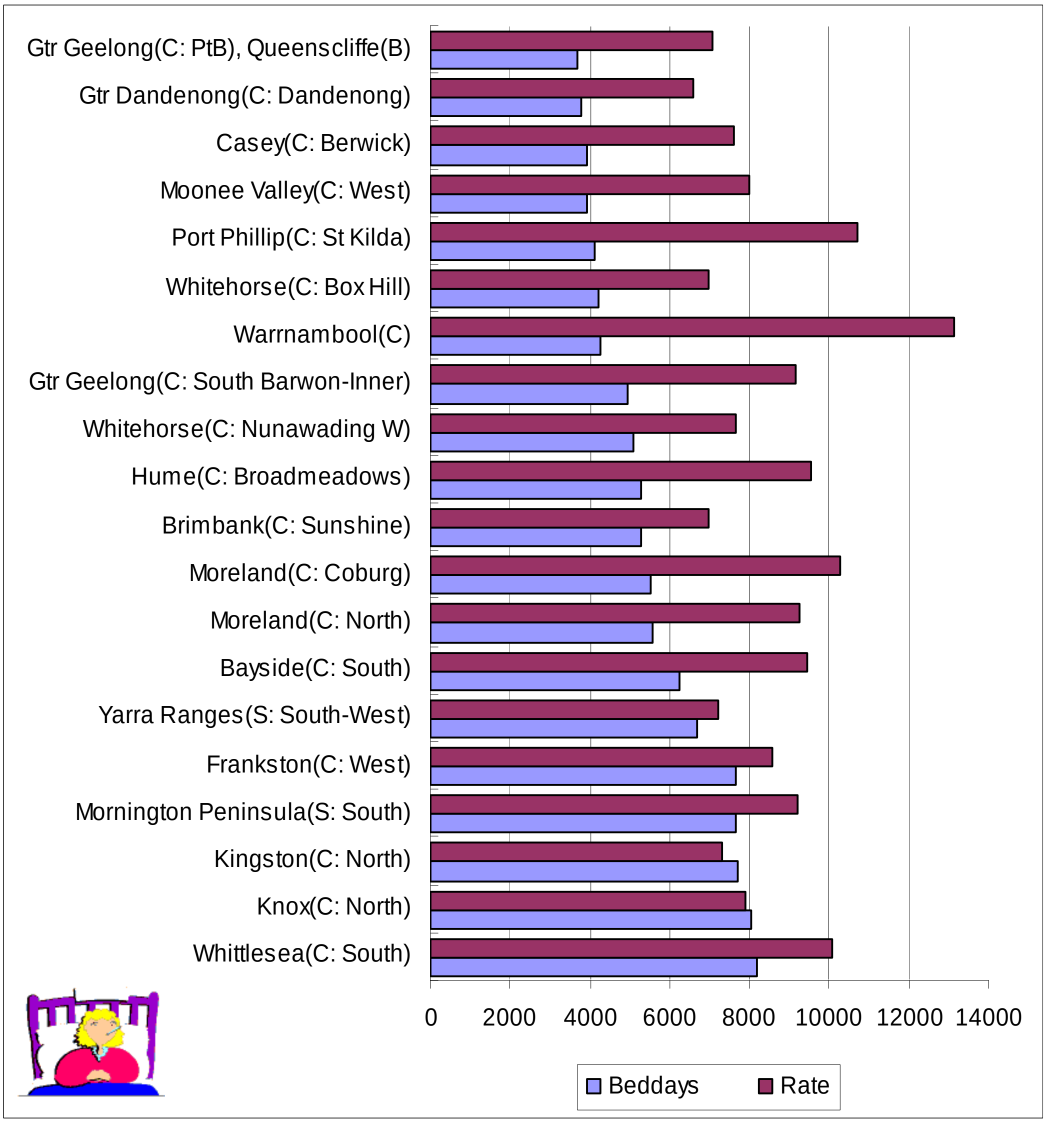

Figure 51. Number and rate of bed days for cancer in top twenty Victorian SLAs.

5.4.5.4 Separations and bed-days for cardiovascular disease. The number and rate of separations for the NHPA of Cardiovascular disease is shown in Figure 52. The total number of separations for this NHPA for the state was 118,902. SLAs with the highest numbers included Mornington Peninsula (South), Manningham (West) and Whittlesea (South). SLAs with the highest rates included Gtr Shepparton (PtA), Mornington Peninsula (South) and Whittlesea (South).

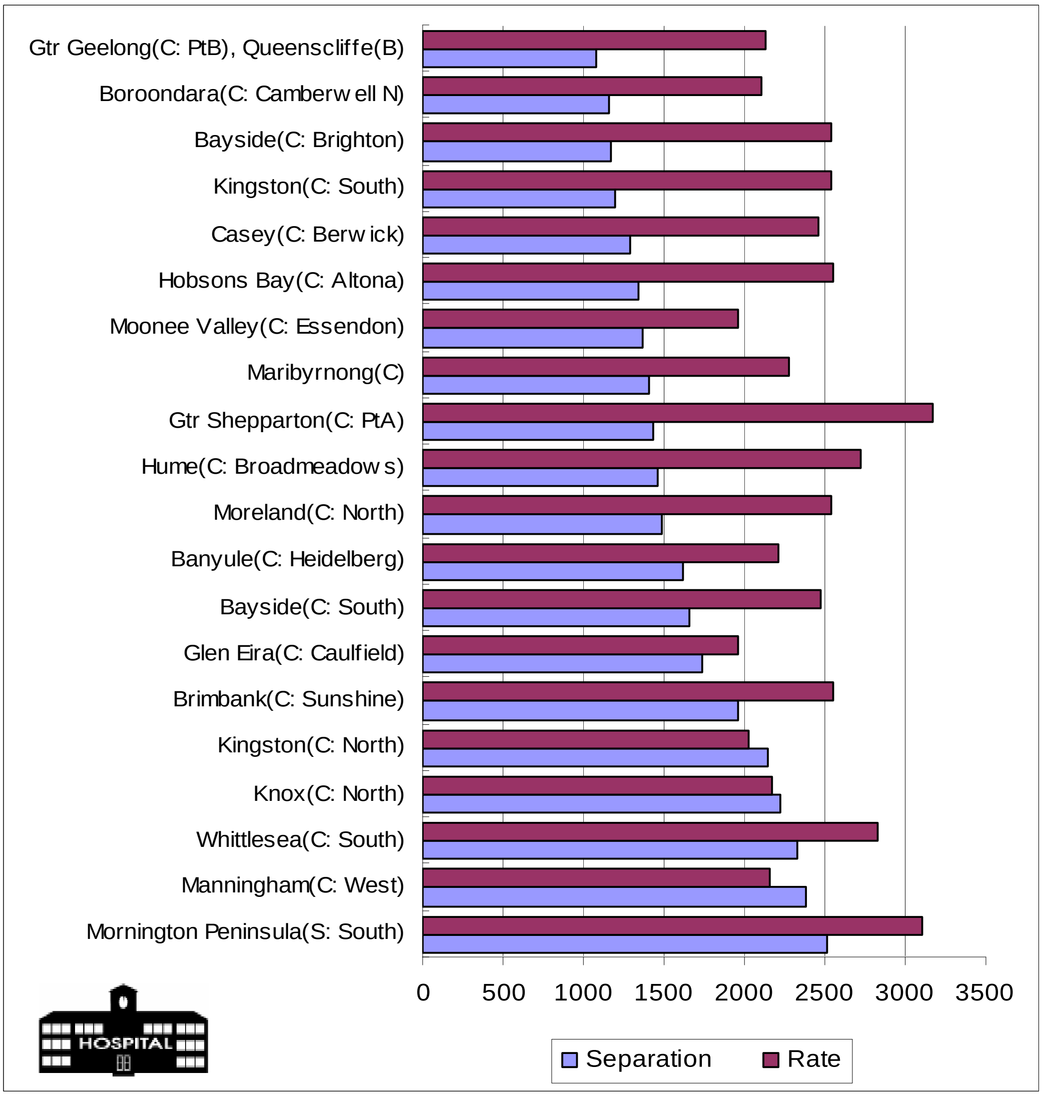

Figure 52. Number and rate of separations for cardiovascular disease in top twenty Victorian SLAs.

The number and rate of bed days for Cardiovascular disease is shown in Figure 53. The total number of bed days for Cardiovascular disease for the state was 561,463. SLAs with the highest numbers included Frankston (West), Kingston (North) and Manningham (West). SLAs with the highest rates included Warrnambool, Hindmarsh, West Wimmera and Yarriambiack, combined, and Gtr Shepparton (PtA).

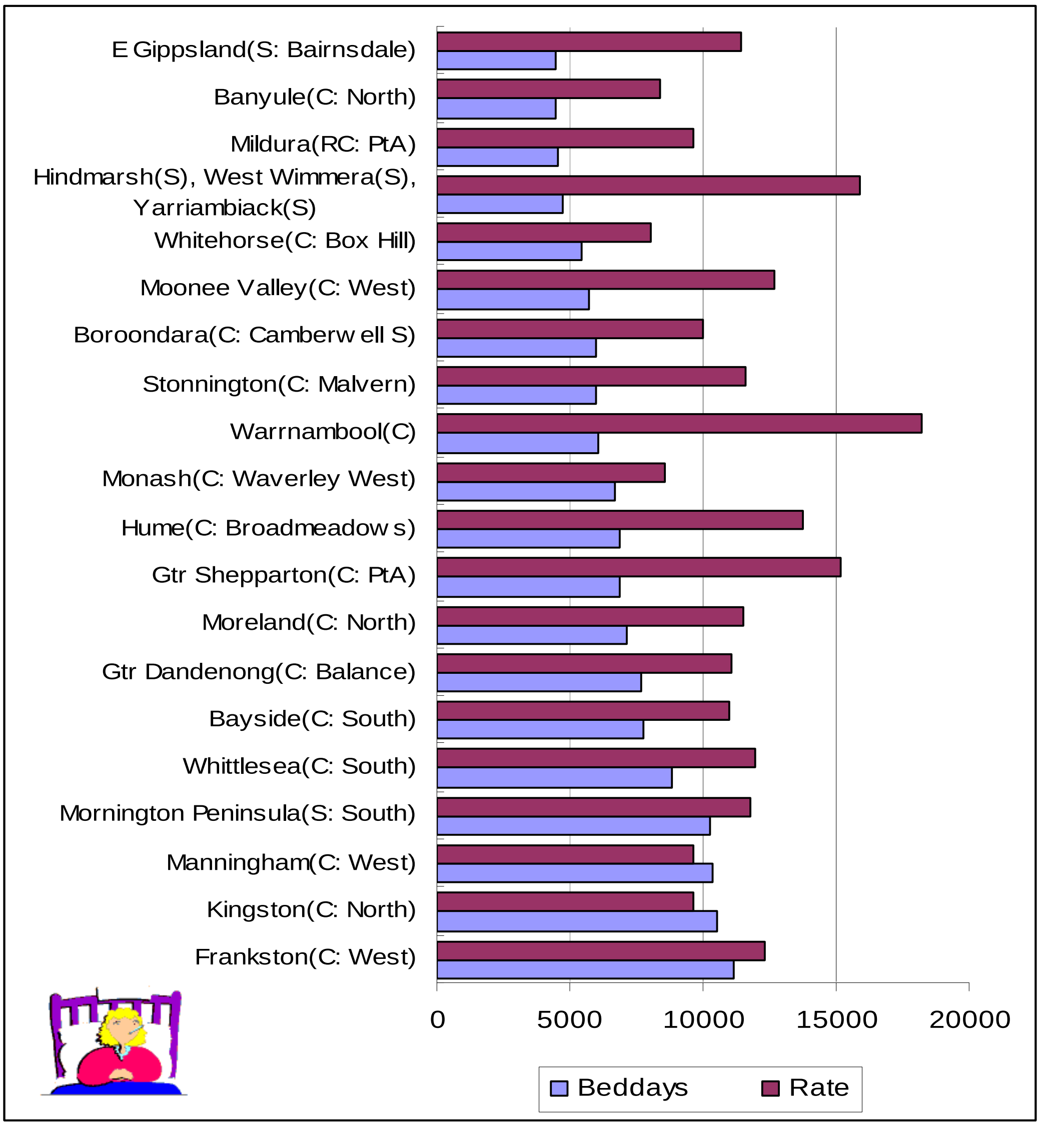

Figure 53. Number and rate of bed days for cardiovascular disease in top twenty Victorian SLAs.

5.4.5.5 Separations and bed-days for diabetes. Figure 54 shows the number and rate of separations for the NHPA of Diabetes. The total number of separations for Diabetes for the state was 18,315. SLAs with the highest numbers included Darebin (Preston), Brimbank (Sunshine) and Whittlesea (South). SLAs with the highest rates included Wyndham (West, South), Casey (Berwick) and Brimbank (Keilor).

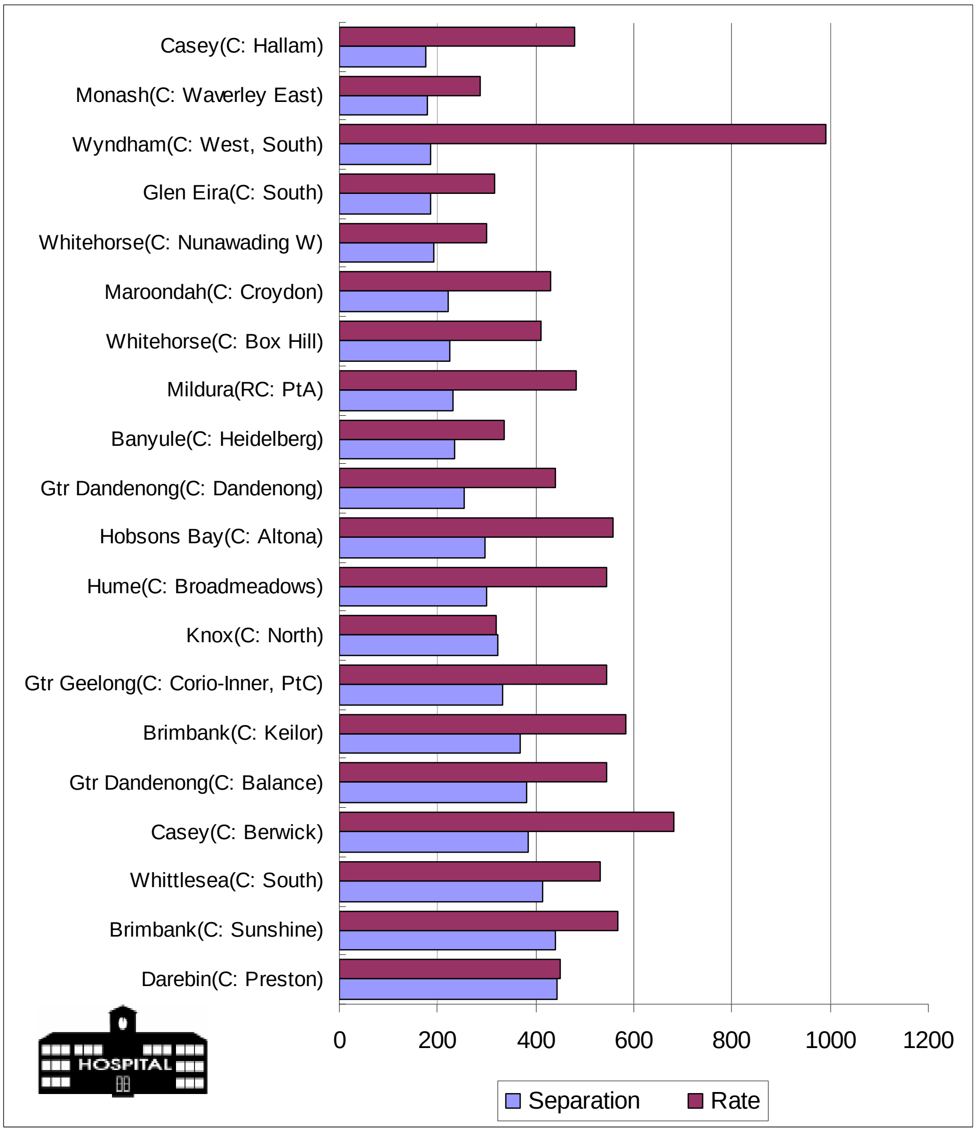

Figure 54. Number and rate of separations for diabetes in top twenty Victorian SLAs.

Figure 55 shows the number and rate of bed days for Diabetes. The total number of bed days for Diabetes for the state was 90,318. SLAs with the highest numbers included Brimbank (both Sunshine and Keilor) and Whittlesea (South). SLAs with the highest rates included Moreland (Coburg) and Brimbank (both Sunshine and Keilor).

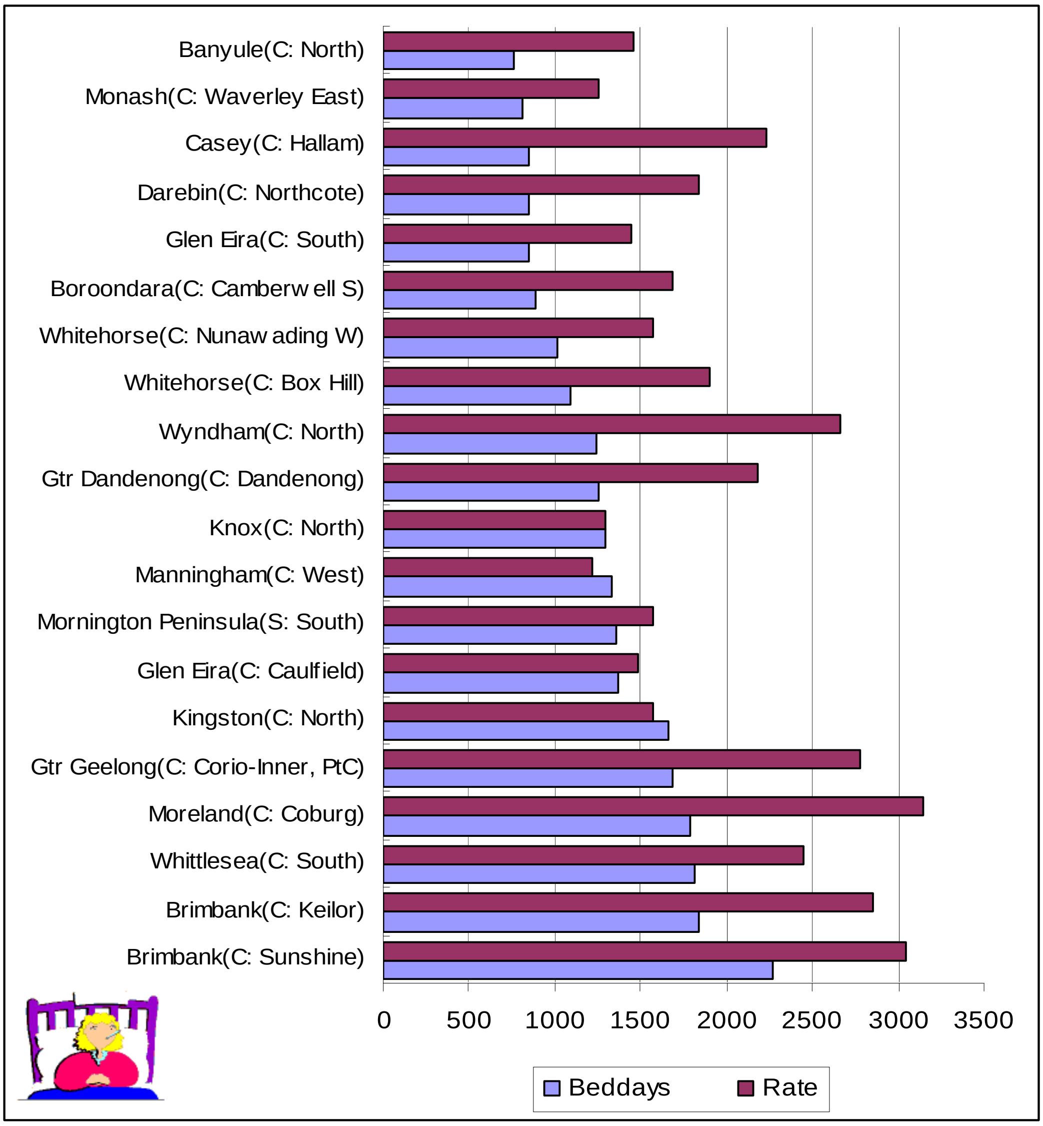

Figure 55. Number and rate of bed days for diabetes in top twenty Victorian SLAs.

5.4.5.6 Separations and bed-days for mental health. Figure 56 shows the number and rate of separations for mental health conditions. The total number of separations for Mental health for the state of Victoria was 83,743. SLAs with the highest numbers included Boroondara (Camberwell S), Knox (North) and Darebin (Preston). SLAs with the highest rates included Boroondara (Camberwell S), Stonnington (Prahran) and Boroondara (Hawthorn).

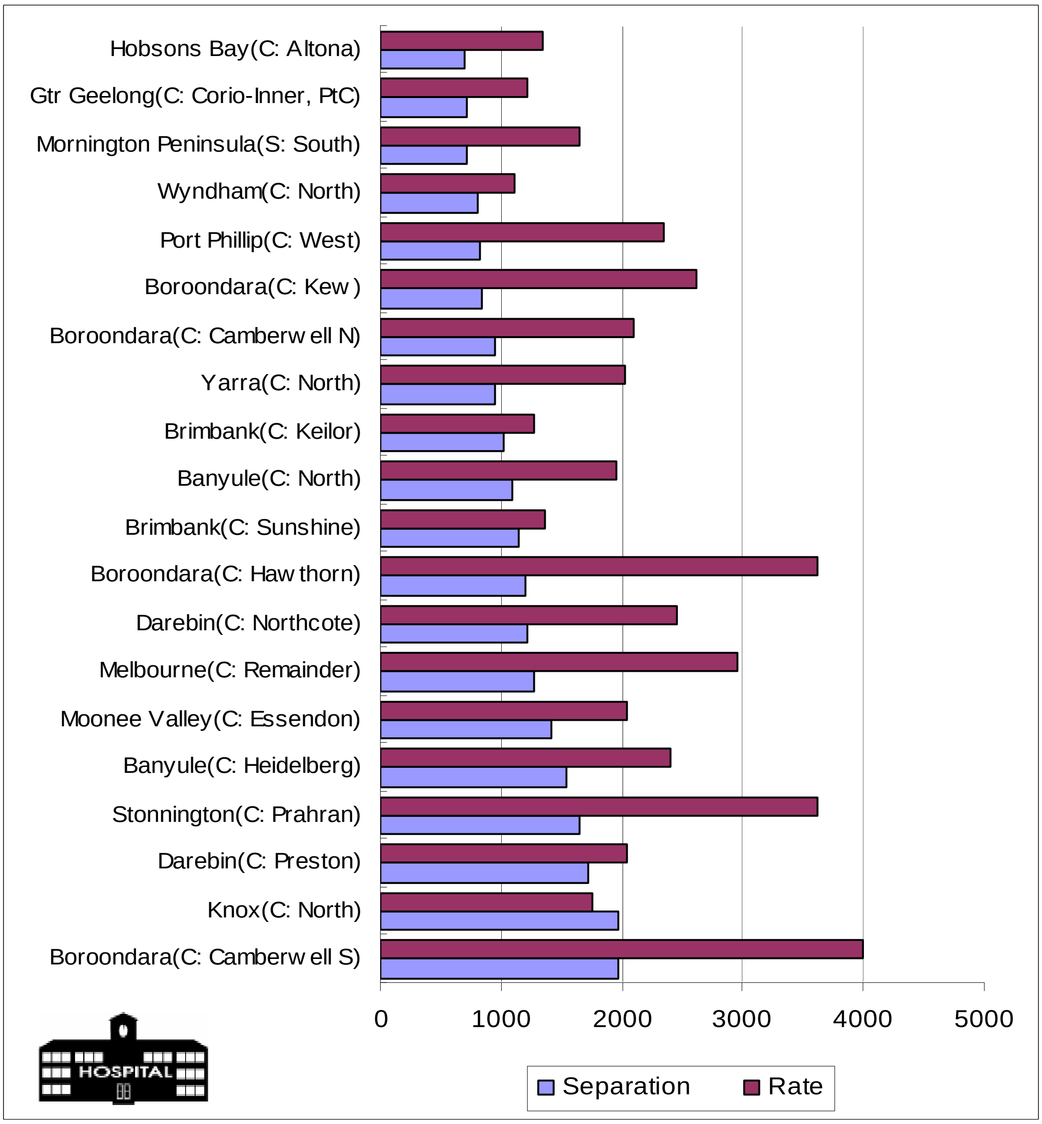

Figure 56. Number and rate of separations for mental health in top twenty Victorian SLAs.

The number and rate of bed days for Mental health is shown in Figure 57. The total number of bed days for Mental health for the state of Victoria was 585,383. SLAs with the highest numbers included Darebin (Northcote), Darebin (Preston) and Brimbank (Sunshine). SLAs with the highest rates included Darebin (Northcote), Melbourne (Remainder) and Port Phillip (St Kilda).

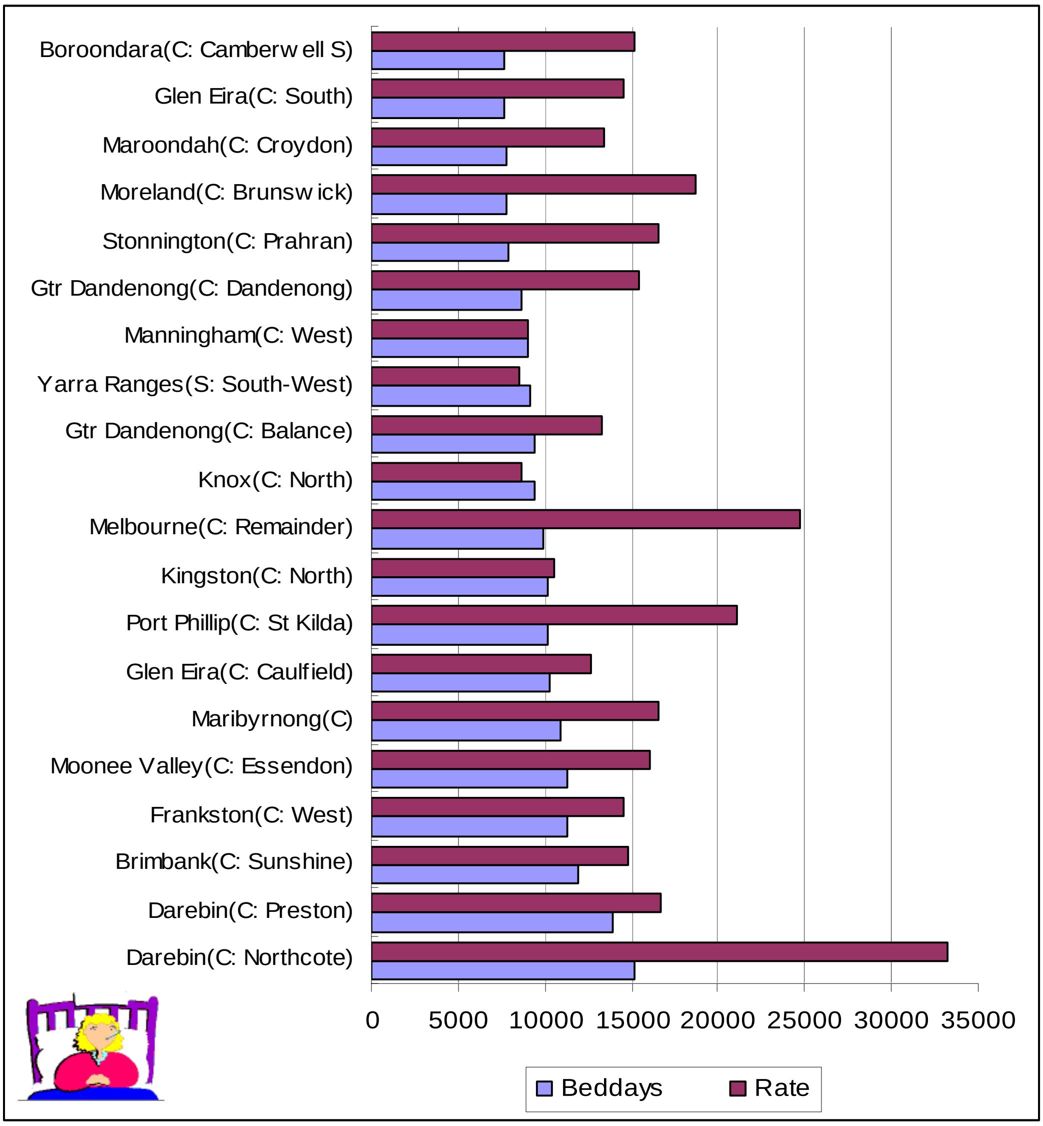

Figure 57. Number and rate of bed days for mental health in top twenty Victorian SLAs.

5.4.5.7 Separations and bed-days for injury prevention and control. The number and rate of separations for the NHPA Injury prevention and control is shown in Figure 58. The total number of separations for this NHPA for the state of Victoria was 112,064. SLAs with the highest numbers included Yarra Ranges (South-West), Kingston (North) and Whittlesea (South). SLAs with the highest rates included Gtr Shepparton (PtA), Yarra Ranges (South-West) and Maroondah (Ringwood).

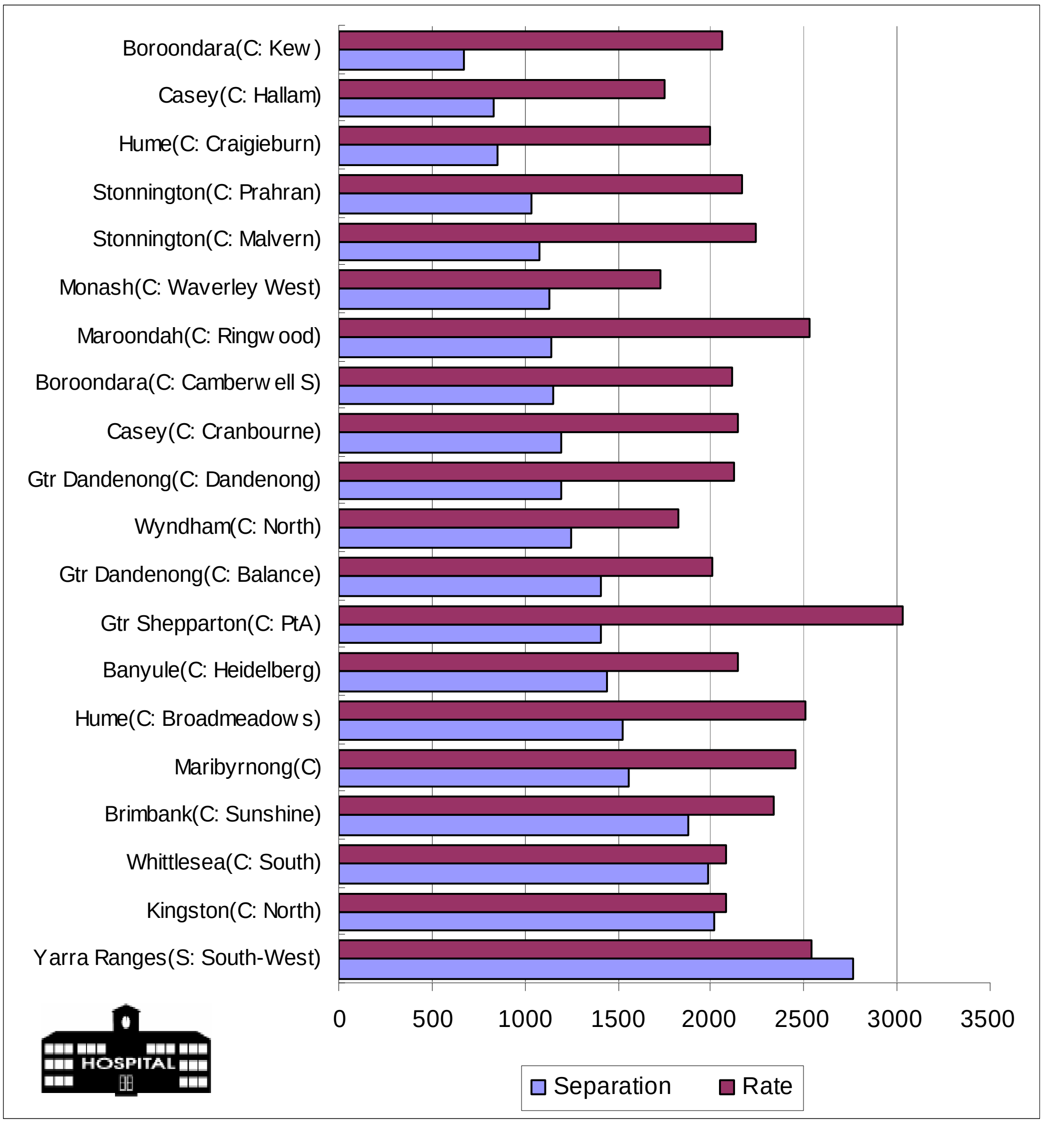

Figure 58. Number and rate of separations for injury prevention and control in top twenty Victorian SLAs.

The number and rate of bed days for Injury prevention and control is shown in Figure 59. The total number of bed days for this NHPA for the state of Victoria was 453,359. SLAs with the highest numbers included Knox (North) Yarra Ranges (South-West) and Kingston (North). SLAs with the highest rates included Mornington Peninsula (East), Kingston (South) and Casey (Cranbourne).

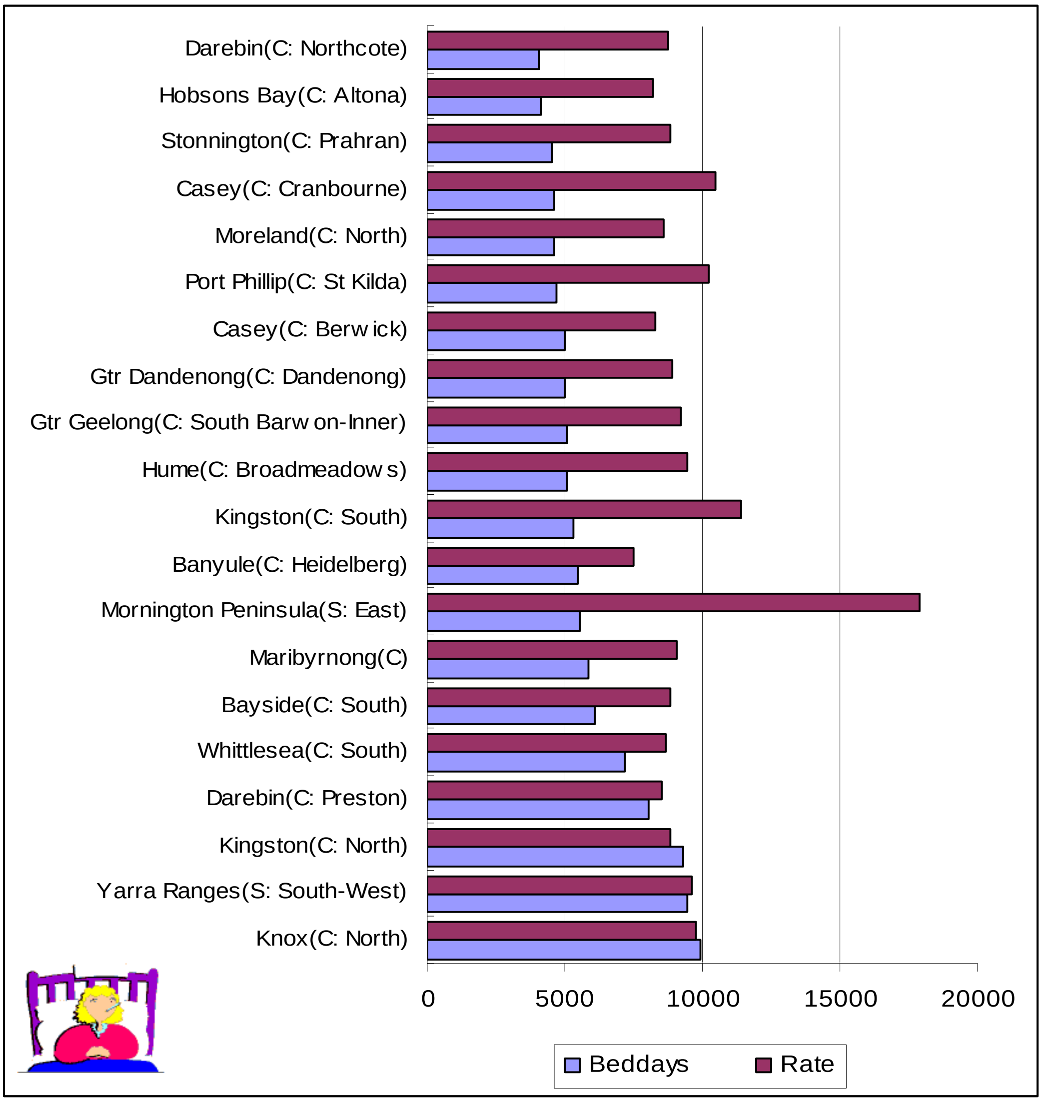

Figure 59. Number and rate of bed days for injury prevention and control in top twenty Victorian SLAs.

5.4.6 Inequalities in Hospitalisations among LGAs. One of the questions posed at the beginning of this section was: Are there any inequalities among communities when compared on the dimensions of: overall separation and bed day numbers and NHPAs? Part of the answer to this question appeared in the preceding 14 graphs, which showed some LGAs/SLAs faring much worse in terms of their hospital separations and bed days. Some LGAs/SLAs appeared again and again for each NHPA while others were not represented in the top twenty at all. Moreover, some LGAs/SLAs had high numbers as well as high rates of separations and bed days.

As discussed elsewhere, high numbers suggest inequalities or differences while high rates may be more indicative of inequities because they point to higher figures than what would be expected relative to the population size. Communities with high numbers may also require additional health and medical services while those with high rates may benefit from more health promotion and education. On the other hand, communities with both high numbers and high rates could need more of both interventions.

Separations represent a person being admitted to hospital while figures relating to bed days indicate how many days the person stays in hospital, and hence, perhaps the seriousness of the condition.

SLAs with high numbers and rates of separations and bed days for each NHPA are shown in the following seven tables. The tables further summarize the information from the previous 14 hospital charts.

Table 49 shows the 10 SLAs sorted by the highest number (column 1) and rate (column 4) of separations and bed days for arthritic and musculo-skeletal conditions. Some of the main findings were that Knox (North) had the highest number of separations while Glenelg(S: Portland) had the highest rate. For bed days, Frankston(C: West) had the highest numbers and Delatite(S: Benalla) had the highest rates.

Table 49

Hospital Separations and Bed Days - Top 10 SLAs for Arthritic and Musculo-Skeletal Conditions

SLAs with highest numbers	No.	Rate	SLAs with highest rates	No.	Rate
Separations					
Knox(C: North)	2,351	2,186	Glenelg(S: Portland)	372	3,384
Frankston(C: West)	1,936	2,361	Campaspe(S: Kyabram)	400	3,057
Whittlesea(C: South)	1,552	1,658	Mildura(RC: PtB), Swan Hill(RC: Robinvale, Bal)	477	3,046
Banyule(C: Heidelberg)	1,338	2,001	Mornington Peninsula(S: East)	991	2,899
Mornington Peninsula(S: West)	1,326	2,272	Frankston(C: East)	918	2,780
Gtr Shepparton(C: PtA)	1,251	2,770	Gtr Shepparton(C: PtA)	1,251	2,770
Monash(C: Waverley West)	1,130	1,576	Glenelg(S: Heywood, North), S Grampians(S: Wannon, Balance)	504	2,763
Glen Eira(C: South)	1,068	2,087	Strathbogie(S)	319	2,653
Casey(C: Cranbourne)	1,042	2,189	Latrobe(C: Morwell, Balance)	673	2,644
Bayside(C: Brighton)	1,025	2,552	Warrnambool(C)	779	2,565
Bed days					
Frankston(C: West)	7,545	8,743	Delatite(S: Benalla)	1,640	13,512
Knox(C: North)	7,245	6,939	Wyndham(C: West, South)	1,994	12,336
Kingston(C: North)	6,130	5,953	Hindmarsh(S), West Wimmera(S), Yarriambiack(S)	3,026	11,854
Darebin(C: Preston)	5,869	6,261	Glenelg(S: Portland)	1,251	10,965
Moonee Valley(C: Essendon)	4,412	6,467	Wangaratta(RC: Central)	1,871	9,985
Bayside(C: South)	4,103	6,485	Moorabool(S: Ballan, West)	873	9,738
Monash(C: Waverley East)	4,093	6,493	Gtr Shepparton(C: PtB)	1,216	9,451
Moreland(C: North)	3,770	6,738	Buloke(S), Loddon(S)	1,901	9,051
Gtr Geelong(C: South Barwon-Inner)	3,538	6,761	Frankston(C: East)	2,573	9,042
Bayside(C: Brighton)	3,520	8,082	Frankston(C: West)	7,545	8,743

Note. (C): City; (S): Shire. (RC): Rural City; (B); Borough. See Appendix J for HealthWiz query design notes associated with the above data.

Table 50 shows the 10 SLAs sorted by the highest number and rate of bed days for *asthma*. The table shows that Yarra Ranges (South-West) had the highest number and Moira had the highest rate. For bed days, Knox(C: North) had the highest numbers and Ararat(RC) had the highest rate.

Table 50

Hospital Separations and Bed Days - Top 10 SLAs for Asthma

SLAs with highest numbers	**No.**	**Rate**	**SLAs with highest rates**	**No.**	**Rate**
Separations					
Yarra Ranges(S: South-West)	201	171	Moira(S)	116	411
Knox(C: North)	183	169	Glenelg(S: Portland)	30	271
Casey(C: Berwick)	152	156	Moreland(C: North)	118	248
Wyndham(C: North)	134	160	Warrnambool(C)	81	248
Gtr Geelong(C: Corio-Inner, PtC)	126	209	Moonee Valley(C: West)	92	242
Gtr Dandenong(C: Balance)	120	170	Moreland(C: Coburg)	117	241
Moreland(C: North)	118	248	Yarra(C: Richmond)	44	235
Moreland(C: Coburg)	117	241	Gtr Geelong(C: Geelong West)	31	229
Moira(S)	116	411	Bass Coast(S), French Island	61	222
Hobsons Bay(C: Altona)	101	185	Port Phillip(C: West)	63	218
Bed days					
Knox(C: North)	451	413	Ararat(RC)	118	974
Brimbank(C: Sunshine)	416	507	Wellington(S: Avon, Maffra)	123	872
Maroondah(C: Croydon)	319	546	Campaspe(S: Kyabram)	111	855
Gtr Geelong(C: Corio-Inner, PtC)	295	483	Corangamite(S)	147	747
Moreland(C: North)	287	584	Gtr Geelong(C: Geelong)	68	627
Maribyrnong(C)	274	440	Moreland(C: North)	287	584
Monash(C: Waverley West)	262	422	South Grampians(S: Hamilton)	53	577
Hobsons Bay(C: Altona)	236	438	Maroondah(C: Croydon)	319	546
Manningham(C: West)	230	247	Ballarat(C: North, Inner North)	159	538
Whitehorse(C: Nunawading E)	228	522	Gtr Shepparton(C: PtB)	69	531

Note: (C): City; (S): Shire. (RC): Rural City; (B); Borough. See Appendix J for HealthWiz query design notes associated with the above data.

Table 51 shows the 10 SLAs sorted by the highest number and rate of bed days for cancer. It shows that Manningham (West) had the highest number of separations while Warrnambool had the highest rate. For bed days, Whittlesea(C: South) had the highest number of cancer bed days while Warrnambool(C) had the highest rate.

Table 51

Hospital Separations and Bed Days - Top 10 SLAs for Cancer

SLAs with highest numbers	No.	Rate	SLAs with highest rates	No.	Rate
Separations					
Manningham(C: West)	2,040	1,816	Warrnambool(C)	767	2,399
Kingston(C: North)	1,539	1,486	Maroondah(C: Croydon)	1,056	2,057
Yarra Ranges(S: South-West)	1,528	1,595	Gtr Bendigo(C: Eaglehawk, Inner North)	375	2,056
Whittlesea(C: South)	1,479	1,747	North Grampians, Pyrenees(S)	455	1,948
Glen Eira(C: Caulfield)	1,305	1,581	Gtr Geelong(C: Bellarine-Inner)	478	1,910
Monash(C: Waverley East)	1,103	1,697	Manningham(C: East)	222	1,905
Maroondah(C: Croydon)	1,056	2,057	Banyule(C: North)	1,049	1,903
Banyule(C: North)	1,049	1,903	Gtr Shepparton(C: PtB)	250	1,902
Moonee Valley(C: Essendon)	1,024	1,533	Wangaratta(RC: Central)	371	1,882
Brimbank(C: Keilor)	1,016	1,428	Central Goldfields(S)	345	1,879
Bed days					
Whittlesea(C: South)	8,172	10,097	Warrnambool(C)	4,247	13,147
Knox(C: North)	8,042	7,883	Wyndham(C: West, South)	2,372	12,945
Kingston(C: North)	7,726	7,320	Glenelg(S: Heywood, North), S Grampians(S: Wannon, Balance)	2,358	12,386
Mornington Peninsula(S: South)	7,672	9,224	Gtr Bendigo(C: Inner West)	1,726	12,094
Frankston(C: West)	7,669	8,551	Cardinia(S: Pakenham, South)	2,875	11,960
Yarra Ranges(S: South-West)	6,690	7,213	Ballarat(C: South)	2,279	11,029
Bayside(C: South)	6,256	9,462	Gtr Geelong(C: Geelong)	1,381	10,803
Moreland(C: North)	5,582	9,248	Nillumbik(S: Balance)	682	10,704
Moreland(C: Coburg)	5,500	10,247	Port Phillip(C: St Kilda)	4,128	10,698
Brimbank(C: Sunshine)	5,280	6,959	Moreland(C: Coburg)	5,500	10,247

Note. (C): City; (S): Shire. (RC): Rural City; (B); Borough. See Appendix J for HealthWiz query design notes associated with the above data.

Table 52 shows the 10 SLAs sorted by the highest number and rate of separations and bed days for c*ardiovascular disease*. For separations, Mornington Peninsula (S: South) had the highest number and Gtr Bendigo(C: Inner West) had the highest rate. Frankston(C: West) had the highest number of bed days for cardiovascular disease while Melton(S: East) had the highest rate.

Table 52

Hospital Separations and Bed Days - Top 10 SLAs for Cardiovascular Disease

SLAs with highest numbers	**No.**	**Rate**	**SLAs with highest rates**	**No.**	**Rate**
Separations					
Mornington Peninsula(S: South)	2,509	3,111	Gtr Bendigo(C: Inner West)	535	3,807
Manningham(C: West)	2,381	2,161	Wyndham(C: West, South)	619	3,615
Whittlesea(C: South)	2,328	2,829	Campaspe(S: Kyabram)	468	3,259
Knox(C: North)	2,228	2,170	Frankston(C: East)	857	3,217
Kingston(C: North)	2,144	2,026	Gtr Shepparton(C: PtA)	1,438	3,167
Brimbank(C: Sunshine)	1,959	2,550	Mornington Peninsula(S: South)	2,509	3,111
Glen Eira(C: Caulfield)	1,738	1,960	Gtr Shepparton(C: PtB)	396	3,100
Bayside(C: South)	1,660	2,471	Mornington Peninsula(S: East)	956	3,083
Banyule(C: Heidelberg)	1,624	2,209	Campaspe(S: Echuca)	425	2,965
Moreland(C: North)	1,490	2,544	Hume(C: Craigieburn)	700	2,894
Bed days					
Frankston(C: West)	11,175	12,280	Melton(S: East)	1,836	27,901
Kingston(C: North)	10,531	9,637	Campaspe(S: Rochester, South)	2,566	18,422
Manningham(C: West)	10,323	9,671	Warrnambool(C)	6,097	18,216
Mornington Peninsula(S: South)	10,257	11,792	Campaspe(S: Kyabram)	2,628	17,805
Whittlesea(C: South)	8,809	11,960	Ballarat(C: South)	3,484	17,696
Bayside(C: South)	7,803	10,952	Golden Plains(S)	1,815	16,042
Gtr Dandenong(C: Balance)	7,666	11,080	Hindmarsh(S), West Wimmera(S), Yarriambiack(S)	4,742	15,850
Moreland(C: North)	7,138	11,479	Wangaratta(RC: Central)	3,307	15,636
Gtr Shepparton(C: PtA)	6,911	15,190	Central Goldfields(S)	2,889	15,241
Hume(C: Broadmeadows)	6,870	13,785	Gtr Shepparton(C: PtA)	6,911	15,190

Note. (C): City; (S): Shire. (RC): Rural City; (B); Borough. See Appendix J for HealthWiz query design notes associated with the above data.

Table 53 shows the 10 SLAs sorted by the highest number and rate of separations and bed days for diabetes. Darebin(C: Preston) had the highest number of separations for diabetes while Casey(C: Berwick) had the highest rate. For bed days, Brimbank(C: Sunshine) had the highest number as well as the highest rate.

Table 53

Hospital Separations and Bed Days - Top 10 SLAs for Diabetes

SLAs with highest numbers	**No.**	**Rate**	**SLAs with highest rates**	**No.**	**Rate**
Separations					
Darebin(C: Preston)	444	451	Wyndham(C: West, South)	185	990
Brimbank(C: Sunshine)	439	569	Casey(C: Berwick)	384	680
Whittlesea(C: South)	413	532	Knox(C: South)	120	680
Casey(C: Berwick)	384	680	Frankston(C: East)	172	614
Gtr Dandenong(C: Balance)	381	543	Brimbank(C: Keilor)	367	584
Brimbank(C: Keilor)	367	584	Brimbank(C: Sunshine)	439	569
Gtr Geelong(C: Corio-Inner, PtC)	333	546	Hobsons Bay(C: Altona)	296	558
Knox(C: North)	322	319	Hindmarsh(S), West Wimmera(S), Yarriambiack(S)	137	547
Hume(C: Broadmeadows)	301	546	Hume(C: Broadmeadows)	301	546
Hobsons Bay(C: Altona)	296	558	Gtr Geelong(C: Corio-Inner, PtC)	333	546
Bed days					
Brimbank(C: Sunshine)	2,272	3,040	Moorabool(S: Ballan, West)	319	3,464
Brimbank(C: Keilor)	1,841	2,859	Moreland(C: Coburg)	1,785	3,149
Whittlesea(C: South)	1,816	2,454	Brimbank(C: Sunshine)	2,272	3,040
Moreland(C: Coburg)	1,785	3,149	Brimbank(C: Keilor)	1,841	2,859
Gtr Geelong(C: Corio-Inner, PtC)	1,687	2,782	Mitchell(S: South)	368	2,797
Kingston(C: North)	1,658	1,568	Gtr Geelong(C: Corio-Inner, PtC)	1,687	2,782
Glen Eira(C: Caulfield)	1,368	1,489	Wyndham(C: North)	1,246	2,658
Mornington Peninsula(S: South)	1,360	1,574	South Grampians(S: Hamilton)	290	2,479
Manningham(C: West)	1,326	1,214	Frankston(C: East)	627	2,476
Knox(C: North)	1,298	1,296	Whittlesea(C: South)	1,816	2,454

Note. (C): City; (S): Shire. (RC): Rural City; (B); Borough. See Appendix J for HealthWiz query design notes associated with the above data.

Table 54 shows the 10 SLAs sorted by the highest number and rate of separations and bed days for *injury prevention and control.* For separations, Yarra Ranges(S: South-West) had the greatest number while Corangamite(S) had the greatest rate. For bed days, Knox(C: North) had the highest number and Melton(S: East) had the highest rate.

Table 54

Hospital Separations and Bed Days - Top 10 SLAs for Injury

SLAs with highest numbers	No.	Rate	SLAs with highest rates	No.	Rate
Separations					
Yarra Ranges(S: South-West)	2,767	2,543	Corangamite(S)	576	3,282
Kingston(C: North)	2,014	2,081	Gtr Shepparton(C: PtA)	1,410	3,028
Whittlesea(C: South)	1,989	2,082	Melton(S: East)	539	2,987
Brimbank(C: Sunshine)	1,874	2,334	Gtr Geelong(C: Newtown)	293	2,831
Maribyrnong(C)	1,556	2,451	Horsham(RC)	501	2,660
Hume(C: Broadmeadows)	1,530	2,510	Mildura(RC: PtB), Swan Hill(RC: Robinvale, Bal)	382	2,565
Banyule(C: Heidelberg)	1,442	2,140	Yarra Ranges(S: South-West)	2,767	2,543
Gtr Shepparton(C: PtA)	1,410	3,028	Maroondah(C: Ringwood)	1,137	2,525
Gtr Dandenong(C: Balance)	1,409	2,006	Hume(C: Broadmeadows)	1,530	2,510
Wyndham(C: North)	1,251	1,823	Maribyrnong(C)	1,556	2,451
Bed days					
Knox(C: North)	9,931	9,749	Melton(S: East)	1,727	20,633
Yarra Ranges(S: South-West)	9,437	9,635	Mornington Peninsula(S: East)	5,573	17,877
Kingston(C: North)	9,305	8,843	Buloke(S), Loddon(S)	2,869	14,181
Darebin(C: Preston)	8,008	8,491	Melton(S: Balance)	3,479	13,534
Whittlesea(C: South)	7,195	8,698	Frankston(C: East)	3,690	13,289
Bayside(C: South)	6,068	8,829	Hindmarsh(S), West Wimmera(S), Yarriambiack(S)	3,153	12,391
Maribyrnong(C)	5,824	9,077	Ballarat(C: South)	2,470	12,069
Mornington Peninsula(S: East)	5,573	17,877	Campaspe(S: Rochester, South)	1,579	12,062
Banyule(C: Heidelberg)	5,506	7,464	Warrnambool(C)	3,906	11,881
Kingston(C: South)	5,325	11,437	Central Goldfields(S)	1,927	11,602

Note. (C): City; (S): Shire. (RC): Rural City; (B); Borough. See Appendix J for HealthWiz query design notes associated with the above data.

Table 55 shows the 10 SLAs sorted by the highest number and rate of separations and bed days for *Mental health*. For separations, Boroondara(C: Camberwell S) had the highest number and rate for mental health conditions. For bed days, Darebin(C: Northcote) had both the highest number and rate.

Table 55

Hospital Separations and Bed Days - Top 10 SLAs for Mental Health

SLAs with highest numbers	**No.**	**Rate**	**SLAs with highest rates**	**No.**	**Rate**
Separations					
Boroondara(C: Camberwell S)	1,969	3,992	Boroondara(C: Camberwell S)	1,969	3,992
Knox(C: North)	1,966	1,756	Stonnington(C: Prahran)	1,644	3,621
Darebin(C: Preston)	1,717	2,052	Boroondara(C: Hawthorn)	1,195	3,613
Stonnington(C: Prahran)	1,644	3,621	Melbourne(C: Remainder)	1,278	2,957
Banyule(C: Heidelberg)	1,549	2,401	Boroondara(C: Kew)	849	2,617
Moonee Valley(C: Essendon)	1,421	2,049	Darebin(C: Northcote)	1,213	2,455
Melbourne(C: Remainder)	1,278	2,957	Banyule(C: Heidelberg)	1,549	2,401
Darebin(C: Northcote)	1,213	2,455	Port Phillip(C: West)	831	2,340
Boroondara(C: Hawthorn)	1,195	3,613	Hobsons Bay(C: Williamstown)	588	2,123
Brimbank(C: Sunshine)	1,141	1,363	Boroondara(C: Camberwell N)	947	2,088
Bed days					
Darebin(C: Northcote)	15,214	33,220	Darebin(C: Northcote)	15,214	33,220
Darebin(C: Preston)	13,974	16,723	Melbourne(C: Remainder)	9,940	24,712
Brimbank(C: Sunshine)	11,975	14,861	Melbourne (C: Inner, Southbank-Docklands)	2,957	23,205
Frankston(C: West)	11,318	14,499	Port Phillip(C: St Kilda)	10,190	21,047
Moonee Valley(C: Essendon)	11,284	16,055	Boroondara(C: Hawthorn)	6,517	19,847
Maribyrnong(C)	10,911	16,512	Moreland(C: Brunswick)	7,766	18,662
Glen Eira(C: Caulfield)	10,272	12,719	Port Phillip(C: West)	5,970	17,217
Port Phillip(C: St Kilda)	10,190	21,047	Darebin(C: Preston)	13,974	16,723
Kingston(C: North)	10,135	10,584	Stonnington(C: Prahran)	7,899	16,547
Melbourne(C: Remainder)	9,940	24,712	Maribyrnong(C)	10,911	16,512

Note. (C): City; (S): Shire. (RC): Rural City; (B); Borough. See Appendix J for HealthWiz query design notes associated with the above data.

5.5 Summary of the Community Health Evidence Base

The aim of Stage One of this research was to develop an evidence base that will contribute to knowledge of community health status, determinants and inequalities and provide a guide for health promotion and disease prevention activities. The Australian *National Health Priority Areas* were introduced in this thesis and a model that draws attention to *determinants* of health, *inequalities* in health and *health status* was offered. These elements are essential to targeted interventions to improve community health and were kept in mind during the development of the present CHEB resource.

Statistics at the Australian, Victorian and Victorian community level were reviewed and analysed in the present chapter. The aim of this final section is to summarise the main findings arising from the CHEB stage. As this stage was a sizeable study involving aggregated data for entire communities, multiple levels of analysis and multiple indicators of health status, it is difficult to summarise exactly. The summary following is presented by the levels of analysis (Australian, Victorian, Victorian communities). Further summary also appears in the conclusion chapter by the type of indicators of health status analysed, in order to synthesise and draw out the findings as much as possible.

5.5.1 Australian statistics. The information on life expectancy at birth, mortality and morbidity and causes of death presented in section 5.2 provided a useful overview on the health status of Australians. That section also revealed some inequalities between Australia and the rest of the world and between indigenous and non-indigenous Australians. The National Health Survey for Australia offered a contrast to the objective measures of health status with 82.4% of 15–17 olds, 58.6 of 18–64 olds, and 35.5 % of persons aged 65 and over assessing their health status as excellent/very good. The survey also showed that too many Australians engage in behaviours that are considered to be risk factors in the development of many diseases. These risks are important determinants of health and included current daily smoking, high alcohol risk, sedentary/low exercise levels, being overweight or obese and insufficient consumption of fruit and vegetables.

5.5.2 Victorian statistics. Following on from the Australia wide statistics, section 5.3 provided a useful snapshot on the health status of Victorians. As shown, the average life expectancy for Victoria was 79.68 years (77.08 for males and 82.28 for females) and compared well with the rest of Australia. While ACT had the highest LE, Victoria was slightly higher than the Australian average, Northern Territory, Tasmania, Queensland, New South Wales and South Australia, and the same as Western Australia.

The three major reports/surveys reviewed provided further information about the health of Victorians. The National Health Survey for Victoria showed that Victorian children and adults rated their health more favourably than the national average and visited casualty/outpatients/day clinics in the 2 weeks prior to the survey more often. Even so, Victorians had higher rates for some conditions (hayfever and allergic rhinitis, hypertensive disease, malignant neoplasms and overweight/obese BMI scores). Victorians of all age groups (and Australians generally) are also at considerable risk of developing serious health problems due to high rates of sedentary/low exercise level; overweight/obese BMI scores and inadequate consumption of fruit and vegetables. The Victorian Population Health Survey revealed some of the differences between males and females on a number risk and protective factors, self-reported health status, health screening, psychological distress and social networks and participation. The survey showed that males had lower fruit and vegetable intake, took greater alcohol and smoking risks and were more likely to be obese or overweight. In contrast, females reported greater rates of asthma and psychological distress, lower rates of membership in sports groups and community action groups and higher rates of membership in church and school groups. One of the most pronounced health risks was the low intake of vegetables among both sexes, with only 6% of males and 12.9% of females meeting recommended intake levels.

The “Your Health” Report on the Health of Victorians covered many aspects of health and included information on the burden of disease in Victoria and inequalities between indigenous and non-indigenous Victorians. The burden of mortality and/or illness in Victoria among various age groups due to cardiovascular disease, cancers and injuries, neonatal conditions, mental disorders and tobacco smoking were highlighted.

The health and socio-economic inequalities of Aboriginal and Torres Strait Islander peoples were also highlighted and included more children and fewer elders, lower household income and higher rates of low birth weight babies and perinatal mortality rates for indigenous people. There were also higher rates of smokers, hospital admission rates for various health problems and diseases including diabetes, ischaemic heart disease, asthma, and injury and poisoning (DHS, 2005). The “Your Health” Report also showed a gap in the health (various conditions) and in some risk factors of the most disadvantaged and the most advantaged Indigenous quintiles.

5.5.3 Victorian community level statistics. The Victorian community level statistics presented in section 5.4 constituted the largest part of this chapter. Firstly, it showed that rural males had the lowest life expectancies (78.24 years), followed by metropolitan males (80.15 years), rural females (83.47) and metropolitan females (84.67). Further ranking of the LGAs revealed that 45 LGAs (39 rural and 6 metropolitan) had male LEs below the Victorian average of 78.03 and 43 LGAs (35 rural and 8 metropolitan) had female LEs below the Victorian average of 83.27. Another 34 LGAs (10 rural and 24 metropolitan) had male LEs above the Victorian average while 36 LGAs (14 rural and 22 metropolitan) had female LEs below the Victorian average. The rural regions with the lowest LEs included Northern Grampians, Loddon, Glenelg, Latrobe and Corangamite for males and Hindmarsh, Glenelg, Yarriambiack, Corangamite and Central Goldfields for females. The metropolitan regions with the lowest LEs included Maribyrnong, Darebin, Port Phillip, Yarra and Frankston for males and Melton, Yarra, Knox, Port Phillip and Hume for females.

Section 5.4 also featured an analysis of death rates and causes of death in Victorian communities. The number of rural and metropolitan deaths for males and females and various age groups were shown and revealed higher rates of death for rural people in every age group. Rural males had a greater rate of death than metropolitan males for every age group. Surprisingly, rural females had an even greater gap with a 2-3 times higher death rate than metropolitan females for every age group and a greater number of deaths despite the smaller population of rural females in comparison to metropolitan females. Another finding was that rural females had a greater death rate than rural males for the 0-14 and 65+ age group while rural males had a higher rate for the 15-34 and 35-64 age groups.

The top 30 LGAs with the highest numbers and rates of deaths for males and females in each age group and the main causes of death among each age group for each LGA were also identified. In summary, the main causes of death varied for each age group. The main causes of death for the *0-14 age group* were certain conditions originating in the perinatal period and congenital malformations, deformations and chromosomal abnormalities. The main causes of death for the *15-34 year old age group* were external causes of morbidity and mortality (2021), transport accidents (704) and intentional self-harm (666). The main causes of death for the *35-64 year old age group* were malignant neoplasms (6,187), diseases of the circulatory system (3,943), ischaemic heart diseases (2,614), external causes of morbidity and mortality (2,293) and cancer of the digestive organs (2,086). The main causes of death *for the 65+ age group* were diseases of the circulatory system (23,574), malignant neoplasms (20,090), ischaemic heart diseases (13,245), diseases of the respiratory system (6,585) and all other medical conditions (6,091). Some LGAs had greater numbers of these conditions and some had greater rates. Numerous graphs were developed to present this information and are not summarized further here.

Hospital separations and bed days in Victorian hospitals associated with the NHPAs and SLAs were also explored in the section 5.4. It should be emphasized that both numbers and rates are important for the targeting of health promotion activities associated with separations and bed days.

The SLAs with the highest number and rate of *separations* respectively were:

- Knox(C: North) and Glenelg(S: Portland) for arthritic and musculo-skeletal conditions
- Yarra Ranges(S: South-West) and Moira(S) for asthma
- Manningham(C: West) and Warrnambool(C) for cancer

- Mornington Peninsula(S: South) and Gtr Bendigo(C: Inner West) for cardiovascular disease
- Darebin(C: Preston) and Wyndham(C: West, South) for diabetes
- Yarra Ranges(S: South-West) and Corangamite(S) for injury
- Boroondara(C: Camberwell S) (highest number and rate) for mental health

The SLAs with the highest number and rate of *bed-days* were:

- Frankston(C: West) and Delatite(S: Benalla) for arthritic and musculo-skeletal conditions
- Knox(C: North) and Ararat(RC) for asthma
- Whittlesea(C: South) and Warrnambool(C) for cancer
- Frankston(C: West) and Melton(S: East) for cardiovascular disease
- Brimbank(C: Sunshine) and Moorabool(S: Ballan, West) for diabetes
- Knox(C: North) and Melton(S: East) for injury
- Darebin(C: Northcote) (highest number and rate) for mental health

The reasons for the observed inequalities between SLAs are many and complex and would require further research to determine. However, they can include age and demographic characteristics, socio-economic disadvantage, high risk taking behaviours in particular communities, factors associated with culture and ethnicity and access to healthy food, health information, preventative programs and primary health services.

Chapter 6: Results of Stage Two and Three: Community Health Information Collaboration and Evaluation

6.1 Results of the CHIC Program

The CHIC program was conducted during February and April 2009, on a Friday afternoon between 1-3pm. It continued for a period of nine weeks, and was followed by a public celebration with CHIC members and invited members of the public in the final week. The venue was a large refurbished classroom at the St Albans campus of Victoria University. The room consisted of a computer lectern with internet access and projector facilities, ample lecture seating with side writing tablets, two large whiteboards, and tables for serving refreshments. A healthy platter of food (e.g., nuts and dry fruit, cheese and vegetables, fruit, dips and vegetable sticks) and drinks were available for participants at each session on arrival and throughout the session.

An outline of the proposed program sessions appeared shown in the method section and the results of the sessions are discussed next. As mentioned previously, not all sessions were intended to be formal ‘data collection’ research methods. Since most sessions did not involve data collection they could not be analysed in the same way as quantitative data or even traditional qualitative data such as that derived from interviews or focus groups. Much of the results presented are therefore a descriptive narrative of the process of engagement and action with community members over the course of the program and beyond. In addition, the results include the outcome of the Nominal Group Technique that was conducted with participants in week four and the evaluation responses from participants and researcher observations and reflections. Further details about the sessions appear in following sections.

6.1.1 Week 1: Introductions. Session one was an introductory rapport building session and, together with session two and three, was designed to be informative and educative. The first session involved greeting participants as they arrived and asking them to help themselves to a folder (consisting of information about the research program and various health promotion publications), refreshments and a seat. When everyone was seated, we each introduced ourselves to the other members of the group and briefly spoke of our background and interests in health. Following this, participants' rights and other information about the research (from the information to participants form and consent form) were explained and participants were asked to fill out and sign the consent form.

An important part of the first session was to introduce members to the CHIC website developed as part of this research thesis. The CHIC website was projected onto the screen and an overview of the project and the healthy website links were provided. The presentation focused on the primary prevention of illness and disease while being mindful of the holistic nature of health. Thus, while the importance of such issues as antiracism, human rights and environmental problems for health were emphasised, the main focus of the first presentation was on exploring the Australian and International health and nutrition websites.

Information from the Australian websites included an introduction to the various publications for download from the NHMRC Dietary Guidelines website. This included an explanation of the different requirements for men, women, children and breastfeeding mothers and the importance of eating five vegetables per day and keeping physically active. The Better Health Channel website was also explored, in particular the Body Mass Index (BMI) calculator, healthy recipe search, seasonal vegetable and planting guides, patient information and medicines guide. The "Go for 2 and 5" website, which emphasises the need to eat at least 2 serves of fruit and 5 serves of vegetables each day was also shown. The 'kids' only section of this site as well as other healthy kids sites were also introduced as it was known that some of the participants worked with children and were interested in children's health.

The international health and nutrition topics and sites explored during the first session included the Nutrition Source, which consists of the latest healthy eating pyramid developed by the Harvard School of Public Health and the My Pyramid site developed by the US department of Agriculture, which consists of interactive and personalised healthy eating pyramid resources. The World's Healthiest Foods website developed by the George Mateljan foundation was also among the sites explored.

These sites were not merely shown but in many instances where possible, were demonstrated in an interactive and practical way. So, for example, participants were asked to voluntarily disclose personal information such as their weight, height and physical activity level so that their BMI could be calculated or so that a personalised pyramid with appropriate food servings could be generated. We also watched an online video of how to prepare and cook a cauliflower to maximise its health giving potential. This allowed for greater interest and interaction with and among participants as well as some amusement/entertainment. Figure 60 (a&b) shows members of the CHIC team meeting for the program on two separate occasions.

Figure 60. Members of CHIC team meeting for the program on two occasions.

Whilst most of the questions asked by participants were of a general nature and were within the present capability to address, others had to be answered more tentatively. For example, one question asked was whether one should take vitamin and mineral supplements. Although the researcher had recently completed a short course on nutrition and had a very good understanding of diet and nutrition, the perspective on such matters was that of an informed consumer and community member rather than as a professional nutritionist. It was explained that this was sometimes a controversial topic with some nutritionists and natural health practitioners believing that supplements are unnecessary if one has a healthy diet and lifestyle. Thus, the advice given was that they could be useful if a deficiency was present or just a waste of money if not needed, as the body usually eliminates what is not needed. It was also explained that some vitamins could also be toxic if too many were taken (e.g. Vitamin A). The best way to determine deficiency would be to discuss with a doctor who could conduct a vitamin and mineral analysis via a simple blood test.

Overall, the first session seemed to be an enjoyable and informative session for all. The researcher established good rapport with the participants in this first session and observed that a friendly cooperative atmosphere was already developing among the group. Everybody seemed relaxed, comfortable and interested in meeting others in the group whom they did not yet know. Members of the group took every opportunity to talk to each other during introductions, the break in the middle of the session and afterwards when the session was finished.

6.1.2 Week 2: Community Health Evidence Base (CHEB). This session addressed sub-aim 2a. which was to inform the community group about major health concepts and concerns in Australian society, including National Health Priority Areas, health status, determinants of health, inequalities and major causes of mortality and hospitalisation. The session involved presenting a power point show of the CHEB resource to CHIC participants. The CHEB show was an informative summary of public health issues and health statistics in Australia, Victoria and Victorian local communities. It consisted of background information about the research, overview of the guiding models and concepts and most of the tables and figures presented in the CHEB chapter on issues such as life expectancy, causes of death and illness and differences in health outcomes due to factors such as age, gender and geographical location.

The CHIC members showed interest in the NHPAs, the determinants, inequalities and health status model and the ecological ‘person in context’ model of health determinants as they appeared on the screen. They also showed interest and concern by asking many questions about possible reasons for the statistics. For example, one of the questions asked was: *Why was Australia eighth best in the world in terms of life expectancy (out of 220 countries)?* Another was: *Why was Andorra number one?* While the answers to these questions were not all known, the researcher explained that Andorra was a very cold place, which could have something to do with it. On the other hand, Japan’s high life expectancy did not seem to be as mysterious and most participants mentioned the high fish content (often served raw) of the Japanese diet.

As the presentation progressed through the Australian and Victorian health statistics, the growing problem of obesity and chronic health conditions such as diabetes and cancers were discussed and emphasised. The fact that people are not eating enough fruit and vegetables (especially) or exercising regularly was also discussed.

CHIC members showed interest in various aspects of the show including the different causes of death among different age groups, rural and metropolitan people, indigenous/non-indigenous people and male and female. Most people seemed surprised at the enormity of the problem. At one stage, the researcher questioned her motives for showing these ‘grim’ statistics (as such mortality and morbidity data are often referred to). Was the researcher trying to scare people into doing the right thing like those anti-cancer commercials on television? Maybe a little, but then again Francis Bacon’s message that ‘knowledge is power’, must also prevail. And, this was problem based learning, was it not? Such knowledge, though grim, enables people to understand the reality that chronic diseases are widespread. Yet, people need knowledge on health as well as illness to make informed decisions about the lifestyles they lead. These two types of knowledge, which have also been referred to as evidence and information in different parts of this thesis, lie at the heart of the health promotion strategy used in the CHIC program and in this research as a whole. As also suggested in the theoretical chapter, there may be an important pathway between knowledge and empowerment.

6.1.3 Week 3: Thinking about health in our community. Despite the best intentions to present a succinct PowerPoint version of the CHEB research in the session two, it was admittedly still too long to be shown in a single session. Session three therefore included showing a presentation of the Victorian community level statistics in the first hour and a discussion on the Brimbank community in particular in the second hour. Participants were particularly interested in the community level statistics, which showed the ranking of their community on a number of health status measures such as life expectancies, deaths and hospitalisations due to various chronic diseases and conditions.

A Brimbank Community Wellbeing Report was downloaded from the Victorian Community Indicators website (McCaughey Centre. School of Population Health. University of Melbourne, 2009) and copies were printed for each member of the CHIC team. The seven page wellbeing report consists of numerous bar graphs showing the Brimbank region in comparison with the whole Northern and Western and region for 27 indicators of community well being. A summary of the report has been compiled in Table 56 for the purpose of discussion in the present context. As may be seen, Brimbank residents seem to be worse off on almost every single indicator compared to the Victorian state averages and worse off than the whole Northern/Western on more than half the indicators. The most marked disparities are in the areas of school leaver outcomes, proportion of skilled workforce, employment rate, income and educational qualifications and it was these in particular that the CHIC team identified and discussed.

The aim in this session was to encourage members to reflect on why some of these problems might exist. One of the members thought it was ironic that educational indicators were worse when there was a university near by. Another participant said that it was all part of a vicious cycle where low education equals low skills and low skills equals unemployment. The team then also reflected on the fact that Brimbank has a higher proportion of both older and newer migrants who for various reasons related to disadvantage may not have had a chance for an education.

The indicators showed that Brimbank people were very good water recyclers compared to the Northern/Western and Victorian averages. One of the members also noticed that the food security indicator was better in Brimbank. Members of the CHIC team attributed this to the numerous fruit and vegetable stores, the Asian food shops, Sam’s market in St Albans and to the many supermarkets in the broader Brimbank region.

Table 56

Summary of Well-Being Report for Brimbank from Community Indicators Victoria (CIV)

Community Wellbeing Indicators	**Brimbank**	**Northern/ Western Metro**	**Victoria**
Self-Reported Health – % Excellent/Very Good	50.8	53.8	54.3
Subjective Wellbeing (Score 0-100)	75.7	75.1	76.4
Feeling Part of the Community (Range 0-100)	69.3	68.3	70.7
Social Support %	91.5	91.3	n
Volunteering %	32.1	35.3	n
Child Health Assessments % (participation)	52.9	59.6	57.8
Perceptions of Safety % - Day	90.4	94.6	96
Perceptions of Safety % - Night	47.7	61.3	66.5
Crime – Personal (per 100,000 population)	913	954	822
Crime – Property (per 100,000 population)	6000	7397	5482
Home Internet Access % - Internet	75.7	78.6	78.9
Home Internet Access % - Broadband	59.7	63.2	61.1
Destinations of School Leavers % - Engaged	70.6	74.1	71.9
Destinations of School Leavers % - Disengaged	18.2	15.3	15.4
Highly Skilled Workforce %	47.7	58.1	56.3
Employment Rate %	54.5	60.6	60.9
Income % - Gross Weekly Household Income	506	614	600
Food Security % - (experienced insecurity)	4.8	6.3	6
Educational Qualifications % (tertiary or TAFE)	36.2	48.9	50.7
Adequate Work-Life Balance % (Good balance)	58.6	53.1	53
Housing Affordability % (spending at least 30% of income on rent or mortgage)	19.7	20.2	17.7
Transport Limitations % (experienced)	18.6	21	20.3
Waste Water Recycling % - (collect)	80.6	75.3	74.8
Household Waste Recycling % (kerbside collection)	36	n	40
Participation in Arts and Culture % (past month)	41.7	46.5	46.6
Community Acceptance of Diverse Cultures %	88.8	90.8	89.4
Participation in Citizen Engagement % (past year)	40.2	47.9	53.8

Unfortunately, participants agreed that there were also many unhealthy ‘junk’ food restaurants contributing to the increase in poor health in the Brimbank region and a lack of healthy restaurants. The researcher facilitated further discussion by asking questions such as: so what is unhealthy about these restaurants? The responses were then summarised and reflected back to the group: so these junk food shops serve meals that are high in saturated fat, salt, sugar and monosodium glutamate and that lack fibre, fruit and vegetables.

This session served to centre the community around the problem of chronic disease at a community level and in particular around Brimbank as the community of interest. It could be observed that the interest of the group increased when they could see the ranking of their own community (the problem became personalised) in the tables and charts shown on the big screen. At first, there were a few questions directed at the researcher about why particular communities were affected more than others. By addressing these tentatively and asking members what they thought were the reasons, the members of the group began to reflect, speculate and propose their own ideas.

6.1.4 Week 4: Good ideas and choosing a manageable task (via the Nominal Group Technique). In this session the ‘Nominal Group Technique’ (NGT) was used to generate ideas about actions that could be undertaken to improve health in the Brimbank community and to prioritize and decide on a manageable task. NGT is a group decision-making tool originally developed by Delbecq and Van de Ven in 1968 (Van De Ven & Delbecq, 1974). An adapted version of NGT was developed by the present researcher as discussed in this section. A PowerPoint presentation demonstrating the method was developed and shown to participants prior to beginning and can be seen on the CHIC website. NGT can be summarised as five steps:

1. Generating Ideas

- In this step, each person is required to write down as many ideas as they think of about possible projects we could undertake to improve health in the community.
- This is a quiet phase when you write your ideas without discussing with any one else.

2. Recording Ideas

- We will then transfer all our good ideas (to promote health in our community) onto a chart for everyone to see.

3. Discussing/Clarifying Ideas

- In this step we discuss the ideas so that there are no misunderstandings about what they mean.
- The person who generated the idea may describe the idea and other members of the group can ask questions.

4. Voting/Rating Ideas

- We are going to use 1 to 5 stars to rate our favourite ideas.
- You will be given five coloured cards with 1 to 5 stars on each one as shown below.
- You will be required to write the name of the five ideas you like the most on the cards.
- Write one idea on each card using the preference guide on the right.

5. Summing the Ratings

- The ratings will now be transferred to the chart.
- The idea with the highest total stars/score will be the ‘group decision’ about which idea we will develop further in the coming weeks to help improve health in the community.

In the first step, participants were asked to reflect on something we could do or plan to do as a team to improve health in the community. It was explained that it would have to be a reasonably small project that could be designed and implemented with around $500.00 in funds from the student’s PhD budget. Each participant was given note paper and a pen and was asked to quietly and independently list their ideas. When participants were finished, the notes were collected and all the ideas transferred to an Excel data sheet that was projected onto the big screen. Each idea was then discussed by the person who suggested it so that all were clear about its meaning. Some ideas that were very similar were combined.

A simplified five-card rating system developed by the present researcher was used. This involved giving each person a set of five small coloured cards (38mm x 69mm each) consisting of a rating from one to five numbers and stars on each card and asking them to write their five favorite ideas on the cards.

The usual procedure in NGT is that all the ideas are rated by each person. Nevertheless, the researcher had used this system on a previous occasion several years ago and found that rating errors were very easily made by participants. For example, some ideas were given the same rating by an individual, which then confused the whole numbering sequence. A lesson learned in that previous research was that it is a difficult and lengthy task to rate 50 or so ideas! Moreover, since the aim of the session was to arrive at a single idea for action, there seemed little point in rating every single idea.

An example of the cards and rating system used in the CHIC program is shown in Table 57 and in Appendix L.

Table 57

Five Card Idea Rating System Used in the NGT

Rating on each card	**Description**
1☆	1 star - Not a bad idea (purple card)
2☆☆	2 star - A good idea (blue card)
3☆☆☆	3 star - A very good idea (green card)
4☆☆☆☆	4 star - An excellent idea (orange card)
5☆☆☆☆☆	5 star - My most favourite idea (yellow card)

Note: The size of each card was 38mm x 69mm. Rows above are shown narrower than actual cards used.

When participants finished writing down and rating their five favourite ideas, each person in turn read out their responses while the researcher transferred them to the Excel sheet projected on the screen. The ratings for each idea were then summed and the item totals were ranked so the highest rating was at the top of the datasheet.

The technique yielded 48 excellent ideas that could be undertaken to improve health in the community. The researcher complimented the CHIC group’s efforts and observed a sense of pride among the group about the list of ideas generated.

Table 58 consists of the 20 favourite ideas that received a 1 to 5 rating from at least one person. The top rated idea received a score of 16 out of a possible 40 which indicates quite a dispersed rating from participants. That is, not everyone gave this particular idea the top score of five.

The main themes that emerged included strategies relating to *health information, awareness or education*; strategies focused on *healthy eating, food and cooking*; and strategies focused on particular subgroups or locations such as *schools, communities, workplaces and clubs*.

Table 58

Participants' Ratings of Five Favourite Ideas to Promote Health in Our Community

Good Ideas Generated	**Participant Number**								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Total**
	Ratings								
Provide free information – free cooking class, recipes	1	4	4	1	5		1		16
Healthy school lunches (healthy lunchbox competition)				3			5	4	12
Advocacy materials – develop brochure/pamphlets and distribute to library, schools, churches, hospital, shops	5				3				8
Health awareness Community groups/similar to neighbourhood watch ('Health Watchers')			3		1	1		3	8
Competitions among various communities	2	2	2		2				8
Information sessions run in school, welfare clubs, groups, doctor				4		4			8
Focus on young people's health		1	1		4				6
Supermarket and fresh food market tours with a qualified nutritionist		3					3		6
Conduct a forum about health promotion				5					5
Coordinate with Local Government Units – for promotion in their locality (particularly to health department)			5						5
Health awareness day at a school level								5	5
More education programs at grass root levels e.g., senior citizens clubs, youth clubs						5			5
Talk with the group about the importance of health promotion		5							5
Establish steering committees	4								4
Healthy cooking sessions at community level							4		4
Health promotion in the workplace – occupational, health & safety, nutrition				2				2	4
Media releases (local newspaper)						2		1	3
Health awareness day at a community level						3			3
Advertise on SBS*	3								3
Community information session							2		2

Note: * SBS (Special Broadcasting Service) is Australian's multicultural and multilingual radio broadcaster.

The remaining 18 ideas that were generated but not rated within the top five by participants are listed below. The themes identified earlier also apply to the present list and in addition a theme related to *exercise/activities* and to *competitions/twinning* can also be identified in the list. *Partnering* (e.g., with local government and local agencies) was another theme that emerged among the responses.

- Network with different welfare agencies to advocate/promote health nutrition
- Health information sessions for people living in different areas
- Programs for primary and high schools
- Articles for newspaper, magazines, school news letter
- Fliers to drop at libraries & doctors' clinics
- Health seminar
- Talk shows on community radio
- Cooking programs to promote healthy eating
- Aerobic, swimming, tai chi, yoga meditation programs for communities
- Walking groups
- Disadvantaged groups – unemployed (health)
- Twinning ethnic minority groups regarding health programs share ideas, recipes
- Free Brimbank health calendar
- Poster competition – Healthy eating
- Community education/awareness – discussion fliers to drop libraries, doctors
- Organise more short courses about good food and healthy life styles

After further group discussion of the results, it was decided that some of the top rating ideas could be combined into a single project. For example, the provision of free health information, brochures and pamphlets, free cooking class and recipes could be part of a healthy school lunch competition or festival. The participants expressed that such a program could involve parents as well as children. During the session we discussed the importance of early intervention around healthy eating and adequate exercise for children especially in light of the growing rate of obesity and diabetes among children. One of the CHIC members who worked in a local primary school then shared a story with us that formed a guiding metaphor for our work. As the (Vietnamese) multicultural officer for the school, this particular member is often called upon to discuss issues concerning the wellbeing of a child with his or her parents. Healthy food or the lack of it was a common problem and she mentioned that it was not uncommon to find that a child had two packets of potato chips or sweets and lollies with not much or nothing else in their lunch box. Often, parents did not know how to deal with this problem and reported that the child refused to eat healthy food and would either bring it back home or throw it away. This metaphor of *the child with two packets of potato chips or sweets for lunch* demonstrates the importance of health promotion at the school level.

The same program member also mentioned that the Multicultural Festivals and Events grant offered by the Victorian Multicultural Commission was currently open and that we might like to apply. The CHIC members all thought it was worth a try but because most had other work commitments during the week, the two of us decided to meet up at the local school alone to write the proposal.

A few days later, we met at the school, finished off the proposal and sent it off before the next CHIC session. We decided to call the project the ‘Healthy Munch, Lunch and Crunch Festival’ so it would attract the attention of children if implemented. The aim of the project, as described in the proposal, was to conduct a health promotion program for children from a local primary school and to involve parents and elderly Vietnamese citizens from the broader community. The three stages proposed would include parents and community members in information sessions, children in research on healthy eating, and an open day with health resources, cooking demonstrations and children’s healthy lunch box presentations and posters arising from their in class research.

6.1.5 Weeks 5-9: Planning for success and action. In the fifth session, which was formally called planning for success and action, copies of the Munch, Lunch and Crunch proposal were given to CHIC members and the details were discussed. We agreed that there would be considerable work to do both in planning and implementing the program if our grant was successful. Most of this would be carried out with the assistance of volunteers from the school community and would include parents and elderly Vietnamese people associated with Thanh’s cultural organisation Nang Hong.

Members of the CHIC team could also participate in some capacity if they wanted to, at least by attending on the festival day.

As planning is essential for a successful program, CHIC members were asked to contribute their ideas on work that needed to be done at each stage. The results of this discussion session are summarised in Table 59.

Table 59

The Healthy Munch, Lunch and Crunch Festival: What Else Needs to be Done at Each Stage?

Stage 1: Information Sessions 2 x 2hr	**Stage 2: Children's healthy lunch research**	**Stage 3: MLC Festival (pre-planning)**	**Stage 3: MLC Festival Open Day**
• Write note to parents re: program and volunteers • Invite 4 guest speakers – nutritionist (to speak on supplements), accessing health information, tai chi or yoga session. • Advertise in newsletter. • Organise catering. • Book room.	• Email to teachers • One page research guide to children & teachers. • Judging criteria (health, artistic merit, research conducted, cost-effective, environmental, presentation). • Discussion with teachers. • Number in groups. (4-5). • Costs – art material. • Health information • Teacher/children to pick best poster & class to contribute to building up a lunchbox for the open day	• Volunteers (to set up and man or woman the displays) and paid people (cooks) • Order health promotion brochures • Children's posters up day before • Set up display tables • Purchase prizes	• Cooking demonstrations – how many • Tastings and recipes • Times for different groups • Poster and lunchbox display. • Guide for teacher on taking children through. • Judging of posters by panel • Health information

Week six promised to be a quite and easy going session, with most of our planning and action already completed in the previous week. However, Celeste, who was a community development worker herself, had different ideas. Firstly, she was keen to inform us of another grant of up to $5,000 that was currently open and was related specifically to children's health. This was the national Woolworths Fresh Food Kids Community Grants program. The offer was too tempting to refuse so we logged onto the website to have a closer look. After some discussion on possible projects we decided to focus on a healthy soup program that could be undertaken at the primary school. Once again we planned to meet at the local primary school to write a proposal, with Thanh, Celeste and myself volunteering to do this. In order to make the most of the session, we brainstormed aspects of the project. The following practical issues were discussed:

What do we need to buy?

- Bowls - environmentally friendly or bring your own reusable option preferable
- Tissues/serviettes
- Pots and cooking utensils – could bring own if funds not enough
- Ingredients – absolutely fresh and healthy

Who do we need to employ and what do we need to do?

- Cooks – two
- Shopping - need petrol and ingredients
- Project management – planning, time line, notices, nutritional assessment of soup recipes, organising soup tasting for children, community development, paperwork.

Planning and testing

- Develop a list of soup recipes in consultation with children, parents, school and organisations
- Assess the nutritional value of the soup recipes using nutritional criteria such as: the food pyramid, targeted food groups (particularly vegetables, grains, herbs, brown rice and legumes that may be lacking in children’s diets), low or no salt, sugar and fat, balance of carbohydrates and energy
- Test and taste and select the best five soups
- Must be nutritious, delicious and affordable/free
- Talk to canteen staff and teachers about dates and feasibility
- Talk to school health, nutrition and safety person at SAEPS (Ricky)
- Consult with CHIC team on how to engage with members of their cultural organizations (Filipino, Latino-American, Maltese, Vietnamese)

During the next week, the researcher met with Celeste and Thanh to write the proposal for the Woolworths Fresh Food Kids Community Grant. To our surprise, the application was a very brief and easy online questionnaire and we finished entering our details in no time at all.

During the CHIC session in week seven, the researcher inquired as to whether the CHIC team was satisfied with our choice of idea to action and whether there was anything else we wanted to do with our ideas. The following four issues were raised as being important to members and discussed during the session:

- Media release – invite local media to come
- Sustain our group
- Public celebration to raise awareness of our work in the Brimbank professional and political community and further promote health in the community
- Publicise our ideas or develop recommendations

During the next week, the researcher completed a draft media release and emailed it to the group for comments. Following slight revisions, the media release together with further information about the program was sent to a journalist from the Sunshine Advocate (who had some weeks earlier expressed interest in the program). A copy of this media release was also sent to the Marketing and Communications Department of Victoria University and was published on the VU media release website at: http://www.vu.edu.au/media/media-releases/chic-team-focused-on-improving-health-in-brimbank. The original media release is shown in Box 3.

Box 3. Media release published by Victoria University

CHIC team focussed on improving health in Brimbank

April 08, 2009 Vicky Totikidis

A small but dedicated team of community members known as the Community Health Information Collaboration have been meeting on a weekly basis to discuss community health issues in Brimbank. The **CHIC Program** was initiated by Victoria University (VU) PhD research student Vicky Totikidis, supported by the Wellness Promotion Unit, VU, and a National Health and National Health and Medical Research Council public health training scholarship. The first two sessions of the program involved exploring internet based health information resources and health issues and statistics at the Australian, Victorian and local community level, with later sessions focused on Brimbank and on action that could be undertaken to improve health in the community.

The 2006 SEIFA index shows that Brimbank is the 3rd most disadvantaged local government area (LGA) in Victoria on such indicators as low income, low educational attainment, unemployment, and dwellings without motor vehicles.

Vicky's research shows that Brimbank also has high rankings on a number of health indicators (2001-2005), including - highest number of deaths due to Certain conditions originating in the perinatal period and Congenital malformations, deformations and chromosomal abnormalities, third highest number of deaths for Diabetes mellitus, fifth highest for Transport accidents and cancer of the Trachea, bronchus and lung and 10th and 11th highest for cancer of the Digestive organs and all Malignant neoplasms (cancers), respectively.

Many diseases can be prevented through healthy eating and drinking, exercise, regular medical check ups, and avoiding risks such as smoking.

The **CHIC** team believe that school communities (which include children, parents, women, elderly citizens and friends) are important places for health promotion and disease prevention strategies. Supported by members of **the St Albans East Primary School, Nang Hong, the Latino-American Women's Association of Victoria, the Maltese Connections Association and the Filipino and Vietnamese communities, the CHIC** team have recently applied for two small grants to undertake school health promotion programs focussed on healthy eating.

A subsequent photo shoot with the Sunshine Advocate took place and was published together with a truncated version of the original media release (see Figure 61). Apart from some minor disappointments the CHIC group were pleased with the professional look of the media release.

Fairfax Community Network

Health promotion: Cecilia Gomez, Vicky Totikidis and Tina Nguyen spent 10 weeks studying health in Brimbank.

Picture: Fiona Evans

Healthy food, exercise to join the curriculum

A VICTORIA University student who helped initiate a community health program will apply for grants to educate school children on the benefits of healthy eating.

Vicky Totikidis' research showed that Brimbank municipality has the highest number of deaths in the state as a result of congenital malformations and deformations as well as conditions originating in the perinatal period.

Brimbank ranked third in the state for deaths caused by type II diabetes and was ranked 10th for cancer of the digestive organs and 11th for all other forms of cancer.

To help improve general health in the area, Ms Totikidis, along with five other researchers, initiated a 10-week health promotion and community education program in Brimbank.

The Community Health Information Collaboration program researched residents from diverse cultural backgrounds.

The program is aimed at educating them on improving and maintaining health and preventing disease, while learning about the most common causes of illness, disability and death.

"Many diseases can be prevented through healthy eating and drinking, exercise and regular medical check-ups," Ms Totikidis said. "Schools are important places for health promotion and disease prevention strategies."

Ruza Zivkusic

Figure 61. Media release published in the Sunshine Advocate on 5/05/2009.

One disappointment was that the media representative instructed that only 3-4 people could be photographed. Another was that the media release was truncated leaving out the organisations and cultural groups involved. Most of the Brimbank statistics and the important message that: “*many diseases can be prevented through healthy eating and drinking, exercise, regular medical check ups”* were preserved, while “*avoiding risks such as smoking”* was also left out. Some of the sentences were also not entirely accurate.

The next two CHIC sessions were focused on planning a celebration for our final week, which we agreed would be held a week later than planned to allow more time for preparation. One of the members of the group suggested that we could make a greater impact if we invited people from the political and professional community rather than members of the general public because as community leaders they could disseminate knowledge back to the respective communities that they work with. Celeste and Thanh offered to forward emails of some of their professional contacts and the researcher agreed to write a formal invitation to the celebration (see Appendix M). The CHIC team also spent some time on planning the menu for the celebration and agreed that the food would have to be absolutely fresh and healthy. The researcher would arrange the catering and Celeste and Thanh also promised to bring some delicious and healthy Latin-American and Vietnamese food, respectively, assisted by a small amount of funding for ingredients from my PhD budget.

6.1.6 Week 10: CHIC program celebration. The day before the celebration, confirmation that two politicians would be attending, was received. One of these politicians was Mr Telmo Languiller, State Parliamentary Secretary for Health and Human Services from the Derrimut electorate, who offered to conduct the opening speech and formal launch of the CHIC website. The other was Councillor Mr Sam David JP, the former mayor of Brimbank. The other 30 or so guests included members of the CHIC team, Ms Anne-Maree Kliman, Principal - St Albans East Primary School Assistant principal, teachers and parents from St Albans East P.S and St Albans P.S, Victoria University staff/students interested in health and/or conducting research on health, my supervisor Associate Professor Jenny Sharples and service providers/social workers from Centrelink, Western Region Outreach Service, Good Shepherd Youth and Family Service and the Indo-Chinese Elderly Refugee Association (Figure 62).

Figure 62. Guests at the launch of the CHIC website and celebration.

As the message of healthy eating was an important part of the celebration, a healthy smorgasbord lunch was available for guests on arrival (see guest list and menu in Appendix N). We also wanted to allow opportunities for networking so we kept the formal part of the day to around 45 minutes. This included an opening speech by Mr Languiller, who highlighted the growing burden of disease in Victoria and Australia and the importance of strategies which aim to promote health and prevent disease in the community (Figure 63). Mr Languiller reiterated the statement from the media release that: Many diseases can be prevented through healthy eating and drinking, exercise, regular medical check ups, and avoiding risks such as smoking. He also commended the website and the research undertaken stating that it was very relevant and went to the crux of the problem of concern to government.

Figure 63. Mr Telmo Languiller, State Parliamentary Secretary for Health and Human Services.

Councilor Sam David also commented favourably about the research and went on to discuss some of issues and plans for the Brimbank LGA (Figure 64).

Figure 64. Councilor Sam David, former Mayor of Brimbank.

Following from this, the present researcher gave an overview of the healthy websites (Figure 65). This included acknowledging the NHMRC as the scholarship provider for this thesis and exploring the food groups and serving sizes in the NHMRC dietary guidelines for adults and for children. The Better Health channel was also introduced, including patient information, the BMI calculator, recipes, fruit and vegies in season and the planting guide for the month of May. Mr Languiller revealed that he swam in the open sea every morning and volunteered to disclose his height and weight and was found to have a slightly high BMI on the online calculator but it was explained that this could be due to the extra muscle mass derived from.

Figure 65. Researcher at the public launch of the CHIC website.

The Go for 2 and 5 website dedicated to increasing awareness about eating the correct portions of fruit and vegetables was also introduced and the ‘good for kids’ section and ‘Fresh for kids’ website also briefly explored. Some favourite international health websites: MyPyramid and World's Healthiest Foods were also introduced to the group.

The CHEB report and its location on the website were then introduced so that people could download it if they wanted to. A few selected highlights were shown to the audience including life expectancies of Australians compared to other countries around the world, major causes of death for indigenous/non-indigenous people and some graphs related to health in LGAs. The CHIC program was discussed next and each member of the CHIC member was introduced and acknowledged. A brief outline of what we did each week, including our exploration of the healthy websites and CHEB statistics and our focus on Brimbank and on action that could be undertaken to improve health from week three onwards was also shown to the audience. The list of ideas generated using the nominal group method was also shown and our decision to focus on children’s health at St Albans East Primary School discussed. The Victoria University and Advocate newspaper media releases were shown and our interest in building sustainability into the CHIC program so that we can act as a community watchdog for health in Brimbank was explained.

The principal of St Albans East Primary School (SAEPS) – Ms Anne-Maree Kliman was thanked for being so supportive of the CHIC program and invited to speak to the audience about her commitment to health in the school community (Figure 66).

Figure 66. Ms Anne-Maree Kliman, Principal of St Albans East Primary School (SAEPS).

The celebration was enjoyable and successful and marked the end of the formal 10-week CHIC program. However, although it had formally ended, a couple of members of the CHIC team continued to support the school in the implementation of the Healthy Munch, Lunch and Crunch program. This is discussed in section 6.3 (reflections and post program activities) following the results of the formal evaluation.

Figure 67. Councillor Sam David, guests and three members of the CHIC team at the celebration.

6.2 Results of the Evaluation Questionnaire

6.2.1 Likert statement responses. The CHIC participants' modal responses to the 16 evaluation statements are displayed in Table 60. The responses for the group as a whole indicate that all aspects of the program were rated highly (mode of 4) or very highly (mode of 5). The range, median and mode varied between 4-5 for each of the 16 statements while the mean ranged between 4.4-5.

Table 60

Participants' Response Mode to the 16 Evaluation Statements

Likert Statements	Participants' Responses (Mode 1-5)				
	1	2	3	4	5
1. The website is very informative					✓ ✓
2. The website consists of good tips on how to maintain/ improve my health					✓
3. I plan to use the CHIC website regularly				✓	
4. I will certainly tell friends and family about the website				✓	
5. The CHEB PowerPoint show was very informative					✓
6. I am more aware of the health issues facing Australian communities after having seen the CHEB show				✓	
7. The information presented has made me more determined to maintain/improve my health and prevent illness				✓	
8. The information presented will help me to help others				✓	
9. I enjoyed my time as a member of the CHIC program					✓
10. I got along well with other members in the group					✓
11. I felt like a valued member of the team				✓	
12. I believe we generated some great ideas on how to promote health in our community					✓
13. The sessions were well organised and facilitated					✓
14. The facilitator was friendly and approachable					✓
15. The facilitator was easy to understand					✓
16. The facilitator was 'one of the team'					✓

Note. 1=strongly disagree, 2=disagree; 3=neither agree nor disagree; 4=agree; 5=strongly agree.

6.2.2 Qualitative evaluation responses.

The qualitative responses from questions 17-20 of the questionnaire are shown in the following paragraphs.

17. What did you enjoy the most about the CHIC program?

The CHIC participants’ responses to question 17 are shown below. The feeling of group belonging, the healthy snacks and gaining useful health knowledge/information for oneself and the broader community were among the main themes in the responses.

1. Basically I really enjoy the information on CHIC. It was very comprehensive health information. I also like the relationship among participants and trainer. Vicky is such a good facilitator, very organized and approachable and I salute her for that. The snacks are very good as well…

2. Participation, sharing knowledge, experience of the Team

3. [What] I enjoyed the most about the CHIC program was:

- *a. The info given to us it is so valuable for us, our families and the entire community.*
- *b. I felt part of the team, it was a very friendly environment, and consequently we were more interested in every single detail of the topic.*
- *c. I wasn’t aware of all the consequences (disease) in relation to healthy eating.*
- *d. After this course I feel that as a community leader I have the responsibility to make my community aware and encourage them to eat healthy and exercise.*
- *e. The facilitator, CHIC members are excellent therefore I feel motivated to keep in contact with them and unify our efforts to help the people in Brimbank, I will support any initiative from the group.*
- *f. Overall the CHIC program was 10/10; it was a great opportunity to meet such a wonderful people. I would like to thank Vicky and VUT for given us this opportunity to learn how to live healthy and live longer.*

4. Friendship and teamwork

5. I really enjoy the website consists of good tips on how to maintain/improve my health

6. The warm welcome, friendly atmosphere, good company, valuable information and healthy food.

7. I thoroughly enjoyed belonging to a group (even though it was temporary) that was health conscious. It's amazing the difference that it makes when you belong to such a group! The sharing of ideas was quite stimulating especially when we dealt with prospective projects. It was very challenging indeed. I also enjoyed sharing healthy recipes across cultures. The people in the group were highly resourceful with regards to knowledge in this area. The food provided was also great!!

The experience of being part of the CHIC team was a positive one for all concerned with members valuing the participation, friendship, teamwork, sharing of ideas, knowledge and healthy recipes, and the sense of belonging that it engendered. The comment from one of the participants about not being *aware of all the consequences (disease) in relation to healthy eating* makes a good point about the importance of the CHEB resource. It was also inspiring to observe the level of dedication towards change as expressed in quote 3d about having *responsibility as a community leader to make the community aware and encourage them to eat healthy and exercise*.

These comments were most encouraging to a researcher utilising an action research paradigm and committed to positive change. It was like holding a mirror to one's work and seeing a better than expected reality and certainly makes one feel that the work is worth the effort.

18. What did you enjoy the least about the CHIC program?

Having specified the important role of the CHEB resource in the previous paragraph, one person replied to question 18 with the following contrary statement:

- *Too much information on statistics*

Even though the CHEB report was summarised into a power point presentation, there was still a very large amount of statistics. Over the years while employed in various positions involving research or teaching in statistics, the researcher has learned that not everyone understands or accepts the value of statistics. Yet, statistics are an important part of health promotion that tells us not only about what health problems exist but also about the scope of those problems.

19. Do you have any suggestions on how the program should be run in the future?

Four participants replied to this question. The first and third respondent both said that the program should be continued and broadened while the second respondent (who did not attend in the first week) indicated that something was not known at the start of the program.

- *I would suggest that the website should be advertised in the local newspaper so that more residents would be aware of the very informative and helpful CHIC.*
- *All aspects of the program should be provided from the start of the program*
- *This was a valuable program and should be continued with a big number of participants. Good advertising such as, community radio announcements, school newsletter, dropping fliers at local libraries and medical clinics etc. can get more people involved in the program.*
- *As I mentioned before the CHIC program was excellent. On behalf of the Latino-American Women's Association of Victoria, I want to congratulate Vicky for her great program.*

20. Do you have any further comments about any aspect of the program?

Two participants replied to this question as shown following quotes:

- *In my opinion, the participation of schools and more (emerging) ethnic communities within Brimbank would be very important.*
- *Vicky has spent a great deal of time to do the research and to put together all helpful information on her informative website as well as to coordinate the CHIC program. I was impressed with her devotion and her commitment to her project. She should be congratulated for her expertise, professionalism and willingness to promote healthy eating and healthy life style to the community. Well done Vicky!!!*

During the CHIC program, one of the members of the group commented on the value of including newly arrived ethnic communities such as African communities in such programs. This is also reflected in the first evaluation comment above and should be a consideration in future health promotion programs. The second comment stresses the value of information, particularly the CHIC website, and the CHIC program.

In addition to these formal qualitative evaluations, four members of the CHIC team verbally expressed a commitment to change some personal behaviour around health. This included the desire to engage in more physical activity, lose weight, reduce salt intake and eat healthier.

6.3 Further Evaluation and Post Program Activities

6.3.1 Reflections on the CHIC program. Following each session of the CHIC program and afterwards when the 10-week program had formally ended, the researcher often reflected on and wrote field notes of the process and outcomes. Researcher evaluations, observations, reflections and field notes represent a form of data in qualitative and action research and are part of the evaluation framework in the present thesis. Some of that evaluation data was presented in section 6.1 in describing the process of engagement with community members and in the previous section in reflecting on the evaluation comments. Further evaluative notes are listed below with some discussed in more detail in following sections.

- Recruitment! - A lonely and difficult job
- Initial disappointment about the number of participants
- Program exceeded expectations in many ways:
    - Pleased about the diversity of the group
    - Pleased about the leadership capabilities of the CHIC members and their dedication to health improvement in their communities
    - Pleased about the great ideas (recommendations) generated
    - Surprised about how much enjoyment gained from being a part of the CHIC team

    - Pleased about the initiatives that we undertook even though I was driven a bit harder than I expected
    - Members of the CHIC team have taught me more about the importance of politics, media, professional networking, community development
    - Impressed with the range of guests invited to the celebration, making it a very memorable event
- The basic health promotion message
- Never underestimate the importance of food and hospitality when running a community based intervention – it is much appreciated
- The ‘problem’ of program sustainability – every research project has a beginning and an end
- Ongoing support of St Albans East Primary School (SAEPS)
- Community research need/niche - supporting small incorporated community organisations with grant writing, healthy eating/lifestyle initiatives, project management and research
- Learn to play like a one man band – multiple skills needed to plan and run a community based program

As outlined above, there was some initial disappointment about the recruitment efforts not being well supported by some of the community services. For example, in a couple of instances, the fliers delivered were not displayed at follow up even though service providers initially said they were willing to do so. This may have been due to the existing time pressures that many of these services work under as well as perhaps that ‘student’ projects might not always be seen as ‘real’ strategies capable of producing positive changes in the community. On the other hand, there were also several people from libraries and other services who were very encouraging and supportive of the program.

Another initial disappointment was that even though the recruitment strategy seemed sufficiently broad, only a small group of participants (for various reasons as described in the methodology) were able to commit to the program at that time. Although the group was similar in size to a focus group and was suitable for the nominal group method and overall program, the large room capacity and perhaps some positivistic assumptions about sample size, health promotion reach and generalisation entered the researchers thinking. Programs of shorter duration may secure greater numbers of participants. Even so, a lesson learned was that small groups should always be valued and not underestimated for the impact that they can make in the community.

These initial disappointments were countered by the observation that the participating group was culturally diverse and therefore reflected some of the diversity of the broader Brimbank community. For example, four of the members were Vietnamese, one was Maltese, one was Latin American and one was Filipino. Indeed, the researcher was the only Australian born person in the group (albeit with migrant/refugee parents). Our diversity resulted in a positive exchange of ideas and knowledge among the group as well as some sharing of traditional recipes and food. One would also hope that the health literacy gained from the experience of being a CHIC member was in fact taken back to the members' respective ethnic communities as suggested in some of the evaluation comments. Champions or leaders from various CALD communities might be just what are needed to turn the chronic disease problem around.

The importance of involving community leaders has appeared in various articles, including Tones (2001) praxis and empowerment model, which has the identification of community leaders as a vital early task for the community worker. Even so, the involvement of leaders in the present research was not purposive but due to the leaders own proactive efforts.

As the program continued and knowledge of each other unfolded, the researcher noticed that the group members were indeed active members and leaders in their communities. Anita was running a group program with Filipino people as part of her work at Good Shepherd Youth and Family Services; Thanh [15], Celeste [16] and Vivianne[17] all founded

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[15] President of Nang Hong, a non-profit Vietnamese cultural association.

[16] President of Latino American Women's Association of Victoria Inc.

[17] Founder of Maltese Connections, a website and association that provides solidarity to Maltese migrants living in Australia

their own cultural associations. Thanh, Kim, Chuong and Thi also worked in social support roles with Vietnamese people associated with a local primary school and in other paid and voluntary positions with schools and Vietnamese communities. The existing leadership of the group was fostered throughout the program by acknowledging/referring to members as leaders, by supporting their ideas and building their knowledge and competence in health promotion. There was also a realisation that the many of the participants were interested in developing health promotion skills and knowledge that they could use in their work with their communities. The group thereby possessed a receptiveness and readiness that was conducive to success. The importance of readiness in relation to learning and changing the social gradient was discussed previously in the literature review (Flower, 1997). Readiness for change was also a community analysis feature in Stage One of Bracht and Kingsbury’s (1990) community organization model of health promotion.

The CHIC members’ comments on continuing the program with more people and the importance of including more (emerging) ethnic communities within Brimbank were of particular interest but as listed above, one of the shortfalls of research is that it cannot be sustained. There is a certain contradiction between running a community-based program within a research paradigm. The contradiction exists in both the academic and community sector and is partly due to the unavailability of funding and resources for ongoing longer-term prevention programs. Although the prevention discourse was accepted by government many years ago, this was largely rhetorical and not fully embraced at the level required. The lack of a preventative focus was one of the system problems or blockages alluded to in the introduction. It is only recently, that a National Preventive Health Agency was established in Australia (see literature review). It now remains to be seen how the system will change to support community groups to prevent and curb the rising incidence of chronic diseases. As positive and widespread changes can take a long time to flourish in the community, program sustainability must be a built in feature of health promotion and prevention programs.

The basic health promotion message is a phrase developed by the researcher after reflecting one of the program sessions in which a participant asked: “So what are the main things we should be doing to be healthy and not get these diseases?” This demonstrated a readiness for change by the participant and at the same time a sense of being overwhelmed by the volume of health information available. It was a relevant and pertinent question that required the researcher to summarise the key aspects of health promotion. These key aspects included healthy eating and drinking, exercise, regular medical check ups, and avoiding risks such as smoking. The message was repeated several times throughout the program and public celebration and also appeared in the local newspaper media release (see Figure 61) and the conceptual framework in Chapter 3. The researcher was not aware at the time of the SNAP acronym, which refers to the lifestyle risk factors of Smoking, Nutrition, Alcohol and Physical activity (Harris & RACGP, 2004) and which could be used in a community based health promotion/social marketing context as well as in a general practice setting.

A lesson learned was that whilst such community based health promotion programs can be successfully initiated by individual researchers and practitioners, the many resources and skills required makes them more suited to organisational and team effort. For example, by universities and health and community health service teams. Some of the important skills and knowledge include research and project management, community development, menu planning/preparation, budgeting, events management, marketing, grant writing, psychological and nutritional, cross cultural communication and public speaking. As shown in the literature review, health promotion and empowerment models (e.g., the MAPP model in Figure 17) can be complex and multifaceted and often require support from many actors. Similarly, the present design, though conducted successfully on a small scale, would also have a greater health promotion reach (involve more people/communities and be more sustainable) with system support as illustrated in the conceptual framework. Funding is another essential aspect of system support and is required during the program and planning stages and during implementation of community projects.

Another lesson learned during this research was that basic hospitality should not be overlooked as program participants often have multiple work roles and may miss meals to attend sessions.

6.3.2 Post program activities. After the CHIC program and the proposed research had formally come to an end, the researcher continued to support the CHIC team's commitment for health promotion at the local primary school. The researcher met with team members and SAEPS staff on several occasions to plan various aspects of the project and discuss barriers, ordered enough NHMRC brochures on healthy eating guidelines for adults and children for the whole school, and fulfilled the promise of donating $500.00 of the PhD budget. A thankyou letter from Nang Hong non-profit association can be seen in Appendix O. We were still committed to continuing, despite also having received news that our small grant applications were unsuccessful. This continued commitment by the researcher and CHIC members was an essential aspect of the post program activities at the school.

The Healthy, Munch, Lunch and Crunch program was planned to be a school wide health promotion program for children, parents and other persons associated with the SAEPS community. During our planning sessions, we decided to drop the lunch box idea and have a healthy eating poster competition instead. The prospect of having children bring in food and of judging so many lunch boxes seemed daunting and we wondered whether a healthy lunch in the absence of a healthy breakfast, evening meal and snacks had the same merit. The final plan (teacher guidelines) for the competition before handing it over to school staff for comment is shown in Appendix P.

In addition to the work with children, Thanh was eager to hold health information sessions for Vietnamese adults associated with SAEPS. The researcher met with Thanh and one of her associates Thuy, a remarkable retired art teacher and author to plan how this could be undertaken. In summary, we decided that the SAEPS program would consist of several information sessions on topics such as nutrition, diabetes prevention and management, exercise and healthy cooking over a three to four week period during the final term. As a very high proportion of the SAEPS schoolchildren and school community were Vietnamese, these sessions would be delivered in Vietnamese with the assistance of a Vietnamese interpreter. The information sessions would be followed in the fourth week by a poster judging session by selected health and art professionals and the announcement of the winners at assembly. We agreed that it could not be called a ‘festival’ unless there was dancing, music and dressing up. Somebody commented that having children dress up and parade in fruit and vegetable colours and themes could provide a solution.

As the PhD program had formally ended and we wanted the information sessions to be of specialised content on diabetes education, nutrition and healthy cooking and exercise options, we decided seek the support of the Australian Community Centre for Diabetes (ACCD) at Victoria University. This was done on Celeste’s recommendation, who as a community development worker, was familiar with the work of another community development worker from the ACCD. During this time, the present researcher also gained a part-time research position at the ACCD, which enabled her to continue supporting community-based health promotion and chronic disease prevention initiatives in CALD communities in Brimbank and the surrounding western region of Melbourne.

Following initial discussions with the Australian Community for Diabetes, Thanh developed a flier in Vietnamese to distribute to the parents and elderly citizens (see Appendix Q). During October-November 2009, the ACCD team successfully engaged in a four-week community education and research program with approximately 60 Vietnamese parents and elderly citizens associated with the school. The program was held in the school hall and included four two-hour sessions on diabetes prevalence, knowledge and diabetes prevention through healthy eating, nutrition and exercise (see Figure 68). With the momentum around health promotion still strong, Celeste, Khanh and Chuong also sought to run similar diabetes prevention programs in their own work with Latino-American (Spanish speaking) people and Vietnamese people with the Australian Community Centre for Diabetes.

Figure 68. Members of the Vietnamese community attending a diabetes awareness program conducted by the Australian Community Centre for Diabetes.

Whilst a discussion of these programs is beyond the scope of this thesis, one can conclude that the CHIC program ideas had culminated in a positive and mutually beneficial university/community engagement partnership between ACCD and members of the CHIC team. Supporting small-incorporated community organisations with grant writing, healthy eating initiatives, project management and action research represents an important niche for university community engagement and partnerships.

On Wednesday 4th of November, 2009 the researcher met with Thanh and Thuy to hang the childrens' healthy art on the walls of the school hall. As wall space was limited, only the top three pictures as rated by teachers and students from each class were displayed. This final exhibition consisted of a total of 58 art works completed by 78 children as individuals or small groups of 2-3 children from grades prep (preparatory), 1/2, 3/4 and 5/6 combined classes. The art show looked lovely and demonstrated creativity and good learning about health by the students.

The researcher took photographs of the children's pictures and a small selection of these are shown on the following pages. The full range of pictures can be accessed from the CHIC website (http://users.tpg.com.au/vickytot/chic/2CHIC.htm).

Five volunteer judges were asked to view the art works and decide on the best one of three for each class. The judges included the present researcher, Thuy (a writer/retired art teacher), Lil (a teacher from SAEPS), Bhensri (a researcher/nutritionist from ACCD) and Margaret (a researcher/artist from ACCD). The main criteria for judging were health content or healthiness of the poster, creativity and artistic ability and demonstration of research effort. The judges made their selection independently while viewing the exhibition. Their ratings were later tallied by the present researcher and the pictures most frequently chosen were the first prize winners.

The two pictures following shows Thuy beside a group of grade 5/6 pictures (Figure 69) and a group of prep collage pictures that she creatively hung up in the hall (Figure 70).

Figure 69. Thuy standing proudly beside a group of grade 5/6 pictures displayed in the school hall.

Although the guidelines specified work by individual or small groups of children, the rules were flexible enough to allow variation. The teacher of the set of pictures in Figure 70 engaged the whole class in the same theme and medium (fruit collage) with a lovely result.

Figure 70. A group of prep students' collage art hung in a flower design.

Further pictures by prep children show that even the youngest schoolchildren are able to think independently about health. For example, Figure 71 shows a basket of fruit, vegetables and fish and suggests ‘total abstinence from lollies’; a practice which is becoming increasingly enforced in schools.

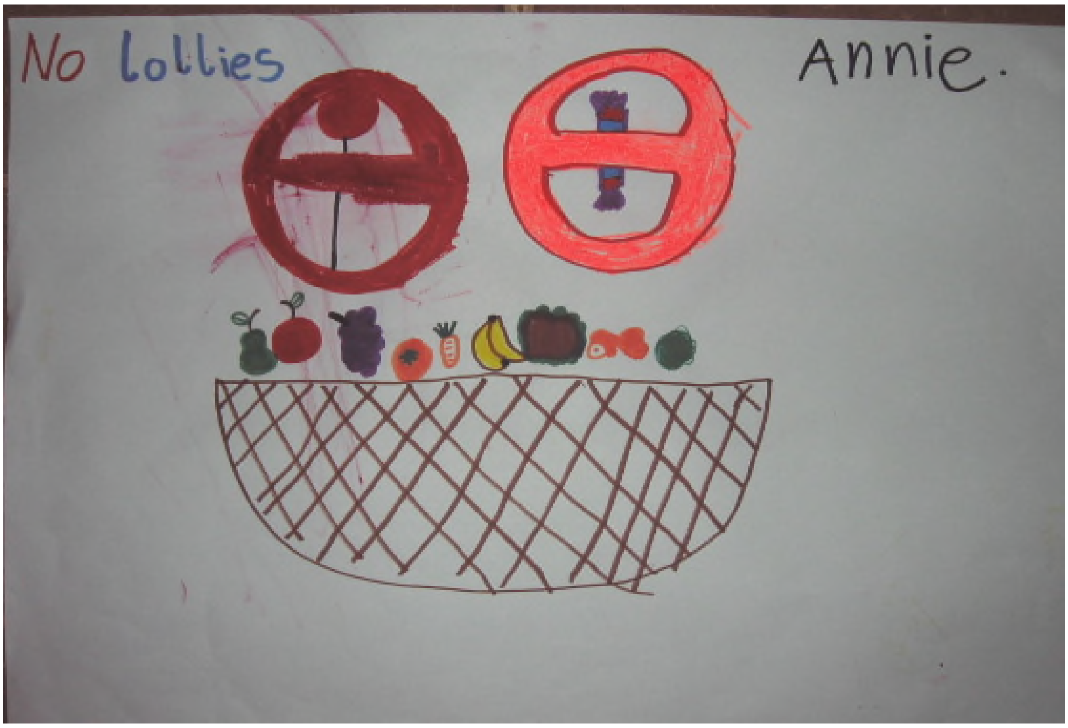

Figure 71. Picture drawn by a prep student suggesting fruit, vegetables, fish and ‘no lollies’ for good health.

Another prep student drew a picture of a healthy fruit shake that her father makes for her in a blender (Figure 72).

Figure 72. Picture of a fruit shake and blender drawn by a prep student.

As shown following, older children's posters more commonly encompassed food variety, groups, pyramids and food for a whole day. It was clear that many children also utilised the NHMRC healthy eating guidelines that were distributed to them and other resources on healthy eating. It can be concluded that most children displayed a good beginning knowledge of food groups and healthy and unhealthy eating. Yet, the posters also suggest that many children may not be aware of the right number of serves from each food group, that certain foods should be eaten every day and that fruit does not have to be eaten in abundance.

Many posters also revealed only three meals per day (without healthy snacks), a lack of vegetables and foods that are not so healthy (e.g., bacon, sausages). Other healthy behaviours such as drinking sufficient water, avoiding risks and exercising were also not usually mentioned. In light of the growing rate of obesity among younger school children in Australia (Biggs, 2006), further detailed learning about health and nutrition is warranted.

The following drawing by a grade 1 student (Figure 73) lists food from the five food groups for a healthy life as well as the advice to eat healthy food and avoid junk food.

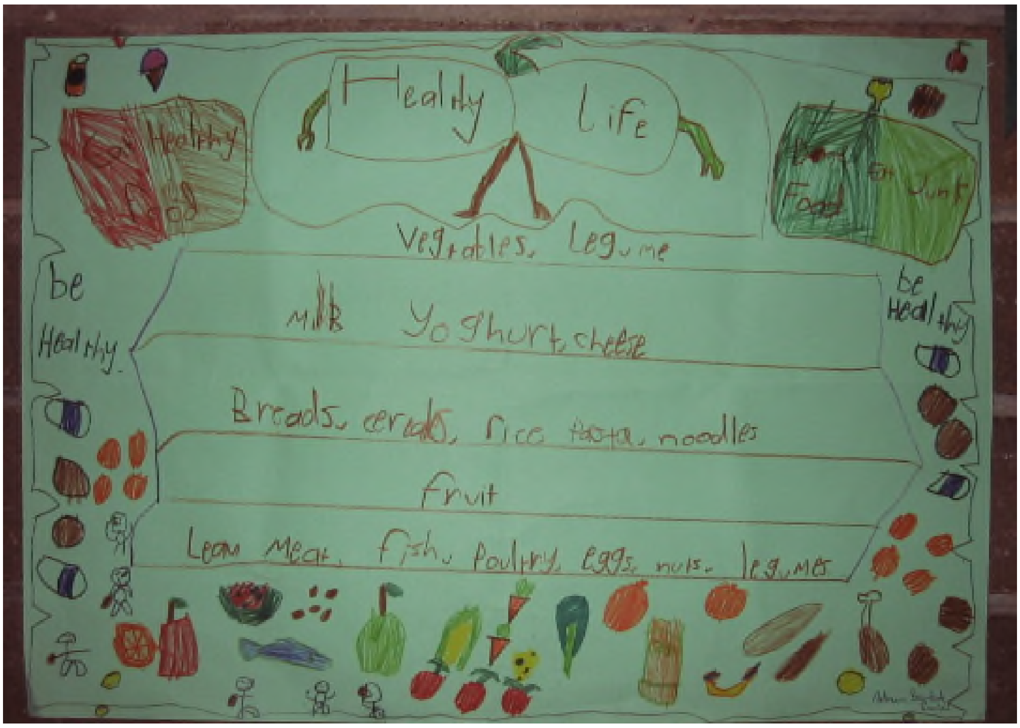

Figure 73. Healthy life: Eat healthy food (from the five food groups) and don’t eat junk food (grade 1 student).

Figure 74 shows a range of food for healthy eating from the main food groups with the message “don’t eat too much junk but it is OK to eat a little bit of it”. Menus for breakfast, lunch and dinner have also been drawn but do not consist of enough vegetables, which suggests that children and indeed adults may have difficulty in integrating the required foods and quantities into a daily eating plan.

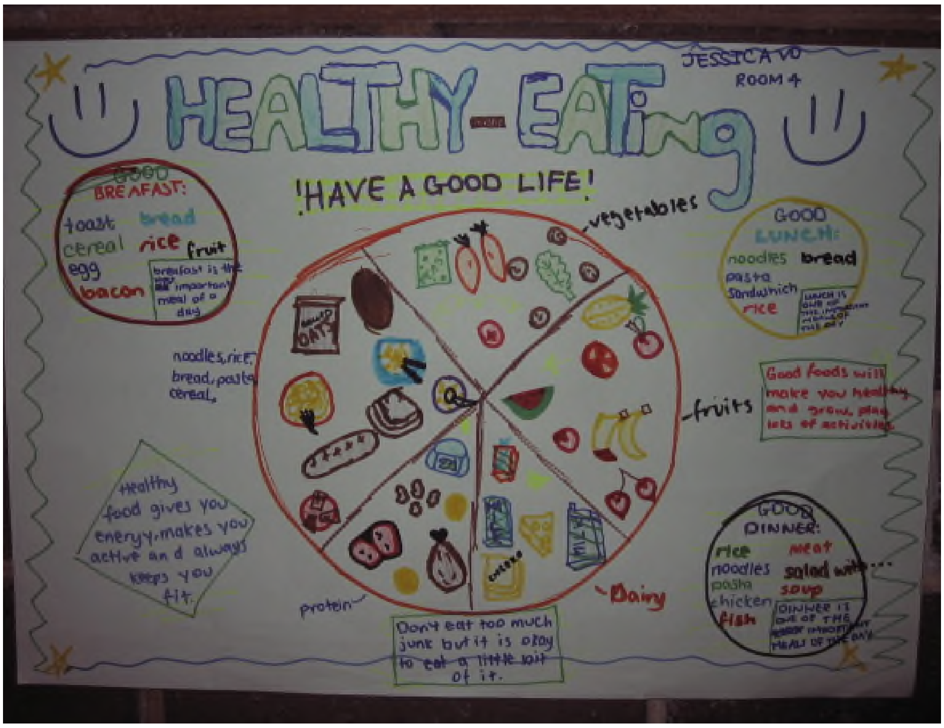

Figure 74. Healthy eating, three meals a day and five food groups (grade 3/4 student).

Figure 75 shows a boy thinking and planning out his three meals for the day. There are also a number of messages about eating fruit, the danger of junk food and the acknowledgement that food affects life.

Figure 75. Mindful eating: three meals a day, lots of fruit and not too much junk food (grade 3/4 student).

Figure 76 shows a poster raising awareness about eating three fruits and five vegies with the message: “Did you know??? People should eat 3 fruits and 5 vegies a day”. Animated fruit and a grub in an apple add humour and interest.

Figure 76. Go 4 life – Be healthy (grade 5/6 students).

Figure 77 shows an apple shaped poster highlighting the benefits of healthy eating and the less commonly mentioned ‘exercise’. A heart shape consisting of a wide variety of vegetables and a bowl of animated fruit are also displayed on the poster.

Figure 77. Health eating apple poster (grade 5/6 student).

Figure 78 following shows a poster consisting of many elements from the NHMRC guidelines for healthy eating for children and adolescents. It includes food groups, number of serves for three age groups and messages about food safety, variety and the importance of nutrition for growth and development.

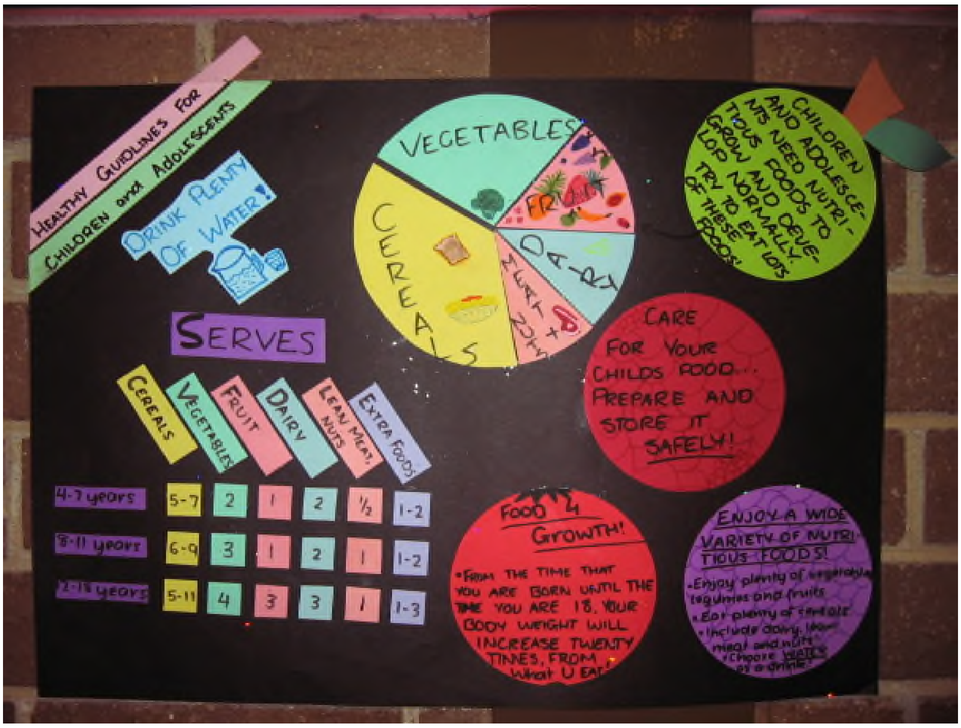

Figure 78. Poster with NHMRC guidelines for healthy eating (grade 5/6 students).

The first prize winners (24 students) of the Healthy Munch Lunch and Crunch art show were announced at the school assembly on Monday 9th November and were awarded a certificate (Appendix R) and a small prize of either a pedometer, which were donated by ACCD or pastels (for the younger prep students). The volunteers who were mainly mothers of the school children were also awarded certificates of appreciation and small gifts (fragrant candles/soaps).

A free healthy lunch day was held on the following day and was assisted by seven volunteer parents (Figure 79). The food consisted of soft wholemeal rolls with tuna and various salad ingredients, and a selection of fruit platters. The decision to include wholemeal rolls rather than white was not an easy one, as there was concern that children would not eat the wholemeal. However, to our surprise, all the children appeared to enjoy the fresh rolls and not one was rejected or returned.

Figure 79. Thanh (left) with volunteer parent helpers at the free healthy lunch day.

Thanh was dedicated to promoting health in the SAEPS school community and also successfully initiated a school walking group with parents and Vietnamese elderly citizens following the CHIC program. Figure 80 shows the researcher and a small group of walkers (on the day the children's art was displayed in the hall) about to start a 3 kilometre walk.

Figure 80. SAEPS walking group led in front by a couple in their eighties.[18]

Nang Hong and SAEPS have continued the momentum around health for their school community. In 2010, Thanh, the leader of Nang Hong and multicultural officer of the school, was successful in winning a small grant from the Department of Education and Early Childhood Development, under the program "Go for Your Life / Healthy Start in School Grant 2010" to refurbish their community room. It was an honour to be invited to the launch of the room in early 2011 and to learn that the room will be used for healthy cooking demonstrations and functions by the school and the community. It was also an honour to be acknowledged for having an influence in the school's decision to

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[18] Thanh, leader of Nang Hong (shown in the black hat in the centre), was digitally added to this photo of which she was the photographer

pursue a healthy agenda as shown in the following wording from the invitation (see also invitation in Appendix S):

Thank you for your great support in bringing the community to school and to promote healthy eating habits in our community.

6.4 The Value of Community Based Collaborations for Improving Public Health and Preventing Chronic Diseases

As with the Community Health Evidence Base, the opportunity to present at a conference[19] required the researcher to reflect on another dimension of conclusions that emerged from the research with community members. Six main conclusions about the CHIC program and the value of community-based collaborations were drawn from the results of the research program and are discussed in this section. These conclusions relate to empowerment, relevancy, shifting the agenda from entertainment to health, broad reach and ongoing momentum, engaging with and enabling CALD communities and reducing chronic disease in the community.

6.4.1 Empowerment. The term empowerment first appeared in this thesis in the Wellness Eidos as an implicit aim or ideal to be attained; and as an explicit research aim in Stage Two of the research. Much was learnt about the concept through the review of various literature and models in this thesis, and throughout the research process with community members. Through this understanding, empowerment was conceptualised as a gain in *knowledge, skills and confidence* in health promotion and disease prevention. These qualities were facilitated during the program and beyond through problem posing health education, dialogue, collaboration, participation and action.

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[19] The conclusions were presented at the 2011 Critical Health Psychology conference under the title of Giving Health Away: The value of community based collaborations for improving public health and preventing chronic diseases (Totikidis, 2011).

As shown in the conceptual framework (Chapter 3) and the program outline (see Chapter 4), a main focus with respect to the first quality was on building *knowledge of the problem*, or what was referred to as the community health evidence base on health status, determinants and inequalities, among the group members. Although this was a large quantitative study, which is not likely to be recalled in any detail by the participants, the essential message about the chronic disease problem and the need to respond to it was well understood by participants.

The second main focus was on building *knowledge of problem solutions*. The CHIC website and the basic health promotion message that 'many diseases can be prevented through healthy eating and drinking, exercise, regular medical check ups, and avoiding risks such as smoking' were two of the tools used to facilitate this knowledge. Yet, the other more important knowledge base came from the community members themselves through reflection on the problems and the possible actions that could be applied.
The generation and sharing of ideas during the Nominal Group Technique in session four contributed to furthering the knowledge of the team in relation to health promotion and disease prevention; as well as to the *skills* of the group to use similar methods in their own communities and organisations. The further refinement of ideas, planning and funding applications in sessions five to nine also contributed to building practical *skills* in the group that could be used in future programs. Indeed, several members of the group went on to implement successful health promotion programs in their respective CALD communities following the CHIC program. Although one cannot not take credit for the natural leadership skills that the participants already possessed, these actions together with some of the comments made by participants suggest that the CHIC program was an empowering one that made a difference to their work. This can be demonstrated by the following comment (also shown earlier in the results) by Celeste, the leader of Latino-American Women's Association of Victoria:

After this course I feel that as a community leader I have the responsibility to make my community aware and encourage them to eat healthy and exercise.

Thanh’s continued effort to promote health in the school community, her success in securing funding for a kitchen and her positive acknowledgement on the invitation are also indicative of empowerment.

Confidence is the third essential characteristic of empowerment identified and observed in this research. Knowledge and skills are important but without confidence, action would not be possible. Knowledge and skills can contribute to confidence but cannot guarantee it. Confidence is an affective or emotional state that has parallels with Freire’s concepts of critical perception, liberation and hope. As Freire pronounced: “As critical perception is embodied in action, a climate of hope and confidence develops” which leads people to overcome limiting situations rather than passively accepting the “given” (Paulo Freire, 2000, p. 99). In problem posing education people develop power to critically perceive the way they exist in the world and learn that the world is not a static reality but a reality in the process of transformation (Paulo Freire, 2000). In the same way, empowerment in the present sense is gained from knowledge of the problem (chronic disease), learning that reality is not static, that one is part of the reality and developing skills and confidence to transform that reality.

6.4.2 Relevancy. The NGT method employed in the CHIC program led to the development of a number of relevant projects that could be implemented in the community. The principle of relevancy as discussed here is about the fit and timeliness of a project for a particular community. Some public health and health promotion interventions may fail simply because they are not suited to the community or the proposed period of time or readiness of the community to respond. These barriers are overcome when the project has been chosen, accepted and developed by the community members themselves. Once again, this relates to empowerment and governance, but it also about a more complex understanding about what your community will participate in and be motivated by. It is also about the community taking leadership and ownership of the project rather than the project being controlled by an outside ‘expert’.

6.4.3 Shifting the agenda from entertainment to health. Many people are responsible for providing a community-based service to a group of community members such as elderly citizens, disabled persons, youths, ethnic groups, women and common interest groups. Such services may be government funded or managed by a community or incorporated organisation; may have an entertainment value and are usually provided in a community centre or hall. Programs such as the Community Health Information Collaboration may be particularly suited to people with these kinds of responsibilities and it was perhaps not coincidental that many of the participants that chose to be involved were leaders or workers associated with particular groups.

It became clear from some of the feedback received, that these participants were looking for a way to integrate health into their work. The previous comment by the leader of Latino-American Women’s Association of Victoria to begin to encourage healthy eating and exercise in her community suggests such a shift in perspective. Programs delivered to community groups must strive to be entertaining so that people continue to attend. Such programs contribute to health even if not designed around the topic of health because they can prevent social isolation, depression and associated health problems. However, an understanding of the broader health problems can empower leaders to shift the agenda from entertainment per se to a focus on health as well.

The shift was further demonstrated through Celeste’s ongoing commitment to health through her involvement with the Australian Community Centre for Diabetes (where the present researcher was employed on a part time basis); and other initiatives developed for her community such as a weekly Zumba class and guest speakers on various health topics.

The previous quote about the promotion of healthy eating habits in the school and community from Thanh, the leader of Nang Hong and multicultural officer of SAEPS, represents a similar shift in integrating health into the agenda for the benefit of the community. Shifting the agenda from entertainment to health is a state of mind that can involve using existing resources for a different purpose (health improvement) and that can serve as a rationale for needed changes, action and funding applications.

6.4.4 Broad reach and ongoing momentum. A pleasing outcome of the research was that the health promotion messages were carried beyond the original CHIC team and timeline of the program. The CHIC celebration at the end of the program extended to local politicians, staff and parents from two local primary schools, several Victoria University staff/students and various service providers/social workers from the local community. As discussed in the results, the reach and momentum of the original program was also carried forward into a local primary school to involve children and parents in the Healthy Lunch, Munch and Crunch program; and further health education with the Australian Community Centre for Diabetes. In addition, the basic health promotion message that 'many diseases can be prevented through healthy eating and drinking, exercise, regular medical check ups, and avoiding risks such as smoking' was carried into the broader community via the media release in the local newspaper.

Nang Hong and SAEPS have continued the momentum around health for their school community. In 2010, they were successful in winning a small grant from the Department of Education and Early Childhood Development, under the program "Go for Your Life / Healthy Start in School Grant 2010 to refurbish their community room. It was an honour to be invited to the launch of the room in early 2011 and to learn that the room will be used for healthy cooking demonstrations and functions by the school and the community. It was also an honour to be acknowledged for having an influence in the school's decision to pursue a healthy agenda (see acknowledgment in the previous section and the invitation in Appendix S).

Conference funding provided by the NHMRC scholarship also enabled broader dissemination of the research at several international conferences, including a public health, health promotion and critical health psychology conference. The items presented included a discussion paper, power point presentations and posters. As mentioned in the methodology, a paper discussing the Nominal Group Technique was also published in a peer reviewed psychology journal[20].

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[20] These articles can be accessed at: http://users.tpg.com.au/vickytot/chic/Researcher_Biography.htm

Nutbeam’s (1999) discussion on the evidence of effectiveness in health promotion called for an intervention programme to be of sufficient size, duration and sophistication to be detectable above the ‘background noise’ of more general changes in society. This suggests that smaller programs such as those conducted by independent researchers with limited funding and shorter time-frames might not be as effective or may not be able to be properly assessed in terms of effectiveness. The present research suggests that even smaller programs (of only a few participants) can have a broad reach and ongoing momentum if members of the group are empowered and ready to take ownership in the role of health promotion and disease prevention. Individuals do not live in a vacuum but in the context of a network of family, friends, colleagues and community, who are all capable of helping and influencing each other.

6.4.5 Engaging with and enabling CALD communities. Health is of common interest to all cultures and the CHIC intervention design was basic enough for a diverse range of people. The CHIC program presented a wonderful opportunity to engage with and enable CALD communities. All the participants from the original CHIC program were born overseas in non-English speaking background countries (Vietnam, Philippines and Malta); and spoke languages other than English. Many other Vietnamese and culturally diverse persons were also involved in the post program activities and the events organised by the Australian Community Centre for Diabetes. In one of these sessions, an elderly Vietnamese woman remarked (according to the Vietnamese interpreter present) that it was lovely to be able to have someone teaching them about healthy food because in Vietnam and in the refugee camp that she stayed in after fleeing Vietnam, food was merely to survive. There are many migrants and refugees who have had similar experiences and who would benefit greatly from health promotion programs. It is likely that many migrants do not know about food groups and serving sizes and risk factors such as a sedentary lifestyle and high sodium and GI foods. Low English literacy skills and the lack of nutritional information in community languages exacerbates this problem.

Although the CHIC program welcomed culturally diverse persons to attend (see CHIC brochure in Appendix H), one of the limitations was that it could only be offered in

English and without the use of interpreters. This would have prevented direct participation by persons with very low/no English proficiency. Nonetheless, by enabling and empowering the leaders who participated, many more people from these groups were reached in the post-program health promotion activities. In addition, with some modifications, the intervention design could be replicated so that similar programs are extended to specific cultural groups in relevant community languages in the future.

6.4.6 Reducing chronic disease in the community. Community based collaborations have the capacity to reduce chronic disease in the community by empowering members with the health promotion capabilities (knowledge, skills and confidence) they need to ensure their own health and the health of the broader community. Such collaborations should include knowledge about the status and causes of major diseases and conditions in the community as well as information about how to prevent them as suggested in the health promotion model developed in this research. People need to be aware of the problems in their community and broader environment and of the possible solutions. They also need to take part in the decision making process and propose their own solutions to those problems. Participation needs to be meaningful rather than tokenistic as suggested in Arnstein’s (1969) ladder of citizen participation model and the community governance model proposed in this thesis. Community governance refers to community empowerment, management, decision making, ownership and control and not just participation.

PART FOUR: GENERAL CONCLUSIONS, RECOMMENDATIONS AND CLOSING COMMENTS

	4

Chapter 7: Conclusions, Recommendations and Closing Comments

7.1 Thesis and Chapter Overview

7.2 Stage One Conclusions

7.3 Stage Two Conclusions

7.4 Stage Three Conclusions

7.5 Conclusions Related to the Thesis as a Whole

Chapter 7: Conclusions, Recommendations and Closing Comments

7.1 Thesis and Chapter Overview

Preventing the rising tide of chronic diseases, promoting wellness and addressing health inequalities between and within populations and communities are important public health responsibilities for the 21^{st} century. The primary proposition of this thesis was that addressing the burden of chronic disease requires detailed evidence about the problem as well as a paradigm shift in the health system so that it is more preventative and community governed, than reactive and paternalistic. This proposition was woven into the primary aim of this research thesis, which was to develop a community centred health promotion strategy to assist the improvement of health and the prevention of chronic disease in an Australian context.

The primary aim was addressed in two major research stages (a quantitative and qualitative) and a minor evaluation stage. This included developing a health evidence base that addresses current Australian health priorities and concerns in Stage One, involving community members in the governance or meaningful collaboration of health promotion activities in Stage Two and evaluating the effectiveness of the intervention in Stage Three. Each stage consisted of specific aims and research questions as discussed in the following sections. The significance, validity, limitations and future directions of each of the three research stages is also discussed.

Following the discussion of the three stages, the conclusions arising from the thesis as a whole are discussed together with a number of recommendations arising from the research and closing comments are presented in the final section.

7.2 Stage One Conclusions

7.2.1 Aims, research questions and significance of Stage One. Stage One was an exploratory quantitative research stage known as the Community Health Evidence Base (CHEB). It consisted of a major aim and research question (MQ) and further operational research questions developed during the collection and analysis of data. The major aim and research question were:

MQ1. What is the current evidence/knowledge about health status, determinants and inequalities in Victorian communities and the broader Victorian and Australian context?

The aim and research question were developed following an in depth review of the concept of evidence in the literature and identification of the close relationship between the three constructs of health status, determinants and inequalities. It was argued that although the three constructs were well acknowledged in the literature, they were usually viewed in isolation rather than holistically as part of the same theory or problem. Part of this gap was therefore addressed through the development of a model that showed the inextricable link between these constructs. In this model, determinants were the contributing factors in health, health status was the outcome, and inequalities were the differences between the health statuses of individuals or communities.

A review of the various Australian initiatives and policies in the early stages of this research, revealed that the gap in theoretical understanding of determinants, inequalities and community health status as a whole was matched by a similar lack of integration in the health data and statistics, particularly at the state level. The major aim of this stage of the research was therefore:

Aim 1. To develop an evidence base that will contribute to knowledge of community health status, determinants and inequalities and provide a guide for health promotion and disease prevention activities.

In addition to these three critical issues in health (determinants, health status and inequalities), the concept of guiding evidence in this thesis incorporated a focus on the Australian National Health Priority Areas (NHPAs). An example of how a guiding evidence base on determinants, health status and inequalities could be achieved was provided in Stage One of this research in the development of the Community Health Evidence Base. This stage consisted of an exploration of statistics at the Australian, Victorian and Victorian Community level and included analyses of life expectancy, mortality and morbidity, causes of death, summaries of health surveys and hospitalisations (separations and bed days).

Figure 81 shows the determinants, inequalities and community health status model together with a summary of the type of evidence explored in this thesis. It also alludes to the answer to the research question posed earlier: What is the current evidence/knowledge about health status, determinants and inequalities in Victorian communities and the broader Victorian and Australian context?

Firstly, the comparative analyses undertaken in Stage One revealed that certain determinants (Part 1 of the model) were implicated in better or worse health outcomes (Part 2 of the model). These determinants analysed during the CHEB stage included geographic location or residence (country, state/territory, metropolitan/rural, LGAs/SLAs), indigenous status, gender and age. These were found to impact on one or more of the health status variables of life expectancy, mortality and morbidity, causes of death, hospitalisations (separations and bed days by NHPAs). Many of these should be further investigated to determine why such differences occur and addressed as a matter of priority.

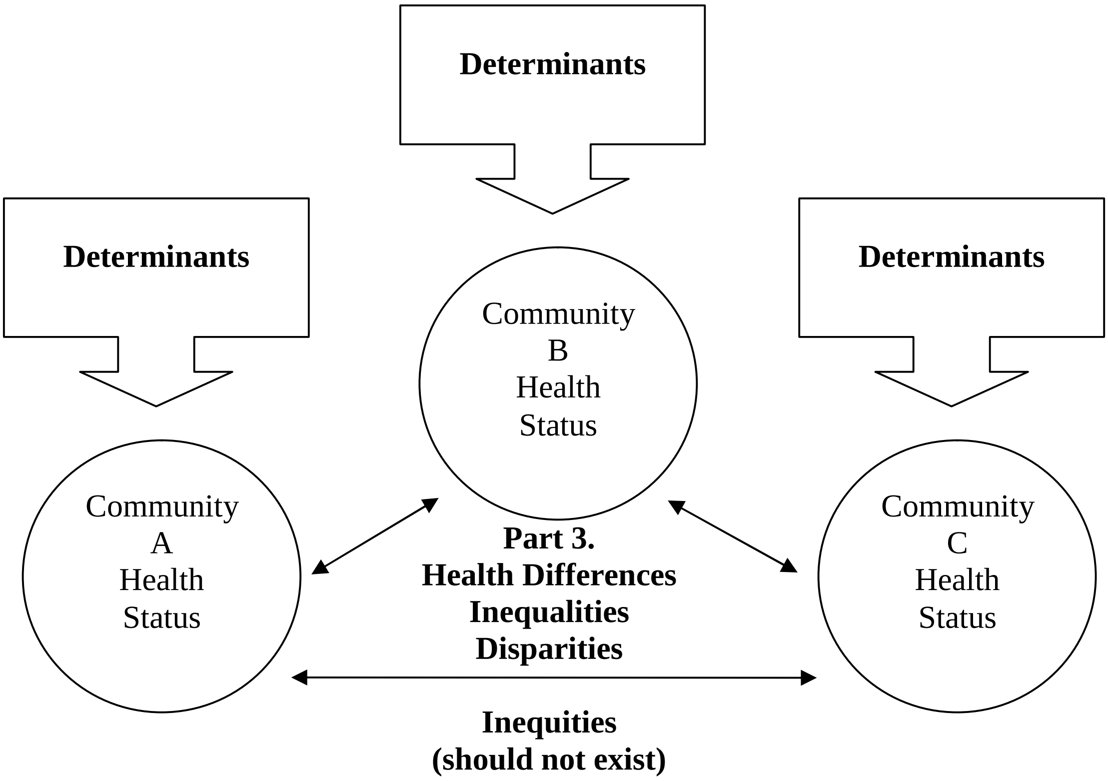
The Australian and Victorian surveys summarised in Stage One provided another source of information about ‘possible’ determinants and self assessed health status, however, it was not possible to say which determinants contributed to better or worse health outcomes. For example, as shown previously in Table 35 (ABS, 2006b) many Australians rated their health as excellent/very good (82.4% of 15–17 olds, 58.6 of 18–64 olds, and 35.5 % aged 65) even though the survey also showed that too many

Australians engage in unhealthy behaviours considered to be risk factors in the development of diseases.

Part 1. Determinants

Analysis: Country of residence, state/territory, metropolitan/rural, indigenous status, LGAs/SLAs, gender, age.

Surveys: Smoking, sedentary/low exercise level, overweight/obese BMI scores, daily serves of fruit, age, daily serves of vegetables, physical activity, health screening, access to medical care, alcohol consumption, mental and behavioural problems/psychological distress, social networks and participation, smoking, nutrition, physical activity and overweight/obesity, socio-economic determinants of health.



Part 2. Health Status

Analysis: Life expectancy, mortality and morbidity, causes of death, hospitalisations (NHPA separations and bed days).

Surveys: self-assessed health status.

Figure 81. Determinants, inequalities and community health status: A model of guiding evidence for community health promotion.

The findings from the Victorian surveys were similar. There were many positive ratings yet too many risky behaviours and characteristics were also evident such as high BMI’s, sedentary lifestyle, smoking, high alcohol consumption and low fruit and vegetable intake. People judge their health by their present and sometimes past health status and people are unaware of what lies ahead of them, even when they engage in risky behaviours. As many chronic diseases are insidious, early intervention around risky behaviours through health promotion and prevention programs should be a continued focus for the future.

Evidence about health differences (inequalities, disparities, inequities), which may be referred to as Part 3 of the model, was also a major focus in Stage One of the research. Identifying differences in health status was achieved by categorising the variables classified as determinants (country of residence, state/territory, metropolitan/rural, indigenous status, LGAs, gender, age) and comparing on some measure of health status (life expectancy, mortality and morbidity, causes of death, hospitalisations).

In the review of literature in this field, it was highlighted that disparities, inequalities, and inequities in health all refer to differences in health or health status. In addition, the term ‘inequities’ has a moral and ethical dimension and refers to differences that are “unfair and unjust … [when] judged … in the context of what is going on in the rest of society” (Whitehead, 1991, p. 5). Such an ethical and moral judgement could be made in relation to a number of findings in the present research. These include the inequities between indigenous/non-indigenous and rural/metropolitan people, LGAs and males and females. Death and diseases in younger age groups should also be seen as inequities as are accidents and injuries in any age group as these are preventable and therefore amenable to change.

Various statistics were calculated to highlight these differences. These included the world averages (for 190 countries), differences, ranges and medians for a number of health indicators. In addition, the LGAs and SLAs, were ranked and sorted in order to highlight various differences in mortality, morbidity and hospitalisation rates. While some of these inequalities might be due to older age in particular communities, it was clear that there were also many inequities at the local community level that need to be addressed. Another comparative statistic calculated in this research, was the ratio of indigenous/non-indigenous deaths. This ratio showed that indigenous mortality rates for diabetes mellitus, diseases of the digestive system and liver, certain conditions originating in the perinatal period and congenital conditions, external causes of morbidity and mortality, transport accidents, intentional self-harm, assault and other external causes are between 1.2 - 9.3 times higher. The detailed information arising from this and similar analyses should be used to develop specific initiatives to target these inequities in the future.

Having outlined some of the major inequities, a more systematic summary of the findings is presented in the following sections by the measures or indicators of health status. As shown previously in the data map in Table 18, the collection and analysis of data focussed on the Australian, Victorian and Victorian Community levels (where applicable) for the following indicators of health status:

- Life Expectancy (LE)
- Mortality and Morbidity (Death and Disease) around the world
- Causes of Death
- Summaries of Health Surveys
- Hospital Separations
- Hospital Bed days

Life Expectancy (LE)

This included comparative analyses of LEs for Australians/world (2007), Indigenous Australians (1996–2001), Victorians compared to states and territories (1995-2004), metropolitan and rural regions (1996-2004) and LGAs below and above average (2004). The results showed that Australia was within the top ten countries for life expectancy and has about twice the LE of some developing countries, however the LE for indigenous Australians was 17 years below non-indigenous Australians (Trewin & Madden, 2006). The LE for Victoria was much higher than the Northern Territory, where many indigenous people live and slightly higher than the Australian average and other states, except the ACT which had the highest overall LE. Male LEs were lower than female LEs at all three geographical levels. Gender and regional inequality was also present with rural males having the lowest LE, followed by metropolitan males, rural females and metropolitan females with the highest LE. Most rural LGAs had lower than average LEs although there were also a number of metropolitan LGAs with LEs below the Victorian mean. These included but were not limited to Maribyrnong and Darebin for males; Melton, Knox, Hume and Kingston for females; and Port Phillip, Yarra, Frankston and Hobsons Bay for both males and females. The significance of the LE analysis conducted is that it identified various differences in LE that can be considered inequitable and that can be targeted in further research and action.

Mortality and Morbidity (Death and Disease) around the world

This indicator included an examination of Mortality and morbidity among adults, worldwide (2002) and core health (mortality) indicators for Australia and worldwide (2002). The results showed that most of the mortality and morbidity around the world is not from communicable diseases but from preventable causes, which could potentially be curbed with better health promotion, education and support services. The figures also showed that younger people (age 15-59) tend to die and suffer more from HIV/AIDS, accidents, injuries and alcohol related disease while older persons die and suffer more from chronic conditions and diseases of older age. In addition, over 10.5 million children (aged less than five years) die in developing countries around the world each year.

Australia has a higher than world average of YLL for non-communicable diseases and injuries. This suggests that even though less people in Australia are dying of these conditions compared to many other parts of the world, the ones that are dying are younger in age. Australia also has higher than the world averages of death of children under five years due to injuries as well as neonatal causes and other causes. Australia was not alone in having these higher than average deaths for children from these particular causes. On the other hand, Australia was lower than average for various other causes of death of children such as diarrhoeal diseases, pneumonia, malaria and HIV/AIDS. Nevertheless, the Australian statistics for the conditions mentioned does suggest the need for further investigation, monitoring and action.

Causes of Death

The analyses for this health status indicator included an examination of causes of death for Australia: Ages 0-44 and 45-85+ (2005); Indigenous and Non-indigenous Australians (2005) and the top 20 causes of death in Victoria (1999-2008). Several research questions were also developed to explore differences across gender, age, regions and communities, including: What was the male, female and total number and rate of deaths in rural and metropolitan Victoria for each age group for the years 2001-2005? Which LGAs have the highest numbers and rates of death in each age category? What are the main causes of death among males and females of different age groups and LGAs? The raw data for this study were obtained from the Department of Human Services and consisted of an excel dataset of approximately 14,000 rows of data and 20 diseases and conditions for a five year period (2001-2005). The Victorian causes of death data was not previously in the public domain, thus the present analysis represents a significant contribution to understanding the causes of death of particular age groups and the LGAs that are most at risk.

The results showed that the greatest numbers of deaths for younger Australians (birth to 44 years of age) were from a variety of external causes, followed by malignant neoplasms, intentional self-harm, transport accidents and diseases of the circulatory system. The major causes of mortality for older persons (45 to 85 years and over) were from diseases of the circulatory system, followed by malignant neoplasms, ischaemic heart diseases, cerebrovascular diseases and diseases of the respiratory system. Diseases of the circulatory system, malignant neoplasms and ischaemic heart diseases were the three largest causes of indigenous and non-indigenous deaths, contributing to 55% and 59.1% of all deaths, respectively. Areas of inequity between indigenous and non-indigenous Australians should be addressed as an ongoing priority. Indigenous mortality rates for diabetes mellitus, diseases of the digestive system and liver, certain conditions originating in the perinatal period and congenital conditions, external causes of morbidity and mortality, transport accidents, intentional self-harm, assault and other external causes are between 1.2 - 9.3 times higher.

The top twenty causes of death for Victorians were: ischaemic heart diseases, strokes, dementia and alzheimer's disease, cancer (trachea and lung, breast, prostate, colon and rectum, blood and lymph, pancreatic, skin) chronic lower respiratory diseases, diabetes, heart failure, diseases of the kidney and urinary system, suicide, falls, cardiac arrhythmias, influenza and pneumonia, hypertensive diseases, cirrhosis and other diseases of liver. Targeted programs around these diseases and conditions should be developed to prevent deaths from these causes.

Rural females are dying in greater numbers and rates than metropolitan females in every age group. Rural males on the hand had a lower number of deaths than metropolitan males for every age category but a higher ‘rate’ of death for every age category except for the 0-14 age group which was only slightly less. Rural males also had a greater death rate than rural females for the 15-34 and 35-64 age groups but not for the youngest and oldest age groups (0-14 and 65+).

The two main causes of death for males and females in the 0-14 age group were certain conditions originating in the perinatal period and congenital malformations, deformations and chromosomal abnormalities with more males dying of these conditions than females. The LGAs with the highest number of deaths for this age group were Brimbank, Hume, Casey, Greater Geelong, Moreland, and Knox.

The top five causes of death for males and females in the 15-34 year old age group were external causes of morbidity and mortality, transport accidents, intentional self-harm, malignant neoplasms and other medical conditions again with more males dying of these conditions than females. The highest numbers of overall deaths for this age group were in Casey, Greater Geelong, Knox, Frankston, Brimbank and Darebin.

The top causes of death for males and females in the 35-64 year old age group were malignant neoplasms, diseases of the circulatory system, cancer of the digestive organs, ischaemic heart diseases (males), external causes of morbidity and mortality and all other medical conditions (females). The greatest numbers of deaths from these causes were in Brimbank (males), Casey, Yarra Ranges (males), Greater Geelong, Darebin (females), Mornington Peninsula (females) and Greater Dandenong.

Numbers and rates yield different information requiring different actions. For example, communities with high numbers may need additional health and community services together with a greater financial investment to tackle the high numbers. Alternately, high rates of death in particular communities are suggestive of inequities that require a more targeted approach. Communities with both high numbers and rates of death may be particularly vulnerable and may need additional health and community services as well as preventative community education programs.

Summaries of Health Surveys

Four large-scale health surveys were examined and summarised to gain an understanding of the health of Australians and Victorians. These included the National Health Survey – Australia (2004-2005), the National Health Survey – Victoria (2004-2005), the Victorian Population Health Survey (2005) and "Your Health" Report on the Health of Victorians (2005). The Australian and Victorian health surveys revealed differences on a number of indicators. For example, the Australian survey showed males had lower fruit and vegetable intake, took greater alcohol and smoking risks and were more likely to be obese or overweight. On the other hand, females reported greater rates of asthma and psychological distress, lower rates of membership in sports and community action groups. Both sexes however, put their health at risk by not consuming enough vegetables.

Hospitalisations

As previously stated, a substantial analysis of hospitalisations (separations and bed days) in Victoria and Victorian communities was also undertaken as part of this research. This is study also represents a significant new understanding as no other such analysis exists in the public domain in Victoria at present. The research questions for the Victorian level data were: What are the hospital separation and bed day numbers for each of the seven NHPAs in Victoria? Are there any gender differences in hospital separations and bed day numbers for the NHPAs in Victoria? Are there any age related differences in hospital separations and bed days for the NHPAs and total conditions in Victoria? (2004-2005).

The results for the Victorian level data showed that the total number of separations for Victoria was 1,890,548 (877,863 males and 1,012,685 females) with 27.89% for the seven NHPAs and 72.04% for all other conditions and diseases. The highest number of admissions for males and females combined for the NHPA were for cardiovascular disease, followed by admissions related to the injury prevention and control priority, arthritic and musculo-skeletal conditions, cancer, mental health conditions, diabetes and asthma. The main gender differences were that females had higher numbers of separations for asthma, mental health, arthritic and musculo-skeletal conditions and other conditions and diseases while males had higher numbers of separations for cancer, cardiovascular disease, diabetes and injuries.

The main age related trends identified in the hospitalisation separation data were that:

1. Separations for cancer, cardiovascular disease, diabetes, other conditions and diseases and the number of unknown, not stated conditions increased with age.
2. Asthma separations were higher for the 0-14 age group followed by 35-64, 15-34 and then the 65+ age group.
3. Separations for mental health and arthritic and musculo-skeletal conditions decreased for the 65+ age group.
4. Separations related to injuries were higher in the 15-34 age group and lower in the 65+ age group for males but incrementally increased with age for females.

The main age related trends for the number of bed days in hospital were:

1. The number of bed days for cancer, cardiovascular disease, diabetes, arthritic and musculo-skeletal conditions, injuries, and the number of unknown and not stated conditions, all increased with age.

2. An age related increase was also evident for other conditions and diseases for females whereas for males, there were more bed days for the 0-14 age group than the 15-34 age group for this category.
3. There was a higher number of bed days for asthma for the 0-14 age group followed by 35-64, 15-34 and then the 65+ age group for males whereas for females it was higher in the 35-64 age group followed by 65+, 0-14 and 15-34.
4. Incremental age increases in bed days for mental health were evident for males and females up to 35-64 years with a decrease at 65+.

The findings of the Victorian level analysis of hospital data offer useful detail on the methodology of hospital statistics and on the particular conditions, gender and age groups that could be targeted in further health promotion programs in the future.
The research questions for the Victorian community level data were: What are the hospital separation and bed day numbers for each of the NHPAs in Victorian communities? Are there any inequalities among communities when compared on the dimensions of overall separations, bed day numbers and NHPAs? The results were displayed in 14 bar charts, which showed the 20 Victorian SLAs with the highest number of separations or bed days for each of the seven NHPAs. A further seven summary tables showing the top ten communities with the highest numbers and rates were also constructed. The major significance of the hospitalisation analyses is that such an analyses is not elsewhere available in the public domain and that it enables the top (up to ten or twenty) most disadvantaged SLAs to be targeted in health promotion activities.

In summary, the SLAs with the highest number and rate of separations respectively were:

- Knox(C: North) and Glenelg(S: Portland) for arthritic and musculo-skeletal conditions
- Yarra Ranges(S: South-West) and Moira(S) for asthma
- Manningham(C: West) and Warrnambool(C) for cancer

- Mornington Peninsula(S: South) and Gtr Bendigo(C: Inner West) for cardiovascular disease
- Darebin(C: Preston) and Wyndham(C: West, South) for diabetes
- Yarra Ranges(S: South-West) and Corangamite(S) for injury
- Boroondara(C: Camberwell S) (highest number and rate) for mental health

The SLAs with the highest number and rate of bed-days were:

- Frankston(C: West) and Delatite(S: Benalla) for arthritic and musculo-skeletal conditions
- Knox(C: North) and Ararat(RC) for asthma
- Whittlesea(C: South) and Warrnambool(C) for cancer
- Frankston(C: West) and Melton(S: East) for cardiovascular disease
- Brimbank(C: Sunshine) and Moorabool(S: Ballan, West) for diabetes
- Knox(C: North) and Melton(S: East) for injury
- Darebin(C: Northcote) (highest number and rate) for mental health

The dissemination of findings is an important step in the research process and in health promotion and some of this has already been ongoing during this research. The Community Health Evidence Base was produced in three main formats. The first draft was completed as a stand-alone report in 2008, initially to be used for education purposes during the CHIC program in early 2009. However, following the recruitment process, it was decided that a less wordy PowerPoint presentation would fit within the session time and suit this particular multicultural group better. The larger report was made available to the community group during the program and on the CHIC website. In order to disseminate the findings more widely (and implement some social marketing) a link to the draft report was also sent to various persons who participated in some way[21]. Finally, the CHEB resource was also integrated into this thesis as Chapter 5.

As some of the qualitative comments and subsequent actions showed, the statistics disseminated to participants during Stage Two increased their awareness of diseases and prevention and empowered them to take action in their own communities. Although health outcomes could not be measured in this research, the commitment to health promotion by members of the CHIC team after the formal program, also demonstrates the important role that such evidence and community collaboration can play in motivating future health behaviours.

Selected findings from the research completed in Stage One were also presented at three international Australian conferences in management, public health, health promotion and psychology. As discussed earlier, the publication of results can be a defining characteristic of action research (Dick, 1999a) and is a way of increasing the potential for positive change and transformation beyond the research. The publications included a refereed conference paper titled *Developing the evidence base for community-governed health promotion and prevention* (2007), and two posters titled *Determinants, inequalities and mental health hospitalisations in Victorian communities* (2008b) and *Community Health Evidence Base: Guiding Evidence for Community Health Promotion in Victoria (Selected Findings for Urgent Action)* (2009a). The research conducted in Stage One therefore had the potential to influence many people in addition to the participants involved in the Community Health Information Collaboration, including the politicians, researchers and health practitioners present at the conferences[22].

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[21] These included persons who attended the CHIC celebration, service providers who were contacted during the recruitment stage and persons who provided data (from DHS and AIHW).

[22] Although metrics are not available for the posters, this conference paper has been downloaded nearly 300 times from over 30 countries as shown in the VU institutional repository statistics. The focus on determinants, inequalities and health status as an integrated model of intervention also appears to have influenced the wording of

It is anticipated that the CHEB resources and the determinants, inequalities and community health status model will make a worthwhile contribution to the public health and health promotion field. With further dissemination of the model, the discourse and future research in this field should begin to focus not only on the problem of determinants or inequalities but on how, why and which determinants lead to particular inequalities in the health status of individuals and communities. This together with greater efforts to collect and analyse data on these topics would allow for better evidence-based decision making by governments and public health/health promotion practitioners as well as for researchers, practitioners and communities working to promote health and prevent chronic diseases and conditions in their particular communities. The present CHEB resources are housed on the CHIC website and may therefore continue to influence change in health behaviours, health status and health policy. Further development and social marketing of the website, writing summaries and publications from the various findings, applying for further research funding and updates of data will be important tasks for the future. Overall, it may be concluded that the Community Health Evidence Base yielded a wealth of information that could be used to guide public health and health promotion activities and decisions in Victorian communities and beyond.

The ecological ‘person in context’ model of health determinants developed during the first stage of this research will make another worthwhile contribution to the health promotion field. This model proved to be an effective way of conveying public health concepts to culturally diverse community group. The model demonstrated the important role of determinants, which included various personal and contextual factors in the health and well-being (wellness) of the individual; and would be useful in further action research programs with community members. As in the present research, this model could be shown to community members in future programs prior to the presentation of statistics or planning for action to assist their understanding of the many personal and contextual factors that act to determine individual health and well-being. It will be particularly suited to community psychologists who hold a ‘person in context’ view of the world and work directly with community groups. Indeed, community and health orientated psychologists could play an important role in reducing the burden of disease at a community level in the future and it is to them that this research is particularly directed.

7.2.2 Limitations and validity of Stage One. A major limitation of the research conducted in Stage One, is that further analysis or ‘drill-down analysis’ could not be used with much of the data available for this study. Drill-down analyses is a data mining technique that involves breaking down data by a few variables of interest (e.g., gender, geographic region, etc.), producing various statistics, tables, histograms, and other graphical summaries for each group and then further analysing and breaking down of a category, by other variables (StatSoft Inc., 2011). For example, in the present research, it was possible to produce tables showing indigenous and non-indigenous deaths by gender for a range of diseases and conditions; but it was not possible to drill down to explore whether some diseases were more common for males aged less than 30 who lived in a particular region.

Another limitation is that there may be other determinants or measures of health status that were not incorporated into the current evidence base; either because the statistics did not exist or were not readily available in the public domain at the time of conducting this analysis in 2008. For example, despite the interest in social determinants of health so widely expressed by researchers and health practitioners in the literature review, surprisingly little data on this is publicly available. This is because questions about social status are not asked when someone is sick, comes into contact with health services or dies. Correlational studies based on large scale health/social determinants surveys or existing data sets for whole communities (e.g., hospitalisations by unemployment in a region) may address some of this gap. Moreover, there could have been other ways to display and explore the data that was not undertaken in the present work due to the independent nature of the research and the large volume of data and information to be analysed. In addition, a snapshot at one point in time could not be conducted due to the unavailability of data for all the indicators of interest. Ideally, all the data should relate to a particular year or year range so that direct comparisons between sets of data can be made.

Some of the data are also now quite dated, although it should be noted that this is also a problem in the broader system and not just in the present thesis. That is, new data for many of the analyses conducted in the present research are still not publicly available. As stated in relation to the US health system: data collection and analysis at a national level takes time to compile. Most statistics are out of date to some degree by the time they are published and rarely will you find “real time” data except for estimates. Current health data are based on extrapolations of older data and in most cases you should expect at least a 3-5 year time lag between data collection and a published report (The University of Chicago Library, 2005).

Some of the limitations outlined above could be resolved when the Victorian Metropolitan Health Plan 2012-2022 is fully implemented and an optimal health data and surveillance system is established. Data analyses by teams of researchers, with each responsible for a single or small number of indicators or measure of health may be one way to update large health data systems quickly and continually.

Further dissemination of the present resource is also needed. Housing the CHEB data on a website in the form of an interactive database or as an updated report or PowerPoint presentation as produced for the second stage of research would be a useful task for the future. Further steps beyond this thesis might also include detailed plans and strategies for knowledge management and knowledge translation to help bridge the knowledge practice and knowledge policy gap.

Further concluding comments with respect to validity in this stage are summarised using Gray’s categories of ‘design’, ‘execution’ and ‘results or conclusions’ as introduced in the method section and may be seen in Table 61.

Table 61

Selected Validity Issues in Stage One

Validity Issue	Comments
Design	
Design integrity: Was the research design/method appropriate for addressing the questions/aims of the study?	The quantitative analysis of health data undertaken during this stage was relevant to addressing the main research question: What is the current evidence/knowledge about health status, determinants and inequalities in Victorian communities and the broader Victorian and Australian context? The question could not have been addressed with qualitative methods or with survey sample design.
Sources of data: Are the data accurate and credible?	The data were obtained from credible government public health sources and random sampling was used in the health surveys.
Are the health surveys valid?	
Execution	
Research integrity: Was the treatment and analysis of data accurate and credible?	The researcher was meticulous in the handling of data and has strong qualifications/experience in quantitative methods and large databases. The research was conducted with support from experienced supervisors.
Were the results well presented?	The results were presented quite broadly in a number of formats in various conference publications and to the community group and celebration participants as a Powerpoint presentation. The latter could be modified for future groups as it was quite extensive. The results could be of benefit in future strategies by community, government and others as outlined in the previous section and in section 7.5 (Conclusions Related to the Thesis as a Whole).
Were the results of benefit to the community group?	
Are the results of benefit to others?	
Results/Conclusions	
External validity: Do the results accurately reflect the real world?	The results reflect the real world accurately because actual population data was used in the analysis.
Are the conclusions correct?	The conclusions drawn in this stage can be considered correct for the time periods stated, however, unknown changes in health data are likely to occur from year to year and therefore require ongoing analysis.
Are there any serious limitations?	Data lags, differences in the years between data sets and other such issues present ongoing challenges in health data collection/analysis but still yield good representations to inform policy and action. Some possible ways to address these issues were discussed in this chapter.

7.3 Stage Two Conclusions

7.3.1 Aims, research questions and significance of Stage Two. Stage Two consisted of a qualitative community based action research and health promotion collaboration with a small community group in the metropolitan Brimbank region of Melbourne, Victoria, Australia. This stage consisted of two major research questions and aims as listed below and three other sub-aims discussed afterwards.

MQ2. What are the benefits of community based health promotion and prevention?
Aim 2. To collaborate with a local community group and empower members of the group with health promotion and disease prevention knowledge, skills and confidence.

MQ3. What ideas for health promotion action does the community have to offer?
Aim 3. To engage the community group in the development of a health promotion idea for action to improve health in the broader community.

The literature reviewed in Chapter 2 demonstrated the value of community based interventions and collaborations for community empowerment and action. Building community strength, competence, capacity building, skills, knowledge, decision making, commitment to a common mission, being able to see different aspects of a problem and focusing on the local relevance of public health were just a few of the numerous benefits mentioned. The present research questions were based on an understanding of this literature and can be similarly viewed as questions that aim to demonstrate the value of community based collaborations and start the action research process. The aims and questions further reflect a praxis and community governance approach with a view of empowerment that includes knowledge, skills and confidence as conducive to action and community wellness, as proposed in the theoretical framework in Chapter 3.

The first major research question and aim in Stage Two (MQ2 & Aim 2) was associated with three sub-aims as listed and discussed following.

2a. To inform the community group about major health concepts and concerns in Australian society, including National Health Priority Areas, health status, determinants of health, inequalities and major causes of mortality and hospitalisation.
2b. To introduce the community group and broader community to a range of internet based community health information resources.
2c. To explore and strengthen community members' understanding and interests in personal and community health.

The first two of these aims were important in the second and first sessions of the 10-week Community Health Information Collaboration program, respectively. The first sub-aim (2a) coincides with the 'knowledge of the problem' part of the theoretical framework and was presented in the second session because of its 'heavier' statistical content. On the other hand, the 'lighter' content of 2b, which coincides with 'knowledge of problem solutions', was an easier follow on to the introductions in the first session. The third sub-aim (2c) was addressed through the program as a whole and by enabling members of the group to introduce their interests in health, contribute to discussion, ask questions, generate ideas and plan for health promotion action in the community.

These aims were designed to be educative and informative and to encourage and perhaps even stir critical reflection by the members of the group. As discussed, engaging with the problem (the growing burden of disease) or problem based learning, is a critical part of the theoretical model as are the problem solutions provided to and generated by the community. Learning about what people are dying of is sobering as well as motivating. It is difficult not be stirred by the cold facts of chronic disease and members of the group showed interest and concern during the discussion around the models, National Health Priority Areas and the statistics that followed.

The commitment to the program over the ten-week period, the generation of ideas for health promotion, the reflection and planning for action, the positive evaluations, and the ongoing actions beyond the 10-week program are all indicators of the success of this approach and the program as a whole. In addition, the commitment by several members of the CHIC team to continue to pursue preventative education for their respective communities is an indicator demonstrating that sufficient health promotion and disease prevention capabilities (knowledge, skills and confidence) were gained from the experience.

Chapter 6 included a discussion of the CHIC program and post program activities and the identification of six main themes or conclusions, which demonstrate the answer to the research question on the benefits of community based health promotion and prevention (MQ2). These themes appear in the model in Figure 82 and are further defined and discussed following.

1. Empowerment can be conceptualised as a gain in knowledge, skills and confidence in health promotion and disease prevention. Knowledge of the problem as well as possible solutions are both important. However, skills and confidence in relation to using that knowledge for community health promotion and change are essential for empowerment. Empowerment in turn is essential for the community governance of health promotion, for a sense of ownership and control of the problem and means to transform reality.

2. The principle of *relevancy* in the present context is about the fit and timeliness of a project for a particular community and about the readiness of the community to respond. As discussed earlier in the literature review, readiness for change was recognised in Bracht and Kingsbury's community organization model of health promotion (1990) and implicated in learning and changing the social gradient (Flower, 1997). On the other hand, the principle of relevancy observed in this research is not discussed in the health promotion literature. Relevancy can be ensured by allowing community members/leaders to have a high degree of decision making in the direction, shape and timing of health promotion interventions so that it is relevant to a community of interest that they know well (e.g., a school community or a group of elderly Vietnamese or Latino-American people). As held in action research, the participants are the experts in their own lived experiences (Curtis, Bryce, & Treloar, 1999), therefore listening to the needs and wants of members will ensure the most relevant outcomes.

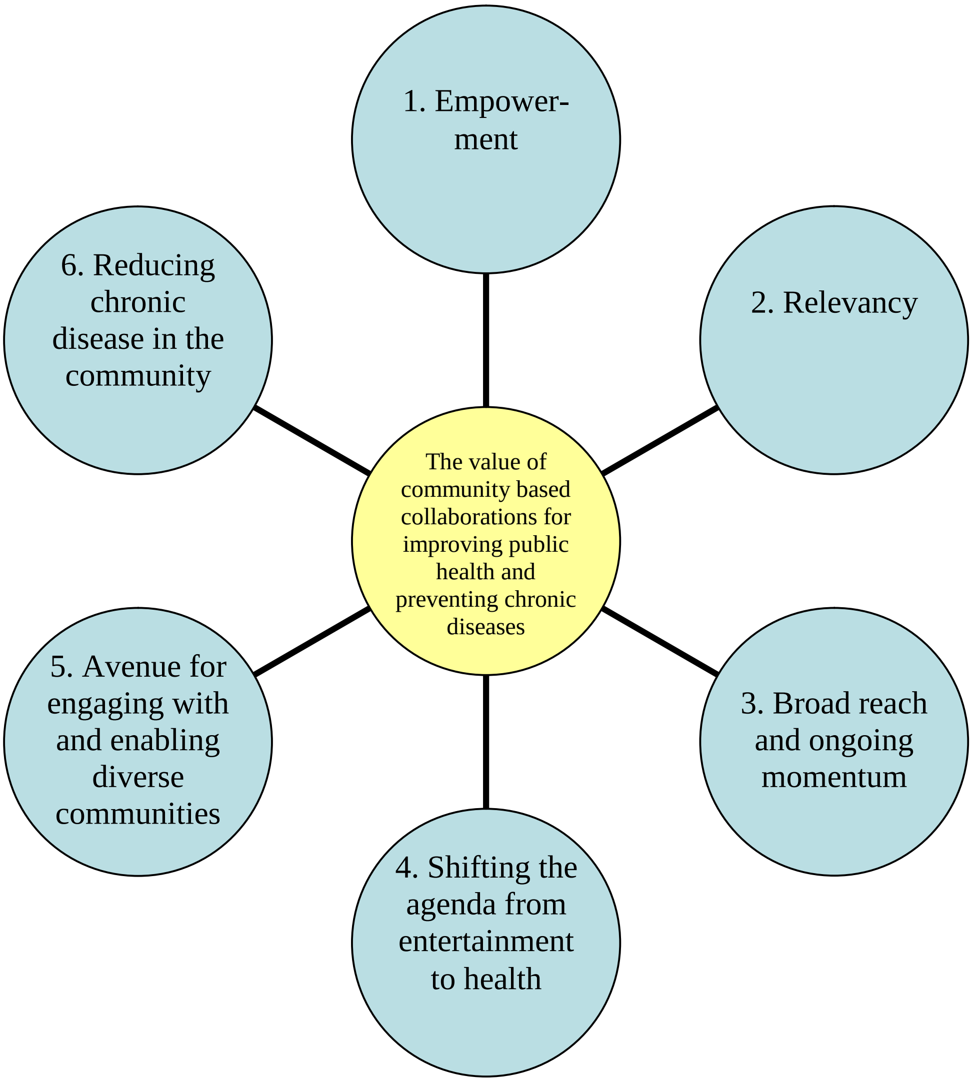

Figure 82. Six themes demonstrating the value of community based collaborations for improving public health and preventing chronic diseases.

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3. *Shifting the agenda from entertainment to health* is a shift in perspective that can involve using existing resources for a different purpose (health improvement rather than entertainment only) and that can serve as a rationale for needed changes, action and funding applications. Community centres and groups spend countless hours and funds per year developing opportunities for people to socialise in a group setting. These groups are important in preventing loneliness, isolation, mental health problems and even suicide, especially in elderly people. However, in order to prevent the growing

burden of chronic disease and to help people manage existing conditions, health could be added to the agenda, where previously it not exist. A children's art show can be a 'healthy art show', a cooking demonstration can be a 'healthy cooking demonstration' and a guest speaker can be a nutritionist, psychologist, diabetes educator or exercise physiologist who engages the group in some life enhancing healthy learning or activity. Further funding support is required for such activities at a community level.

4. The present research suggests that even smaller programs can have a *broad reach and ongoing momentum* if members of the group are empowered and ready to take ownership in the role of health promotion and disease prevention. Individuals do not live in a vacuum but in the context of a network of family, friends, colleagues and community, who are all capable of helping and influencing each other. For example, while the initial CHIC team made up only a small group of participants, the number of people who learned from or about the program or participated in it in some way was in the hundreds. Although difficult to determine the effectiveness of interventions in the real world, it is likely that some of the many people involved learnt something valuable about improving their health and preventing chronic diseases during this intervention.

5. The CHIC program provided a suitable *avenue for engaging with and enabling diverse communities*, through its common interest focus on health and basic and modifiable intervention design. The practical significance of the CHIC program is that it can be used successfully with diverse cultures. Some of the appeal of the program for members was that it was inclusive and respectful of diversity, free of charge to the community, educative yet involved no formal assessment, collaborative and flexible in terms of selecting ideas, planning and action and last but not least enjoyable.

6. Community based collaborations that give attention to community building and community governance are a promising way of promoting health and *preventing and reducing chronic diseases in the community*. Community governance, community building and community development approaches are much like the Chinese proverb: *Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime*. Community psychologists understand that being the 'expert' can be

disempowering to the ‘non expert’. The approach in this thesis all along has therefore been to share knowledge and power and transfer ownership of health and health promotion to the community.

The second major research question and aim in Stage Two (MQ3 & Aim 3) related to ideas and action and were primarily addressed by conducting the Nominal Group Technique (NGT) in the fourth session of the CHIC program. The NGT was a valuable ‘brainstorming’ or idea generating method that also simplified the group decision-making process about which idea to pursue further. The method was chosen over traditional qualitative methods such as focus groups and interviews because the CHIC program was a multi week educational program and collaboration rather than a data collection session. Due to the collaborative nature and longer duration of the CHIC program, other traditional methods such as recording, transcribing and detailed note taking and observations could not be undertaken. The NGT (together with the evaluation questionnaire) was therefore a way of building in formal data collection methodology into the program. Even so, the technique was used in a contemporary and enjoyable manner conducive to qualitative research.

This research also made a contribution to knowledge and practice of the Nominal Group Technique by further refining the method and applying it in community based health promotion. This includes two resources that can be used in community based research – a PowerPoint show for community members that describes the NGT method (Totikidis, 2009b) and a refereed journal article consisting of detailed discussion of the method and results of the NGT study undertaken in this thesis (Totikidis, 2010). The development of ideas by the participants during this stage has also made a practical contribution to our understanding of the needs and wants of a multicultural group of community members in relation to health promotion and improving community health. Although the design of this study allowed for one of these ideas to be developed, the list of ideas generated by the community could be utilised in future work by researchers, service providers, local government or indeed by community members themselves. Further government funding and support as illustrated in the theoretical framework (see part 2. System

Support) is essential for community groups and researchers to continue such health promotion efforts.

The 10-week CHIC program was carefully designed by the present researcher so that it could be used for future health promotion in the Brimbank region, and more broadly in other Victorian communities. The significance of the program and this model of intervention is that it focuses on increasing awareness of critical health problems in the current health system and provides a space and time for reflection and action with respect to those problems by community members. Although, the initial agenda of ‘chronic disease’ is a pre-determined part of the framework, the model allows for flexibility of ideas that arise from and are specific to a particular community. The community is empowered with the important decision making process as the community experts without the tedious task of analysing complex statistics which requires a different kind of expertise. The model offers a unique ‘problem based’ or ‘problem posing’ approach that can make an important contribution to health promotion and the prevention of chronic disease in Victorian communities.

It should be emphasised that although the Community Health Information Collaboration was designed as a ten-week program for program participants only, various other significant outcomes emerged from this collaboration. These included the media release, the CHIC celebration, which involved many more people than anticipated; the Healthy Munch, Lunch and Crunch program, involving a whole of school approach to healthy eating; and the continued collaboration of the Vietnamese and Latino communities in disease prevention with the Australian Community Centre for Diabetes at Victoria University. The CHIC participants need to be acknowledged for their leadership and initiative in all of these activities and events.

7.3.2 Limitations and validity of Stage Two. Some of the limitations of Stage Two were discussed in the results in Chapter 6. These included the initial isolation felt around recruitment, organising the program and the number of participants. The initial thinking was that such a program would be better conducted by a team than a single practitioner. Although the feeling passed soon after CHIC team joined together and the program was completed successfully, there are other ways in which such a program could be conducted. For example, a similar Community Health Information Collaboration could be conducted by a research team such as the Australian Community Centre for Diabetes; or as an ongoing interest and action group managed completely by and for community members. The preference is for the latter, for an empowered ‘community governance’ approach, even though the initial formation may involve a ‘researcher/practitioner’ or ‘research team’.

Another related limitation was the problem of program sustainability. Numerous theories and models discussed in the literature review highlighted the importance of program sustainability, including Nutbeam (1998a) and Wallerstein’s (2006) empowerment models and the Community Action Model (CAM) developed by the San Francisco Department of Health (SFDH, 2004). Miller (1969) asserted that developers of community based intervention programs must be willing to “give them away” and Revenson and Schiaffino (2000) stated that transferring of ownership of programs and policies is essential to sustained change. However, “giving away” or transferring ownership of health promotion knowledge, skills and confidence also enables a form of sustainability as participants can use these to develop their own programs into the future.

Conducted within a research timeline, the program and the researcher’s involvement had to end, even though the momentum for health promotion was still strong among several members of the CHIC team who were active leaders in their community. A timely handover to the Australian Community Centre for Diabetes at Victoria University, allowed for additional health promotion activities to be delivered to several diverse community groups by a multidisciplinary team of researcher/practitioners, including the present researcher who gained employment with the centre on a part time basis. This included Thanh’s Vietnamese group in St Albans; Celeste’s Latino American group in Sunshine; and Khanh and Chuong’s Vietnamese group in Richmond. Later, it also expanded to Serbian and African community groups in St Albans. Thus, the problem of program sustainability was overcome for a time, until funding was once again depleted.

Another limitation of Stage Two was that the methods used did not elicit the ‘rich data’ that is characteristic of other qualitative methods such as focus group and individual interviews. Rich data can be defined as qualitative verbatim statements from research participants that express depth in meaning about the topic explored[23]. On the other hand, not having to record the sessions also allowed for a more naturalistic setting and time for the researcher to be a part of the team as consistent with a participatory action research paradigm. Using the NGT and the evaluation questionnaire served as useful and sufficient data collection methods that derived very succinct information. Moreover, the ‘richness’ in Stage Two was in the collaboration and action rather than in the data collected. Seen within an action research paradigm, Stage One was more about the research than the action while the focus of Stage Two was more about action and praxis than about data collection. Praxis as implied by Martín-Baró (1994) and Freire (2001) involves reflective practice, working respectively and collaboratively with the community and transformation at a personal and societal level. Dialogue is another important aspect of praxis, however, the small size of the group meant that there were also ethical reasons that precluded some of these dialogues to be systematically recorded and disclosed (e.g., discussion of personal health issues). Although these characteristics may be viewed as limitations, Mattsson and Kemmis (2007) remind us that praxis-related research serves purposes beyond that of new knowledge. Praxis-related research generates action as well as reflection and is a cultural, social and political process. As such, it should not be evaluated using only academic criteria devised to determine the worth of scientific work (Mattsson & Kemmis, 2007).

Although qualitative research should not be judged using the same criteria as quantitative research, the concepts of sample size, recruitment, reliability and generalisability do need to be mentioned. Stage Two involved a small sample of culturally diverse participants who volunteered to participate and were found to already possess leadership capabilities (although not specifically in the area of health). There was no attempt to screen for disempowered community members. What this means for

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[23] The exception was the small amount of rich data obtained from the evaluations.

any future ‘CHIC’ programs is that ‘reliability’ and similar results towards community action may not be able to be ‘replicated’ with another community group in exactly the same way. The participants were neither representative of, nor could the results or their experience be generalised to, the broader community.

A final limitation is that specific research and practice in the area of child and school health promotion was not reviewed in this thesis. This is because the idea to pursue health promotion at the school level was an outcome and not part of the original aim or research questions. Even so, health promotion in educational settings has increased in Australia in recent years due to specially funded government programs. In the future, these initiatives could be reviewed and presented with the results of the present research as a journal publication in order to further disseminate the findings and contribute to the improvement of healthy eating for school children.

The overall quality and validity of research is enhanced by engaging local knowledge and local theory based on the lived experience of the people involved (Israel et al., 1998). In the same way, the quality and validity in this stage of the research was in the rich collaboration, relationships, ideas and actions generated. Further conclusions with respect to the validity issues raised in the methodology are addressed in Table 62.

Table 62

Selected Validity Issues in Stage Two

Validity Issue	Comments
Design	
Design integrity: Is the research design/method appropriate for addressing the questions/aims of the study?	The review of health promotion and community based intervention literature contributed understanding to the research question: RQ2. What are the benefits of community based health promotion and prevention? However, the collaboration with community members was invaluable in explicating the construct of empowerment (as knowledge, skills & confidence) and uncovering the other benefits discussed. The weekly interactions with the community group and the NGT in particular were appropriate methods for addressing the question proposed: RQ2.What ideas for health promotion action does the community have to offer?
Was the nominal group technique designed well?	Considerable effort was put into adapting and designing the NGT for use in community based work, with successful results.
Execution	
Research integrity: Was the CHIC program well conducted?	The CHIC program incorporated many principles from previous community based research and in turn contributed to the grounded development of the theoretical framework. The program imparted critical information about health but allowed members to reflect on and develop actions to address the problem of chronic disease in an informed and empowered way.
Was the nominal group technique conducted well?	Participants found the technique enjoyable and were able to generate many useful ideas in a short time frame. A journal article based on the application of the NGT in a community setting was published.
Was there any attrition in the program?	There was no attrition and numerous measures of success were identified.
Results/Conclusions	
Are the conclusions correct?	Although conclusions derived from qualitative research can often be based on reflexivity, the researcher has provided rigorous detailed and transparent description of the action research process and the indicators demonstrating success of the program.
Was the intervention of benefit to participants?	Participants enjoyed the program and demonstrated learning about the health issues presented via the evaluation responses, developing appropriate ideas for health promotion and carrying out a school wide health promotion activity.
Did the NGT yield any fruitful ideas for action?	The NGT was a useful ‘brainstorming’ or idea generating method that yielded 48 excellent ideas that could be undertaken to improve health in the community. The technique also simplified the group decision-making process about which idea to pursue further.
Was the program successful/effective?	Participants evaluated the program favourably and numerous indicators demonstrating the success and effectiveness of the CHIC program were identified

7.4 Stage Three Conclusions

7.4.1 Aims, research questions and significance of Stage Three. Stage Three of the research involved an evaluation of the Community Centred Health Promotion and Prevention strategy as a whole. The methods included an evaluation questionnaire for the members of the CHIC team to complete and broad participant observation and documentation of the process and outcomes by the researcher. This stage consisted of one research question and one aim as shown following. The research question is a holistic and summative one that relates to the research as a whole and is therefore discussed after the aim.

MQ4. In what ways, can health evidence and community involvement in health promotion (referred to here as community centred health promotion) contribute to better health outcomes?
Aim 4. To evaluate the strength and potential of the community centred health promotion strategy (CHEB resource, CHIC program and website) to contribute to better health outcomes.

As outlined in the aim, the main focus for the evaluation included the:

- CHEB (Report/Power Point Presentation)
- CHIC Website
- CHIC Program

As explained in Chapter 4, multiple methods such as those in the following list (1-5) could have been used to evaluate the research undertaken in this thesis. However, due to various reasons and limitations (as discussed in section 7.4.2), the primary data collection/evaluation methods employed were an evaluation questionnaire seeking the opinions/evaluations of program members (Method 1) and researcher evaluations, observations and reflections of the process and outcomes (Method 5).

1. Evaluations from CHIC program members
2. Evaluations from government departments and community health service providers
3. General feedback submitted from the CHIC website
4. Feedback from members of the general public
5. Researcher evaluations, reflections and observations of the process and outcomes

The 20-item evaluation questionnaire was designed to encompass the major components of the program. It included four statements each on the Community Health Information Collaboration (CHIC) Website; Community Health Evidence Base (CHEB) statistical resource; Group Membership; and Group Facilitation/Coordination; and four open-ended questions. All seven participants completed the questionnaire with the results showing high to very high ratings for all aspects of the program. Many positive qualitative comments were also received via the four open-ended questions. The main themes in the responses were about group belonging and participation, the healthy snacks and hospitality during the sessions and gaining useful health knowledge/information for oneself and the broader community. Participants also recommended that the program should be continued and broadened and should include more emerging diverse communities.

From these positive participant evaluations, it can be concluded that the program was well-designed and delivered and does appear to have the strength and potential to contribute to better health outcomes. Although health outcomes could not be measured in this research, the program offered a basic introductory level of understanding of public health problems and prevention and motivated participants to commit to personal behaviour changes and to assist others in the community.

As previously discussed, researcher evaluations, reflections and observations of the process and outcomes (Method 5) was the other form of evaluation used in this thesis. A summary of these researcher evaluations have also been drawn from the results of the CHIC program in section 6.1, results of the evaluation questionnaire in section 6.2 and the further evaluation and post program activities in section 6.3. These are presented as *indicators* of the success and effectiveness of the CHIC program in the following list.

- The program successfully attracted and engaged a culturally diverse group in health promotion learning and action
- Although some members might have missed a session, there was no attrition and all members attended until the completion of the 10-week program or beyond
- Participants were empowered with knowledge of the problem of chronic disease (the evidence base) and knowledge of possible solutions and prevention
- Participants enjoyed viewing and actively engaged with the CHIC website content and health tools (e.g., BMI, healthy cooking)
- The information gained was important and useful to participants as demonstrated by the ongoing interest of the group and by the evaluation responses and comments
- A list of practical ideas for health promotion in the broader community was generated by the CHIC team
- Members of the group expressed a desire to sustain the collaboration
- Members of the group who had leadership/welfare responsibilities in the community continued the health promotion effort beyond the program (via the Healthy Munch, Lunch and Crunch program and/or by partnering with the Australian Community Centre for Diabetes)
- Nang Hong non-profit association has made a significant contribution to the health education of the Vietnamese and SAEPS community, with support from the present researcher
- The CHIC team, celebration guests and children and parents of St Albans East primary school received various important health promotion materials and messages
- An entire school community of children from prep to grade six participated in learning about healthy eating
- Members of the group realised the importance of continuing such programs for diverse emerging communities

- The positive responses on the statements: ‘the information presented has made me more determined to maintain/improve my health and prevent illness’; and ‘the information presented will help me to help others’ is an exemplar which demonstrates members’ commitment to personal and community change and prevention
- Members of the group realised the importance of educating school children about healthy eating
- Members of the group realised the importance of political and media awareness for health promotion and prevention, as demonstrated by their efforts in engaging these parties
- Members of the group realised the importance of engaging service providers in knowledge of the problem of chronic disease
- The program received commendations by two politicians with interests in the health and wellbeing of the Brimbank region

The indicators affirm that the community centred health promotion strategy may have the strength and potential to contribute to better health outcomes (Aim 4) at least in terms of its design and ability to motivate health promotion actions in the community. The indicators also point to ways in which health evidence and community involvement in health promotion can contribute to better health outcomes as posited in the Stage Three research question (see MQ4 above). The previous conclusions on the benefits of community based health promotion and prevention also add understanding to this question. That is, better health outcomes could be achieved because the program embodied certain benefits and values (empowerment, relevancy, shifting the agenda from entertainment to health, broad reach and ongoing momentum, engaging and enabling CALD communities, and reducing chronic disease in the community).

The theoretical framework also points to the answer to the research question (MQ4) formulated for this stage. As discussed in an earlier part of this thesis, the various components of the theoretical framework came together as a whole through interaction with the data and the research process. Thus, a clearer picture emerged of the ways that health evidence and community involvement in health promotion, might contribute to better health outcomes. Health evidence (including knowledge of problems as well as solutions) and meaningful community involvement can stir, motivate, prepare and empower people with the knowledge, skills and confidence to enable decision making and community action. This should not be understood in a positivistic sense or as an experiment in which variables were manipulated and outcomes measured as significant but rather as a program that could potentially assist in better health outcomes.

Various evaluation methods and models were discussed in the literature review, which can assist evaluators in making conclusions about the validity and success of health promotion programs. In one of these models, Russell-Mayhew (2006) argued that health promotion evaluation should be in keeping with the principles and practice of health promotion. The present research aligned with many of those principles including that it was:

- Participatory and provided meaningful opportunities for involvement in planning, implementation and evaluation
- Aimed at building and enhancing the capacity of individuals, communities, organisations and governments and building on the strengths and resources in the community
- Community focused and included measures and methodology beyond an individual focus (population level)
- Holistic and reflective of the multidimensional nature of health
- Multi-strategy, using a wide range of qualitative and quantitative methods
- Empowering and can facilitate change (Russell-Mayhew, 2006).

Other evaluation goals such as facilitating the “natural problem solving and helping processes in the community”, supporting change, community organisation and community ownership (Hawe, 1994, p. 201) could also be observed in this research. The generation of ideas, planning and health promotion activities that took place beyond the initially proposed 10-week program are examples of these principles at work.

Many of the items appearing in Nutbeam’s (1998a) six-stage development model and outcome model for health promotion were also utilised in the present research. They included actions and outcomes such as education, health literacy, facilitation and social influence and action. Some of the higher order outcomes in Nutbeam’s model such as reducing mortality, morbidity and disability and creating healthy public policy and organisational practice, healthy lifestyles and environments and effective health services were not possible to measure or assess within a short time frame (1998a). However, sustained and broader effort in such community-based programs over time and across multiple communities could impact positively on these desired outcomes. Health evidence such as that developed in this research also has the potential to impact on these desired goals via more evidence based decision-making in public health and health promotion and more targeted interventions on identified determinants and inequities in health status.

7.4.2 Limitations and validity of Stage Three. Stage Three was a minor research stage at the end of the CHIC program that did not involve any new data collection. One of the limitations of this stage was that a comprehensive evaluation could not be undertaken. A simple evaluation design consisting of only two of the five possible methods identified (see Figure 34 in Methodology) was used in this stage. During this stage, the researcher collated evaluation responses, field notes, emails and products developed over the course of the research and reflected on the CHIC program and the research as a whole. A related criticism is that these activities, with the exception of the evaluation questionnaire, can be considered a standard part of any research. The independent nature of this research, the already large scope of the research in the first two stages, time and funding constraints and the need to stay within the boundaries of the original research and ethics proposals are among the reasons for this partial evaluation.

Even so, as the community intervention in Stage Two could have been undertaken without an evaluation, the questionnaire served as an added form of validity in addition to contributing to knowledge of the effectiveness of the program from the participants’ perspectives. As stated in section 2.4.3 (Evaluation of community health interventions), a small-scale community based program such as the one conducted for this thesis, should not be judged in the same way or using the same criteria as a government public health/health promotion strategy. This is because the latter are usually of much larger scale, well funded, and are undertaken over a long term or target a particular health condition in an entire community or population.

Another unavoidable limitation was that health outcomes could not be measured or evaluated in this research due to the short-term nature of the community program, the small number of participants, characteristic of qualitative research and the single sample design. A longitudinal design that includes follow-up interviews, focus groups or surveys with program participants over time would be a possible method to gain more information about health outcomes in the future. In addition, researcher evaluations, reflections and observations are subjective methods that present a greater possibility for bias and pose a limitation and threat to validity. However, validity was ensured as much as possible by accurately describing the program and events and by using an *indicator* approach to illustrate and draw out the reasons for the present claim of ‘effectiveness’, ‘success’ and ‘potential’. The research also had similarities with other noteworthy health promotion evaluation models reviewed in this thesis as highlighted in the previous section. The photos presented in this thesis are also a form of qualitative data that help to tell the story and demonstrate the outcomes and success of the research.

Nutbeam’s (1999) ideas on the immediate measures of effectiveness (short term changes) were discussed earlier in the literature review. These included changes in individual skills and knowledge or changes that lead to social action and changes in social norms following educational or community mobilization/development interventions. Although the indicators of success and community action observed in the present study demonstrate similar effectiveness, participants’ skills and knowledge were not directly measured by means of any formal pre-tests and post-tests.

Nutbeam (1999) also proposed that interventions have a reasonable chance of demonstrating success if they incorporate certain needs. Two of these were to:

1. Plan on the basis of an analysis of epidemiological, behavioural and social research on interventions and changes in determinants of health and health outcomes
2. Ensure that the intervention programme is of sufficient size, duration and sophistication to be detectable above the ‘background noise’ of more general changes in society (multiple intervention methods are more likely to be successful than relying on single methods).

Evaluated against these two criteria, the present thesis had strengths in terms of the analysis of epidemiological research but was “not of sufficient size, duration and sophistication to be detectable above the ‘background noise’ of more general changes in society” (Nutbeam, 1999, p. 100). Thinking back to the two types of evidence delineated in the model developed as part of this research, this thesis does better in demonstrating guiding statistical evidence than evaluative evidence. This is mainly due to the limitations in size and duration of the single sample qualitative community based program design.

Further selected validity issues are summarised in Table 3 again utilising Gray’s categories of ‘design’, ‘execution’ and ‘results or conclusions’.

Table 63

Selected Validity Issues in Stage Three

Validity Issue	Comments
Design	
Design integrity: Is the research design/method appropriate for addressing the questions/aims of the study?	The design of the evaluation was not of sufficient scope to fully address the research question: MQ4. In what ways, can health evidence and community involvement in health promotion (referred to as community centred health promotion) contribute to better health outcomes? This stage included evaluations from CHIC program members and researcher evaluations, reflections and observations of the process and outcomes. What was missing from the evaluation was the involvement of outsiders such as the general public, government departments and community health service providers who could have provided additional feedback and evaluations.
Is the evaluation questionnaire a valid and reliable instrument?	The small single sample design of this stage precluded the use of formal statistical reliability measures, however one could reasonably expect that it would yield similar reliable results with another community group participating in a CHIC program. The questionnaire can be considered valid as it specifically addressed each program component, allowed for additional qualitative comments and yielded useful comments/criticisms about the program.
Are the right things being evaluated?	The focus of the evaluation was on the CHEB (Report/Power Point Presentation), CHIC Website and CHIC Program. Only short term or proximal as contrasted to long term or distal activities could be evaluated. It was beyond the scope of this research to measure such things as future health behaviours, changes in risk factors, health status, inequalities, political change or uptake of programs or evidence by government, health promotion workforce or communities.
Execution	
Are the researcher observations/evaluations accurate and unbiased?	The researcher has provided rigorous, accurate, detailed and transparent description of all aspects of the study.
Was the evaluation questionnaire completed and returned?	All program participants completed and returned the questionnaire.
Results/ Conclusions	
Do the researcher observations/evaluations indicate positive or negative outcomes?	Aside from the limitations already noted throughout this thesis, the researcher observations/evaluations indicated positive outcomes for the CHIC program as a model that could be replicated in future communities for health education, awareness of chronic disease and community action. The other resources developed (CHEB, CHIC Website) may require further marketing, dissemination and development if they are to have a positive future impact.
Do the evaluation questionnaire responses indicate positive or negative outcomes?	The responses on the 16-item questionnaire indicated that all aspects of the program were rated highly or very highly (mode of 4 or 5). There were also numerous positive qualitative comments, although one participant noted that there was "too much information on statistics".

7.5 Conclusions Related to the Thesis as a Whole

In addition to the conclusions arising from the three research stages discussed above, a number of remaining issues related to the thesis as a whole are explored in this section. This includes a critical integration and appraisal of theory and research design, further reflection and clarification on the concept of strategy and the development of recommendations arising from the research.

7.5.1 Critical integration and appraisal of theory and research design.

Numerous models that demonstrate current ideas and ways of working in public health and health promotion were reviewed in this thesis. A number of models were also independently developed to clarify the scope and explicate the underlying theories and assumptions held in this thesis. One could argue that in fact too many ideas and models were introduced. However, keeping in mind that some of these related specifically to one of the three stages (as discussed in the previous conclusions) whereas others related to the thesis as a whole simplifies the picture. The models developed also served to summarise ideas that might have otherwise required far wordier explanations.

One of models related to the thesis as a whole was the Community Centred Health Promotion and Prevention (CCHPP) model introduced in Figure 2. This circular model showed two main systemic problems in a large outer circle, which were identified as ‘the growing burden of chronic disease’ and ‘the reactive paternalistic system’ and the present approach (focussed on health evidence and community collaboration) in a smaller central circle as a potential way to address these problems. The model delineates two critical problems for action and should thereby make a contribution to both theory and practice. The earlier wellness continuum, which can be viewed as part of the same theoretical stance, similarly illustrated how a reactive approach could lead to dys-function and disease and how a proactive prevention approach could lead to wellness.

These models are also related to the wellness eidos, which idealises a time when community members are informed and empowered in matters relating to their complete wellness and where the resources for prevention are strong and the need for treatment has lessened. The Barnsley fern as a metaphor for wholism, ecology and the quantitative/qualitative nature of the world; and the concepts of communitarianism, praxis and community governance further build on the approach with various parts coming together in the theoretical/conceptual framework (Figure 29) following immersion in the research process. The relevance of Bohm's microcosm and macrocosm and Bronfrenbrenner's microsystem and macrosystem to the ecological (community centred and broader Australian context) focus of this thesis will also be clearer to the reader at this point.

The theoretical/conceptual framework, which was termed: *A model for the community governance of health promotion and prevention* offers a theoretical contribution to understanding of how knowledge of the problem of chronic disease together with knowledge on how to prevent it, when combined with community governance principles, can lead to empowerment and wellness in the community. In addition, the thesis offers a practical example of how the framework can be grounded in action research. The framework can therefore provide the basis for the development of similar or alternative methods that incorporate these components.

Various manifestations of a critical approach was evident in this thesis. This included the topic selection (chronic disease is an important problem deserving urgent action), a critique of the present system (reactive and paternalistic), the choice of methods (action research, evidence based and community based) and alignment with critical theoretical concepts such as praxis, transformation, critical education, empowerment and community governance to name a few. Two nagging contradictions/limitations in this approach are: the recognition of the importance of government in supporting/funding a community governance approach in the future (do not bite the hand that feeds you) and the difficulty in deeper levels of self reflection (I do not know what I do not know). The focus on idealism as guiding philosophy and the pragmatic action research approach taken in this thesis might also be viewed a contradiction. Still, pragmatism is not the opposite of idealism as noted by Trebuchet (2011). The 'real' and ‘ideal’ are related but not necessarily opposed; the ‘ideal’ is what we reason or imagine the perfect to be, while the ‘real’ is what we actually have (Trebuchet, 2011).

7.5.1 The concept of strategy. The term strategy was used in various ways throughout this thesis without formal definition or conscious or critical reflection on what it actually means. Reflecting back to the beginning of this thesis, strategy simply meant an initiative, intervention or research approach. Yet, even in its earliest usage, strategy was a political term invoked to challenge the present status quo and align with broader system wide concerns such as prevention and empowerment and the need to encompass both (statistical) evidence based and (grass roots) community based methods in order to reduce the rising burden of chronic disease. The present strategy was also about having a systemic understanding and knowledge base while acting locally to improve community wellness.

Various other strategies were discussed in this thesis including the Health for All global strategy for health reform, the National Chronic Disease Strategy, the National Preventative Health Strategy and Integrated Health Promotion (IHP) strategy. There were also many other initiatives, policies and models reviewed in this thesis which were not formally referred to as strategies but had similar aims to reduce chronic disease, or empower communities in health promoting action. Although the present work cannot be compared to the large scale well funded strategies reviewed in this thesis, a community centred approach that includes attention to community governance and detailed evidence about health status, determinants and inequalities in Australian communities could be utilised on a broader scale if it fulfilled certain criteria such as effectiveness.

The formal aim of this research was to develop a community centred health promotion strategy to assist the improvement of health and the prevention of chronic disease in an Australian context. The terms in the aim ‘to develop’ and ‘to assist’ are pertinent in judging the efficacy of this approach. The objective in this thesis was not to test a hypothesis, measure an outcome or prove that such a strategy works but ‘to develop’ and therefore demonstrate, in an exploratory and applied sense, how it could work in theory and practice. Research in the real world is always more difficult to assess and in many ways, the present research was more similar to a ‘demonstration project’ than to a controlled experiment designed to yield significant or non-significant results. The US National Cancer Institute defines ‘demonstration project’ as a project that is supported by a grant or cooperative agreement, to establish or demonstrate the feasibility of new methods or new types of services (US Government, 2013). Similarly, the present strategy was developed with support from the NHMRC to demonstrate an evidence based and community based approach to health promotion and the prevention of chronic disease.

One formal definition of strategy is as “a method or plan chosen to bring about a desired future, such as achievement of a goal or solution to a problem” (WebFinance Inc., 2013). Viewed in relation to this definition, this thesis identified two system wide *problems*: the Growing Burden of Chronic Disease and the Reactive Paternalistic System. The proposed *solution* put forward in this thesis was a preventative approach that included evidence around National Health Priority Areas and Determinants, Health Status and Inequalities and support for community governance in health promotion.

The *desired future* was represented in the eidos as an ideal to strive for that included empowered communities, complete wellness, healthy lifestyles, eating, aging and food production, equity in health and a strong preventive health system with less need for treatment. Yet ideals are always grander than present realities and as Plato argued, the actual is likely to fall short of the ideal. Hence, Plato said – “you must not insist on my proving that the actual State will in every respect coincide with the ideal: if we are only able to discover how a city may be governed nearly as we proposed, you will admit that we have discovered the possibility which you demand; and will be contented” (Plato, 360 BC-b). In the same way, the present effort towards a *desired future* cannot be measured in terms of how close it came to that ideal, only that certain values were embodied in the research and certain indicators of success were observed and achieved.

The *method or plan* in this strategy was an action research design that combined an independent evidence gathering and analysis phase in Stage One followed by action in collaboration with community members from a single local government area in Stage Two and a minor formative evaluation in Stage Three. Whilst this particular method aligned with thesis requirements and provided the opportunity for public health training;

there are other ways in which the core elements could be applied in future strategies by various professionals as shown in the following examples.

- A government strategy could be established to develop and maintain a similar publically available evidence base and to provide funding grants to local community groups who can demonstrate that they can undertake a project/initiative to address identified determinants, inequities and health priorities.
- A professional psychology strategy could be developed that sets out how community, health and other interested psychologists could use evidence and community based interventions to provide a valuable contribution to the efforts of the chronic disease prevention workforce in Australia.
- An incorporated community group could use information from the CHEB resource for local action or as a rationale for applying for a health or community grant
- A university research centre could be set up to house and maintain CHEB statistics on a website and to use the resources as a basis for community health collaborations around chronic disease prevention and health improvement and further research
- The researcher is appropriately skilled and could apply for funding to continue the strategy by further updating of health statistics and dissemination of findings online as described above and to continue health information collaborations and action research with other communities

On reflection, the term *community centred public health* might be a fitting term to encompass such strategies into the future. The recommendations set out in the next section could also be taken up in these strategies.

7.5.2 Recommendations arising from the research. This section consists of a number of recommendations arising from this research that could contribute to further action to promote health and prevent chronic diseases and conditions in Australia, Victoria and Victorian communities. This is not an exhaustive list but demonstrates some of the broad areas and topics that could be addressed in future research and practice. The recommendations are not directed specifically at anyone but can be undertaken by governments, public health and health promotion practitioners, researchers, community groups and other interested persons, including community and health psychologists and the present researcher.

The first two recommendations call attention to indigenous causes of death and the Australian Governments' Closing the Gap initiative:

1. Although efforts to close the gap in life expectancy are continuing, it is recommended that these efforts become more evidence-based. This research revealed that indigenous mortality rates for diabetes mellitus, diseases of the digestive system and liver, certain conditions originating in the perinatal period and congenital conditions, external causes of morbidity and mortality, transport accidents, intentional self-harm, assault and other external causes were between 1.2 - 9.3 times higher than for non-indigenous persons. Further research is urgently required to assess whether there has been any shift in these patterns of mortality. The results should then be used to develop specific initiatives to target these inequities.

2. The principles of self-determination and community governance embodied in the theoretical framework and Community Health Information Collaboration are also important in indigenous communities and could be utilised to close the gap. It is recommended that similar community based health promotion and prevention programs for and by indigenous people are developed (with funding support from government) as an alternative to more paternalistic approaches.

3. Further investigation, monitoring and action is required to address Australia's higher than world averages of death of children under five years due to neonatal conditions, injuries and other causes.

4. Health promotion and prevention programs around risky behaviours such as high BMI’s, sedentary lifestyle, smoking, high alcohol consumption and low fruit and vegetable intake should be a continued focus for the future.

5. Further action research is urgently required to determine why the death rate of rural females is twice the rate of metropolitan females, why the death rate for rural males aged 15-64 is so high; and to address and prevent the underlying causes of these inequities.

6. Targeted programs around the top twenty causes of death in Victoria should be developed and implemented. Programs should be also informed by evidence about the diseases and conditions that are the most common for particular age groups and communities.

7. Information about the most common diseases and conditions should be provided to all Victorians/Australians to increase awareness and so that they may adapt their lifestyles and prevent dying from these causes.

8. Prevention strategies should be implemented to curb the high number and rate of younger deaths (0-14 and 15-34) in LGAs such as Brimbank, Hume, Casey, Greater Geelong, Moreland, Knox, Greater Dandenong, Frankston, Moira, Campaspe, Melbourne, Moreland, Wellington, East Gippsland, Latrobe, Greater Shepparton, Macedon Ranges, Swan Hill, Hobsons Bay, Yarra, Glenelg, Wellington, Maribyrnong.

9. The Community Health Information Collaboration should be extended to more community groups in Victoria, ideally beginning with those communities identified as having greater health inequities.

10. The Community Health Information Collaboration program should be extended to emerging and established ethnic communities within Brimbank (and beyond) with funding support from government.

11. The future collection and analysis of health data for public health surveillance and health promotion should focus on: a. building an evidence base on determinants, inequalities and health status; b. multiple levels (Australian, State and local community); c. multiple measures/indicators of health status; d. attention to National Health Priority Areas and other critical areas as they emerge.

12. The Healthy Munch, Lunch and Crunch program should be run as an annual event and in more schools with funding support from government.

13. The Community Health Evidence Base should be further disseminated to government and communities and made available in the form of a report, PowerPoint presentation or website resource or database.

14. The Community Health Evidence Base should be continually updated and expanded to include any other indicators of health status or determinants that may be available; and further analysed to expose inequities.

7.5.3 Closing comments. Chronic diseases and other public health problems such as injuries, accidents and mental health problems have increased in Australia and around the world. This research applied a holistic praxis paradigm, action research design and mixed methods to investigate and address this problem in an Australian context. In the first stage of this research, an ambitious epidemiological study/quantitative analysis of health at Australian, Victorian and Victorian community level in particular, was undertaken. Whilst various parts of this Community Health Evidence Base have begun to be disseminated, the resource contains a wealth of information that could be further utilised and disseminated to promote health and prevent death, disease and other conditions affecting the health and wellbeing of Australians. The knowledge derived from this stage also provided valuable training for the researcher and impetus for the second (qualitative) stage of research, driving a critical problem based approach by the researcher and the participants.

The Community Health Information Collaboration conducted in the second stage of this research and involving a small culturally diverse group of community members in health promotion was a sharp contrast to the quantitative study. Yet, it was argued in this thesis that public health and health promotion efforts should be both evidence based, or grounded in actual knowledge about health (with a focus on determinants, inequalities and community health status); and community based, in order to directly involve community members in meaningful and empowering participation, learning, problem solving and action. This micro/macro level approach is compatible with and contributes to community psychology and holistic/systems theory. Just as the individual and the community are enfolded in the broader health system, the problems in the broader system (e.g., chronic disease) also exist at the individual level. Changes at the individual level affect the system and changes in the system affect the individual. It therefore makes sense to work at multiple levels when dealing with such inextricable problems. Even though the second stage involved only a small number of participants, it was pleasing to observe the natural tendency of individuals to want to share and extend their learning to the broader community and system of which they are part.

Due to the small sample size in this stage, quantitative critics might argue that no generalisation to the broader community can be made and indeed whether this stage should be seen as a ‘community intervention’ at all. Although it is true that generalisation is not possible, empowerment can come from small wins as well as large and as a human process can have a ripple effect to the broader ecological contexts that surround the person (family, friends, community). Moreover, as delineated in earlier parts of this thesis, there is a difference between a community based intervention (which may involve some members) and community wide intervention (which implies all members) and this is clearly not of the latter kind.

The second stage of research with community members exceeded the researcher’s expectations in many ways and particularly in the critical way that participants engaged with knowledge of the problem of chronic disease. The generation of pertinent ideas during the Nominal Group Technique, the call to spread the word about the problem and how to prevent it and to politicize and make the efforts of the group public, are some examples of this. Moving the selected idea into the local primary school to engage the whole school community and many members of the Vietnamese community was also exceptional and due to the leadership capabilities of the team members involved. Subsequent health promotion activities in the Vietnamese and Latin American communities were also part of the momentum and praxis arising from the Community Health Information Collaboration and the leadership capabilities of the team members involved.

This research has made a contribution to the fields of public health, health promotion and community psychology via the dissemination of various aspects and findings of this research in conference and journal articles. Many of the articles produced are also accessible on the CHIC website and further publications in relevant journals are planned for the year ahead. These articles have theoretical and practical significance because of the range of useful resources produced and include the determinants, inequalities and community health status model, ecological ‘person in context’ model of health determinants, the conceptual (intervention) framework, CHEB resource, NGT guide, CHIC program design (10 week program and evaluation instrument) and the CHIC website. These resources and ideas can be used in further health promotion work in the future. The practical significance of the research is also attributable to the applied nature of the work, which touched the lives of many people in a collaborative, caring and meaningful way. Health is the greatest gift that one can have and this can be realised when community members are informed and empowered in matters relating to their complete wellness. Knowledge of the problem and reality of chronic disease and of the possible solutions; together with skills, confidence and other such community governance capabilities can lead to the desire to transform reality, to praxis.

Thus as this thesis comes to a close, it can be said that the community centred approach appears to have merit as a way to curb the rising burden of chronic diseases in the community and in the Australian context. Although a world without disease may not be entirely achievable and wellness is an ideal that we “should strive continually to approach”, this thesis makes a worthwhile contribution toward that ideal.

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List of Appendices

Appendix A

Extract of Plato’s dialogue ‘Phaedo’ demonstrating his thinking on the nature of essence (eidos)

…. Is that idea or essence, which in the dialectical process we define as essence of true existence-whether essence of equality, beauty, or anything else: are these essences, I say, liable at times to some degree of change? or are they each of them always what they are, having the same simple, self-existent and unchanging forms, and not admitting of variation at all, or in any way, or at any time?

They must be always the same, Socrates, replied Cebes.

And what would you say of the many beautiful-whether men or horses or garments or any other things which may be called equal or beautiful-are they all unchanging and the same always, or quite the reverse? May they not rather be described as almost always changing and hardly ever the same either with themselves or with one another?

The latter, replied Cebes; they are always in a state of change.

And these you can touch and see and perceive with the senses, but the unchanging things you can only perceive with the mind-they are invisible and are not seen?

That is very true, he said.

Well, then, he added, let us suppose that there are two sorts of existences, one seen, the other unseen.

Let us suppose them.

The seen is the changing, and the unseen is the unchanging.

That may be also supposed (Plato, 360 BC-a, p. 20).

Appendix B

Extract of Plato’s dialogue ‘Socrates - Adeimantus - Glaucon - Thrasymachus’ on the purpose and achievability of ideals

We are enquiring into the nature of absolute justice and into the character of the perfectly just, and into injustice and the perfectly unjust, that we might have an ideal. We were to look at these in order that we might judge of our own happiness and unhappiness according to the standard which they exhibited and the degree in which we resembled them, but not with any view of showing that they could exist in fact.

True, he said.

Would a painter be any the worse because, after having delineated with consummate art an ideal of a perfectly beautiful man, he was unable to show that any such man could ever have existed?

He would be none the worse.

Well, and were we not creating an ideal of a perfect State?

To be sure.

And is our theory a worse theory because we are unable to prove the possibility of a city being ordered in the manner described?

Surely not, he replied.

That is the truth, I said. But if, at your request, I am to try and show how and under what conditions the possibility is highest, I must ask you, having this in view, to repeat your former admissions.

What admissions?

I want to know whether ideals are ever fully realised in language? Does not the word express more than the fact, and must not the actual, whatever a man may think, always, in the nature of things, fall short of the truth? What do you say?

I agree.

Then you must not insist on my proving that the actual State will in every respect coincide with the ideal: if we are only able to discover how a city may be governed nearly as we proposed, you will admit that we have discovered the possibility which you demand; and will be contented. I am sure that I should be contented-- will not you?

Yes, I will (Plato, 360 BC-b, pp. 22-23).

Appendix C

From: Jason King <Jason.King@vu.edu.au>

Date: Wednesday, May 3, 2006 1:03 pm

Subject: Ethics Application Outcome (HRETH:06/50)

Dear Jenny and Vicky

Below is an extract of the minutes of the Faculty of Arts, Education and Human Development Ethics Subcommittee meeting held on the 20th of April for your information and action as appropriate.

4.2.4 HRETH:06/50 Community Centred Health Promotion and Prevention in an Australian Context

The committee resolved to approve Stage 1 ONLY of the application and advised that Ethics approval should be sought for Stages 2 and 3 at a later stage.

Dr Denise Charman has agreed to liaise with you on your further submissions. Denise can be contacted on 9919 2536.

Appendix D

VICTORIA UNIVERSITY | A NEW SCHOOL OF THOUGHT

MEMO

TO	Dr. Jenny Sharples School of Psychology St Albans Campus	DATE	12/08/2008
FROM	Prof. Carolyn Noble Chair Arts, Education & Human Development Human Research Ethics Subcommittee		
SUBJECT	Ethics Application – HRETH 08/131		

Dear Dr. Sharples,

Thank you for resubmitting this application for ethical approval of the project:

HRETH08/131 'Community Health Information Collaboration (CHIC)' - (Stage two of the Community Centred Health Promotion and Prevention project)

The proposed research project has been accepted and deemed to meet the requirements of the National Health and Medical Research Council (NHMRC) 'National Statement on Ethical Conduct in Human Research (2007)', by the Chair, Faculty of Arts, Education & Human Development Human Research Ethics Committee. Approval has been granted from 12/08/2008 to 12/08/2010.

Continued approval of this research project by the Victoria University Human Research Ethics Committee (VUHREC) is conditional upon the provision of a report within 12 months of the above approval date (by 12/08/2009) or upon the completion of the project (if earlier). A report proforma may be downloaded from the VUHREC web site at: http://research.vu.edu.au/hrec.php

Please note that the Human Research Ethics Committee must be informed of the following: any changes to the approved research protocol, project timelines, any serious events or adverse and/or unforeseen events that may affect continued ethical acceptability of the project. In these unlikely events, researchers must immediately cease all data collection until the Committee has approved the changes. Researchers are also reminded of the need to notify the approving HREC of changes to personnel in research projects via a request for a minor amendment.

On behalf of the Committee, I wish you all the best for the conduct of the project.

Prof. Carolyn Noble
Chair
Faculty of Arts, Education & Human Development Human Research Ethics Subcommittee

INFORMATION
TO PARTICIPANTS
INVOLVED IN RESEARCH

You are invited to participate

You are invited to participate in a research project titled: Community Health Information Collaboration.

This project is being conducted by a student researcher Victoria (Vicky) Totikidis as part of a PhD study at Victoria University under the supervision of Associate Professor Jenny Sharples from the Wellness Promotion Unit, School of Psychology, Victoria University.

Project explanation

Although Australians enjoy better health than people living in most other countries around the world, there is still much work to be done in terms of reducing health care costs, inequities in health, and death, disease and disability from preventable and avoidable causes in Australian communities. Community members should be given the opportunity to be involved in the design and implementation of health promotion activities that will contribute to the improvement of health in their community. This project requires the involvement of several people (around 10-15) from the Brimbank region or surrounding Western region to meet as a group for one hour each week (for ten weeks) to discuss and learn about health issues in their community. The project is called the Community Health Information Collaboration (CHIC) and is being undertaken by Vicky Totikidis a PhD student from the Wellness Promotion Unit, Victoria University. The CHIC group will meet with the researcher (Vicky) on a weekly basis at Victoria University. Vicky will bring coffee, tea and a healthy platter of food to share with the group and the atmosphere will be stimulating, relaxing and fun. As well as discussing and learning about health, participants as a team will have the opportunity to design and undertake their own health promotion project which may contribute to the improvement of health in their community. At the end of the program, participants will be asked to fill out a short evaluation questionnaire about their opinions and experience of the program so that it may be further improved for use with other community members.

What will I be asked to do?

You are invited to attend a program with a group of other people to learn about and discuss community health and how to improve it. The program will be held for one hour a week and will continue for ten weeks. You and others in the group will be introduced to the project and project website, asked to comment on aspects of the program, discuss community health, design a project that will contribute to the improvement of health in the Brimbank community and evaluate the program so that further improvements can be made to the program

What will I gain from participating?

By participating in the program you will meet other community members who have an interest in health and learn more about the health status (including major diseases and causes of death) of Australians, Victorians and Victorian community members. You will be introduced to a range of internet resources to help you learn more about how to maintain good health and will have the opportunity to design and carry out (together with other program members) a health promotion project that may help to improve some aspect of health in the Brimbank community. You will also have the opportunity to evaluate the program so that further improvements can be made to the program in the future

How will the information I give be used?

Because this project is part of my study at Victoria University, I will keep notes on our general discussions, ideas and evaluations and will write some of these up in my research thesis. I will also need some basic information about you and other participants such as your gender, age, occupation etc. However, nobody will know who said what or who was involved. Your identity will be kept confidential. You will have a chance to see and comment on what I have written if you wish.

What are the potential risks of participating in this project?

There are no direct risks involved in participating in this project and the atmosphere is intended to be stimulating, relaxing and fun. Participants are asked to respect each others opinions and differences and allow others to speak without undue interruption or criticism. Participants are not required to discuss any personal or distressing health issues, but if any personal issues should arise participants are asked to keep that confidential. An attempt to resolve any issue in a way that causes minimal disruption to participants or an offer for referral to a counselling service will be made in the unlikely case that a participant becomes distressed for any reason.

How will this project be conducted?

The project consists of three main research methods as outlined below:

1. A community based health promotion program: which invites you to participate in weekly meetings with the researcher and a group of community members over a ten week period (see program outline for further information).
2. Nominal Group Technique: In one of the sessions, I will ask participants to list ideas that may help improve health in the community and to vote on their favourite ideas.
3. An evaluation of the program: In the final session, I will ask you to fill out a short questionnaire about your experience and opinion of the program.

Who is conducting the study?

Organisation/s involved: The project is being undertaken by a student from Victoria University. The student is also supported by a National Health and Medical Research Council Public Health (Allied Health Professional) Postgraduate Scholarship.

Associate Professor Jenny Sharples from the Wellness Promotion Unit, School of Psychology, Victoria University is the student's supervisor in this project (herewith called the Principal Researcher).

Contact details:
Phone: 9919-2156
Fax: 9919-2218
eMail: jenny.sharples@vu.edu.au

Victoria (Vicky) Totikidis is the Student Researcher undertaking this study as part of her PhD studies.

Contact details:
Phone: 9919-1334
Fax: 9919-1064
Mobile Phone: 0421-529-566
eMail: Vicky.Totikidis@vu.edu.au

Any queries about your participation in this project may be directed to the Principal Researcher (supervisor) listed above. If you have any queries or complaints about the way you have been treated, you may contact the Secretary, Victoria University Human Research Ethics Committee, Victoria University, PO Box 14428, Melbourne, VIC, 8001 phone (03) 9919 4781.

Appendix F

CONSENT FORM
FOR PARTICIPANTS
INVOLVED IN RESEARCH

INFORMATION TO PARTICIPANTS:
We would like to invite you to be a part of a study into community centred health promotion.

The name of the study is the Community Health Information Collaboration (CHIC). CHIC is a community based health promotion/community education program for community members who reside in the Brimbank region.

CERTIFICATION BY SUBJECT

I, …………………………………………………………………………[participant's name]
of ……………………………………………………………………………[participant's suburb]

certify that I am at least 18 years old* and that I am voluntarily giving my consent to participate in the study: *Community Health Information Collaboration (CHIC)* being conducted at Victoria University by:

Associate Professor Jenny Sharples [student's supervisor/principal researcher]

Ms Victoria (Vicky) Totikidis [student researcher]

I certify that the objectives of the study, together with any risks and safeguards associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by:

Ms Victoria (Vicky) Totikidis [student researcher]

and that I freely consent to participation involving the below mentioned procedures:

- A community based health promotion program which invites you to participate in weekly meetings with the researcher and a group of community members over a ten week period (see program outline for further information).
- An evaluation of the program when it is finished, which requires you to fill out a short questionnaire about your experience and opinion of the program

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed:

Date:

Any queries about your participation in this project may be directed to the principal researcher (student's supervisor) Phone: 9919-2156. If you have any queries or complaints about the way you have been treated, you may contact the Secretary, Victoria University Human Research Ethics Committee, Victoria University, PO Box 14428, Melbourne, VIC, 8001 phone (03) 9919 4781

National Health and Medical Research Council Public Health (Allied Health Professional) Postgraduate Research Scholarship 405101

Appendix G

Community Health Information Collaboration (CHIC)

A free 10 session community based health promotion/community education program will be conducted at Victoria University in early 2009 for community members who reside in the Brimbank region.

By participating in the program you will learn more about health issues such as:

- How to improve or maintain your health and prevent disease
- How to promote health in your local community
- Health status and the most common causes of illness, disability and death in Australia, Victoria and your local community
- Which age groups, sex and communities are the worst off in terms of their health

The CHIC program will be conducted by Vicky Totikidis as part of her PhD research with the Wellness Promotion Unit, School of Psychology, Victoria University. Associate Professor Jenny Sharples is Vicky's supervisor in this project. If you are interested in participating in the program, please call Vicky for further information or to book your place.

Vicky Totikidis
Phone: 9366 9399 Mobile: 0421 529 566
Email: vicky.totikidis@vu.edu.au
Or victoria.totikidis@live.vu.edu.au

Jenny Sharples
Phone: 9919-2156
Fax: 9919-2218
Email: jenny.sharples@vu.edu.au

Please turn over to view CHIC Program Outline & Session Details ➔

National Health and Medical Research Council Public Health (Allied Health Professional) Postgraduate Research Scholarship 405101

VICTORIA UNIVERSITY | A NEW SCHOOL OF THOUGHT

WELLNESS PROMOTION UNIT

CHIC Program Outline & Session Details

Session 1: Introductions

This first session will involve meeting other community members in the group and introducing our interests in health. Vicky will provide an overview of the project, including the new CHIC website. Some of my favourite health websites/topics will be explored including Body Mass Index and fruit and veggie calculators, personalized healthy food pyramids, healthy living calendar, world's healthiest foods and healthy recipe sites.

Session 2: Community Health Evidence Base (CHEB)

Vicky will present a power point presentation of the CHEB resource which is an informative summary of public health issues and health statistics in Australia, Victoria and Victorian communities. Issues such as life expectancy, causes of death and illness and differences in health outcomes due to factors such as age, gender and geographical location are presented.

Session 3: Thinking about health in our community

In this session we will focus on the Brimbank community and will discuss some of the community health issues of interest to us as a community. Are some health issues more urgent/important to us? What are some of the reasons for these particular health problems? Is our community healthy?

Session 4: Good ideas and choosing a manageable task

Today, we will 'brainstorm' ideas about actions that can be undertaken to improve health in our community. We will list our good ideas on project paper and prioritize and decide on a manageable task using the 'Nominal Group Technique'.

Session 5: Planning for success

In this session we will develop a plan of action for our chosen idea. What needs to be done? Who will do what? Who can help? Do we need to apply for funding to enable the undertaking of the project? We will have the next 4 weeks to undertake our project or get it to a stage where it could be undertaken (if it is a large project).

Session 6: Action stage 1

Session 7: Action stage 2

Session 8: Action stage 3

Session 9: Action stage 4

Session 10: Celebrate our achievement

Program members will be asked to bring in a small plate of healthy food to share. We will have a chance to reflect on and evaluate our experience and opinions of the program and celebrate our achievements.

Appendix H

WHO CAN ATTEND ?

The CHIC program is available to community members living in the Brimbank region aged 18 years and over. People from diverse cultural backgrounds are encouraged to participate. A maximum of 15 persons can attend so book early to avoid missing out.

WHEN AND WHERE WILL IT BE HELD ?

The program will held at Victoria University on one day per week for 10 weeks. The proposed time and day is 1:00-3:00pm on a Friday afternoon beginning in September at the earliest depending on the number of participants.

ARE YOU INTERESTED ?

If you are interested in participating in the program, please call Vicky or Jenny (contact details on the back of the brochure) for further information or to book your place.

Together we can create a healthier world for all.

Contact Details

Victoria (Vicky) Totikidis
Phone: 9919-1334
Fax: 9919-1064
Mobile Phone: 0421-529-566
Email: vicky.totikidis@vu.edu.au
Or victoria.totikidis@live.vu.edu.au

Associate Professor Jenny Sharples
Phone: 9919-2156
Fax: 9919-2218
Email: jenny.sharples@vu.edu.au

Wellness Promotion Unit, School of Psychology, Victoria University

WELLNESS
PROMOTION UNIT

National Health and Medical Research Council
Public Health (Allied Health Professional)
Postgraduate Research Scholarship 405101

CHIC

Community Health Information Collaboration (CHIC)

CHIC is a free 10 week community based health promotion/education program for community members who live in the Brimbank region.

ABOUT THE CHIC PROGRAM

CHIC is a free 10 week community based health promotion/community education program. The CHIC program will be conducted by Vicky Totikidis as part of her PhD research with the Wellness Promotion Unit, School of Psychology, Victoria University. Associate Professor Jenny Sharples is the student's supervisor in this project.

By participating in the program you will learn more about health issues such as:

- How to improve or maintain your health and prevent disease
- How to promote health in your local community
- Health status and the most common causes of illness, disability and death in Australia, Victoria and your local community
- Which age groups, sex and communities are the worst off in terms of their health.

Program Outline & Session Details

Week 1: Introductions

This first session will involve meeting other community members in the group and introducing our interests in health. Vicky will provide an overview of the project, including the new CHIC website. Some of my favourite health websites/topics will be explored including Body Mass Index and fruit and veggie calculators, personalized healthy food pyramids, healthy living calendar, world's healthiest foods and healthy recipe sites.

Week 2: Community Health Evidence Base (CHEB)

Vicky will present a power point presentation of the CHEB resource which is an informative summary of public health issues and health statistics in Australia, Victoria and Victorian communities. Issues such as life expectancy, causes of death and illness and differences in health outcomes due to factors such as age, gender and geographical location are presented.

Week 3: Thinking about health in our community

In this session we will focus on the Brimbank community and will discuss some of the community health issues of interest to us as a community. Are some health issues more urgent/important to us? What are some of the reasons for these particular health problems? Is our community healthy?

Program Outline & Session Details

Week 4: Good ideas and choosing a manageable task

Today, we will 'brainstorm' ideas about actions that can be undertaken to improve health in our community. We will list our good ideas on project paper and prioritize and decide on a manageable task using the 'Nominal Group Technique'.

Week 5: Planning for success

In this session we will develop a plan of action for our chosen idea. What needs to be done? Who will do what? Who can help? Do we need to apply for funding to enable the undertaking of the project? We will have the next 4 weeks to undertake our project or get it to a stage where it could be undertaken (if it is a large project).

Week 6: Action stage 1

Week 7: Action stage 2

Week 8: Action stage 3

Week 9: Action stage 4

Week 10: Celebrate our achievement

Program members will be asked to bring in a small plate of healthy food to share. We will have a chance to reflect on and evaluate our experience and opinions of the program and celebrate our achievements.

*Coffee, tea and a healthy snack will be provided at each meeting

National Health and Medical Research Council Public Health (Allied Health Professional) Postgraduate Research Scholarship 405101

VICTORIA UNIVERSITY | A NEW SCHOOL OF THOUGHT

WELLNESS PROMOTION UNIT

Appendix I

Community Health Information Collaboration (CHIC)

Program Evaluation Form for Community Members

Please fill out this short questionnaire regarding your experience of the program. This will help me to understand what was useful or not so useful and will assist me to further improve the program in the future. For each statement place a cross in '**one**' of the boxes [X] depending on whether you: Strongly disagree, Disagree, Neither agree nor disagree, Agree, or Strongly agree.

Community Health Information Collaboration (CHIC) Website

1. The website is very informative

Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

2. The website consists of good tips on how to maintain/improve my health

Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

3. I plan to use the CHIC website regularly

Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

4. I will certainly tell friends and family about the website

Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

Community Health Evidence Base (CHEB) Resource

5. The CHEB PowerPoint show was very informative

Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

6. I am more aware of the health issues facing Australian communities after having seen the CHEB show

Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

7. The information presented has made me more determined to maintain/improve my health and prevent illness

Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

8. The information presented will help me to help others

Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

Group Membership

9. I enjoyed my time as a member of the CHIC program
Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

10. I got along well with other members in the group
Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

11. I felt like a valued member of the team
Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

12. I believe we generated some great ideas on how to promote health in our community
Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

Group Facilitation/Coordination

13. The sessions were well organised and facilitated
Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

14. The facilitator was friendly and approachable
Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

15. The facilitator was easy to understand
Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

16. The facilitator was 'one of the team'
Strongly disagree [ ] Disagree [ ] Neither agree nor disagree [ ] Agree [ ] Strongly agree [ ]

Further Questions

17. What did you enjoy the most about the CHIC program?

18. What did you enjoy the least about the CHIC program?

19. Do you have any suggestions on how the program should be run in the future?

20. Do you have any further comments about any aspect of the program?

Thank you for your participation and opinions.

Together we can create a healthier world for all.

Further information and contact details

Victoria (Vicky) Totikidis is the student researcher undertaking this study as part of her PhD studies at Victoria University.

Contact details:
Phone: 9366-9399 Mobile Phone: 0421-529-566
Email: vicky.totikidis@vu.edu.au

Associate Professor Jenny Sharples from the Wellness Promotion Unit, School of Psychology, Victoria University is the student's supervisor in this project.

Contact details:
Phone: 9919-2156 Fax: 9919-2218
Email: jenny.sharples@vu.edu.au

Appendix J

QUERY DESIGN

Collection: Hospital Separations Vic 2004/05 (Pub & Priv hospitals)
Dataset: H2F2: Local level: Diagnosis & external cause
Dimensions: Sex - Sex
Principal diagnosis - National Health Priority Areas 2002 - ICD-10-AM Edition 3 & 4 (9 conditions)
Measures: Separations, Vic residents - Numbers
Beddays, Vic residents - Numbers

Cell count: 60 cells in the results table.

NOTES AND DOCUMENTATION

The design uses 2 tallies.

"Separations, Vic residents" counts the number of patients who separated from hospital.
This tally includes only residents of the state and does not include interstate, overseas, unqualified newborns, boarders or organ procurement patients.

For the definition of separation see the dataset notes and documentation.

"Beddays, Vic residents" counts the patients' length of stay at hospital.
This tally includes only residents of the state and does not include interstate, overseas, unqualified newborns, boarders or organ procurement patients.

The length of stay is calculated as the difference in days between the date of admission, and the date of separation. Same day discharges (ie patients admitted and separated on the same day) are counted as 1 bedday.

Source: Department of Human Services, Victoria

Supplier: The data was on-supplied by the Australian Institute of Health and Welfare (AIHW) from the National Hospital Morbidity Database.
Note: An asterisk (*) indicates cell values of less than 5 except for 0. Totals may be suppressed when the suppressed values in rows or columns could be deduced.
Note: Differences between the data in this dataset and the data contained in other datasets or reports on Victoria hospital activity would be due to differences in scope and coverage, the relative completeness of the data sources at the time of production or publication, and differing error resolution procedures.

External Causes:
External causes codes reported in this dataset are the first reported external cause code, not all external causes codes.

Note: The AIHW requested that the states and territories report a maximum of 50 diagnosis codes. In HealthWIZ only 31 diagnoses (including principal diagnosis and additional diagnoses), 31 procedure codes and 31 external cause codes are used for each hospital separation.

QUERY DESIGN

Collection: Hospital Separations Vic 2004/05 (Pub & Priv hospitals)
Dataset: H2F2: Local level: Diagnosis & external cause
Dimensions: Sex - Sex
Age - Grouped ages (0-14, 15-34, 35-64, 65+)
Birthplace / Indigenous status - Australia/English/non-English speaking countries/not stated, with subtotals on Australia/overseas/not stated
Principal diagnosis - National Health Priority Areas 2002 - ICD-10-AM Edition 3 & 4 (9 conditions)
Area (Vic) - HealthWIZ Statistical Areas 2001-2004 Vic
Measures: Separations, Vic residents - Numbers, and Rates per 100,000 (age standardised by direct method)
Beddays, Vic residents - Numbers, and Rates per 100,000 (age standardised by direct method) [see note on calculation at end]
Limits: from selected HSAs: Banyule(C: Heidelberg), Banyule(C: North), Bayside(C: Brighton), Bayside(C: South), Boroondara(C: Camberwell N), Boroondara(C: Camberwell S), Boroondara(C: Hawthorn), Boroondara(C: Kew), Brimbank(C: Keilor), Brimbank(C: Sunshine), Cardinia(S: North), Cardinia(S: Pakenham, South), Casey(C: Berwick), Casey(C: Cranbourne), Casey(C: Hallam), Casey(C: South), Darebin(C: Northcote), Darebin(C: Preston), ...

Cell count: 829,440 cells in the results table.

NOTES AND DOCUMENTATION

The design uses 2 tallies.
"Separations, Vic residents" counts the number of patients who separated from hospital.
This tally includes only residents of the state and does not include interstate, overseas, unqualified newborns, boarders or organ procurement patients.

For the definition of separation see the dataset notes and documentation.

"Beddays, Vic residents" counts the patients' length of stay at hospital.
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The length of stay is calculated as the difference in days between the date of admission, and the date of separation. Same day discharges (ie patients admitted and separated on the same day) are counted as 1 bedday.

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other datasets or reports on Victoria hospital activity would be due to differences in scope and coverage, the relative completeness of the data sources at the time of production or publication, and differing error resolution procedures.

External Causes:
External causes codes reported in this dataset are the first reported external cause code, not all external causes codes.

Note: The AIHW requested that the states and territories report a maximum of 50 diagnosis codes. In HealthWIZ only 31 diagnoses (including principal diagnosis and additional diagnoses), 31 procedure codes and 31 external cause codes are used for each hospital separation.

Rate-based calculations for Separations, Vic residents and Beddays, Vic residents make use of the following population data.
Collection: Population (Census adjusted to ERP) 2004
Dataset: pble: Local level demography
Note: Original data supplied by the Australian Bureau of Statistics. This data may not be on-sold or used in consultancies without the prior approval of the ABS.

Marital and Indigenous status:
Estimates for marital status and Indigenous status are calculated using the proportions in the 2001 census for marital status and Indigenous status for each 5 year age group, sex, and SLA population group and applying these to the corresponding population group in the estimated resident population.
Other Territories:
The SLA counts for Other Territories (Christmas Island, Cocos Islands and Jervis Bay Territory), have been produced by ABS.
Availability:
This dataset is not available for analysis in HealthWIZ because access to ERP data in HealthWIZ (other than the latest year) is precluded under the current agreement between the Australian Bureau of Statistics and the Australian Government Department of Health and Ageing. It is used as an underlying population dataset to allow the calculation of rates using appropriate population counts.

Marital status:
In the Census 2001 data the category or field 'Marital status', married does not include de facto.

Rate-based calculations for Separations, Vic residents and Beddays, Vic residents make use of the following population standardisation data.
Collection: Preliminary Estimated resident population 2004 Pop Std
Dataset: EEXE: ERP 2004 preliminary age only
Source: Australian Bureau of Statistics
Note: This data may not be on-sold or used in consultancies without the prior approval of the ABS.

Overview: This dataset provides counts of the preliminary estimated resident population (ERP) at 30 June 2004 by age.

Information on calculation Rates per 100,000 (age standardised by direct method)

"Rates per 100,000 (age standardised by direct method)" gives the standardised rate per 100,000 population. This rate calculation uses the direct method of age standardisation. First, the expected number for the "standard" population is calculated using the age-related rates in the local population. Each age group of the population is treated separately, and the resulting expected number is the sum of the expected number for each age group. Then this expected number is divided by the "standard" population to give the standardised rate.

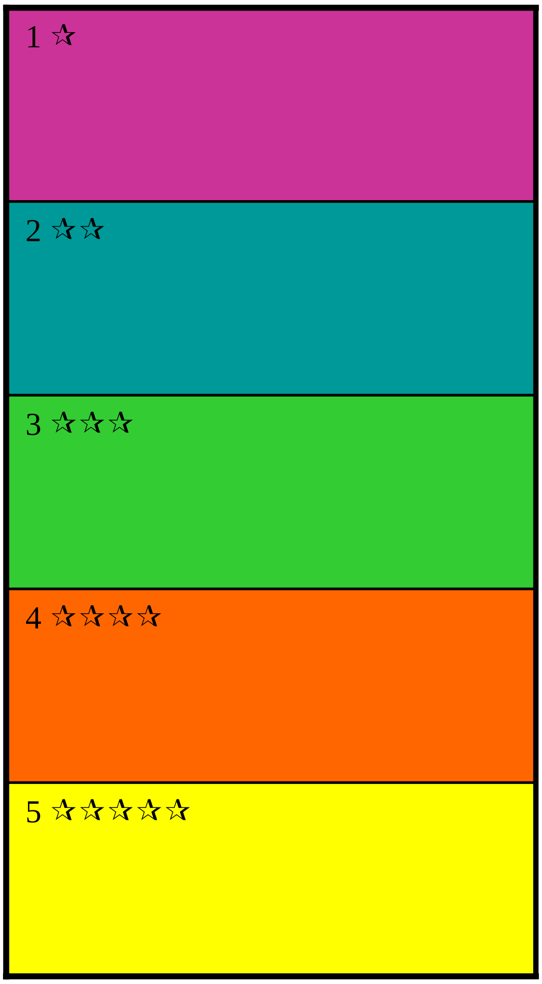
Appendix K

1. Alpine
2. Ararat(RC)
3. Ballarat(C: Central)
4. Ballarat(C: North, Inner North)
5. Ballarat(C: South)
6. Banyule(C: Heidelberg)
7. Banyule(C: North)
8. Bass Coast, French Island
9. Baw Baw
10. Bayside(C: Brighton)
11. Bayside(C: South)
12. Boroondara(C: Camberwell N)
13. Boroondara(C: Camberwell S)
14. Boroondara(C: Hawthorn)
15. Boroondara(C: Kew)
16. Brimbank(C: Keilor)
17. Brimbank(C: Sunshine)
18. Buloke, Loddon
19. Campaspe(S: Echuca)
20. Campaspe(S: Kyabram)
21. Campaspe(S: Rochester, South)
22. Cardinia(S: North)
23. Cardinia(S: Pakenham, South)
24. Casey(C: Berwick)
25. Casey(C: Cranbourne)
26. Casey(C: Hallam)
27. Casey(C: South)
28. Central Goldfields
29. Colac-Otway(S: Colac)
30. Colac-Otway(S: North, South)
31. Corangamite
32. Darebin(C: Northcote)
33. Darebin(C: Preston)
34. Delatite(S: Benalla)
35. Delatite(S: North, South)
36. E Gippsland(S: Bairnsdale)
37. E Gippsland(S: Orbost, SW, Balance)
38. Frankston(C: East)
39. Frankston(C: West)
40. Gannawarra
41. Glen Eira(C: Caulfield)
42. Glen Eira(C: South)
43. Glenelg(S: Heywood, North), S Grampians(S: Wannon, Balance)
44. Glenelg(S: Portland)
45. Golden Plains
46. Gtr Bendigo(C: Central)
47. Gtr Bendigo(C: Eaglehawk, Inner North)
48. Gtr Bendigo(C: Inner East, Strathfieldsaye)
49. Gtr Bendigo(C: Inner West)
50. Gtr Bendigo(C: PtB)
51. Gtr Dandenong(C: Balance)

52. Gtr Dandenong(C: Dandenong)
53. Gtr Geelong(C: Bellarine-Inner)
54. Gtr Geelong(C: Corio-Inner, PtC)
55. Gtr Geelong(C: Geelong West)
56. Gtr Geelong(C: Geelong)
57. Gtr Geelong(C: Newtown)
58. Gtr Geelong(C: PtB), Queenscliffe(B)
59. Gtr Geelong(C: South Barwon-Inner)
60. Gtr Shepparton(C: PtA)
61. Gtr Shepparton(C: PtB)
62. Hepburn
63. Hindmarsh, West Wimmera, Yarriambiack
64. Hobsons Bay(C: Altona)
65. Hobsons Bay(C: Williamstown)
66. Horsham(RC)
67. Hume(C: Broadmeadows)
68. Hume(C: Craigieburn)
69. Hume(C: Sunbury)
70. Indigo, Towong
71. Kingston(C: North)
72. Kingston(C: South)
73. Knox(C: North)
74. Knox(C: South)
75. Latrobe(C: Moe)
76. Latrobe(C: Morwell, Balance)
77. Latrobe(C: Traralgon)
78. Macedon Ranges(S: Balance)
79. Macedon Ranges(S: Kyneton, Romsey)
80. Manningham(C: East)
81. Manningham(C: West)
82. Maribyrnong(C)
83. Maroondah(C: Croydon)
84. Maroondah(C: Ringwood)
85. Melbourne (C: Inner, Southbank-Docklands)
86. Melbourne(C: Remainder)
87. Melton(S: Balance)
88. Melton(S: East)
89. Mildura(RC: PtA)
90. Mildura(RC: PtB), Swan Hill(RC: Robinvale, Bal)
91. Mitchell(S: North)
92. Mitchell(S: South)
93. Moira
94. Monash(C: South-West)
95. Monash(C: Waverley East)
96. Monash(C: Waverley West)
97. Moonee Valley(C: Essendon)
98. Moonee Valley(C: West)
99. Moorabool(S: Bacchus Marsh)
100. Moorabool(S: Ballan, West)
101. Moreland(C: Brunswick)
102. Moreland(C: Coburg)
103. Moreland(C: North)
104. Mornington Peninsula(S: East)
105. Mornington Peninsula(S: South)

106. Mornington Peninsula(S: West)
107. Mount Alexander
108. Moyne, Lady Julia Percy Island
109. Murrindindi, Yarra Ranges(S: N, PtB), Lake Mntn Alp Resort
110. Nillumbik(S: Balance)
111. Nillumbik(S: South)
112. Nillumbik(S: South-West)
113. North Grampians, Pyrenees
114. Port Phillip(C: St Kilda)
115. Port Phillip(C: West)
116. South Gippsland, Bass Strait Is
117. South Grampians(S: Hamilton)
118. Stonnington(C: Malvern)
119. Stonnington(C: Prahran)
120. Strathbogie
121. Surf Coast(S: East)
122. Surf Coast(S: West)
123. Swan Hill(RC: Central)
124. Undefined Melbourne
125. Unknown or not stated
126. Wangaratta(RC: Central)
127. Wangaratta(RC: North, South)
128. Warrnambool(C)
129. Wellington(S: Alberton, Rosedale)
130. Wellington(S: Avon, Maffra)
131. Wellington(S: Sale)
132. Whitehorse(C: Box Hill)
133. Whitehorse(C: Nunawading E)
134. Whitehorse(C: Nunawading W)
135. Whittlesea(C: North)
136. Whittlesea(C: South)
137. Wodonga(RC)
138. Wyndham(C: North)
139. Wyndham(C: West, South)
140. Yarra Ranges(S: Central)
141. Yarra Ranges(S: South-West)
142. Yarra(C: North)
143. Yarra(C: Richmond)

Appendix L



1 star - Not a bad idea (purple card)

2 star - A good idea
(blue card)

3 star - A very good idea (green card)

4 star - An excellent idea (orange card)

5 star - My most favourite idea (yellow card)

Appendix M

Dear Brimbank City Councillors, Health and Community Service Professionals, Students, Academics and Associates,

You are cordially invited to attend the:

Community Health Information Collaboration (CHIC) Program Celebration

When: Thursday 30th April, 2009
1-3pm
Where: Room E101
Victoria University, St Albans Campus,
Mc Kechnie Street, St Albans

About the Speaker

Vicky Totikidis, Wellness Promotion Unit, Victoria University PhD candidate and CHIC program coordinator will discuss her research program which is focused on statistical evidence and support of community based collaborations for health promotion and prevention …

Agenda

1:00pm - Refreshments
1:30-2:00pm - Presentation:
1. Launch of the CHIC website
2. Summary of the Community Health Evidence Base (CHEB) statistical report
3. Showcasing the CHIC team
2:00-2:15pm - Discussion & questions
2:15pm – Refreshments & Networking

Light lunch and refreshments will be available.
Please RSVP to Vicky Totikidis
victoria.totikidis@live.vu.edu.au
by Monday, April 27th

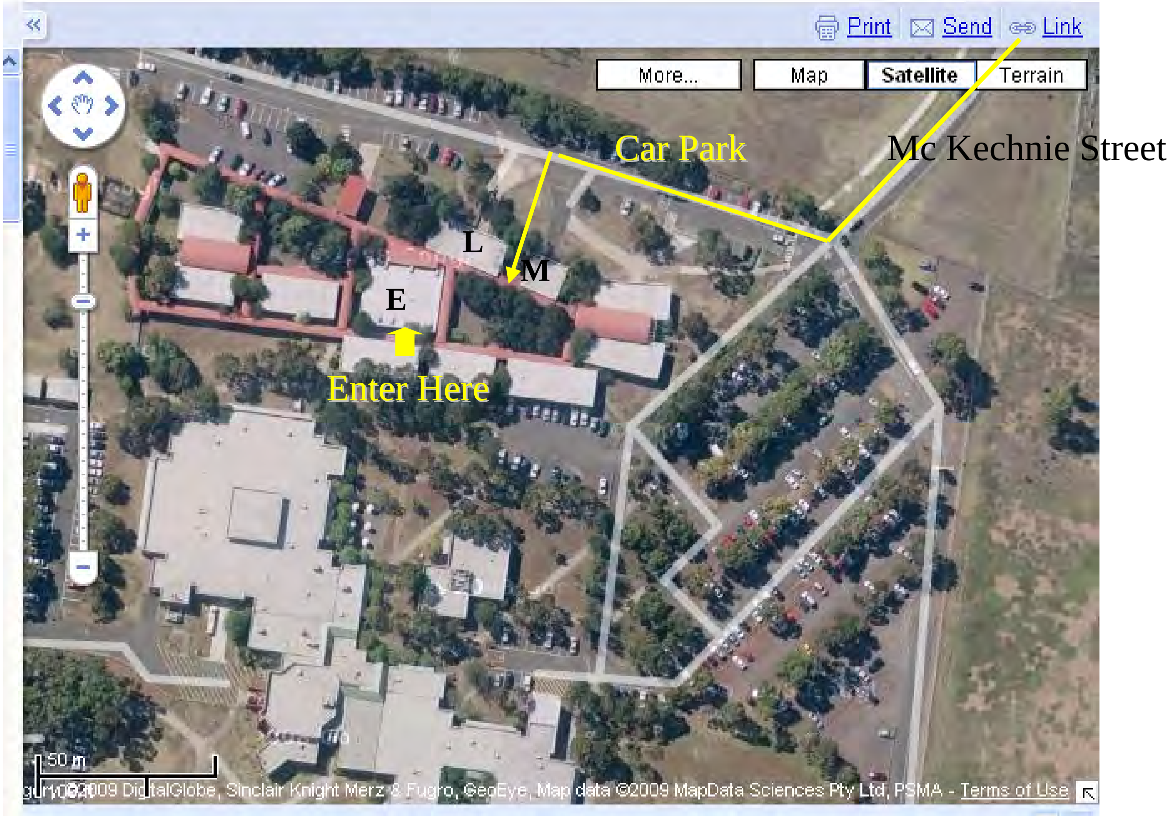
National Health and Medical Research Council Public Health (Allied Health Professional) Postgraduate Research Scholarship 405101

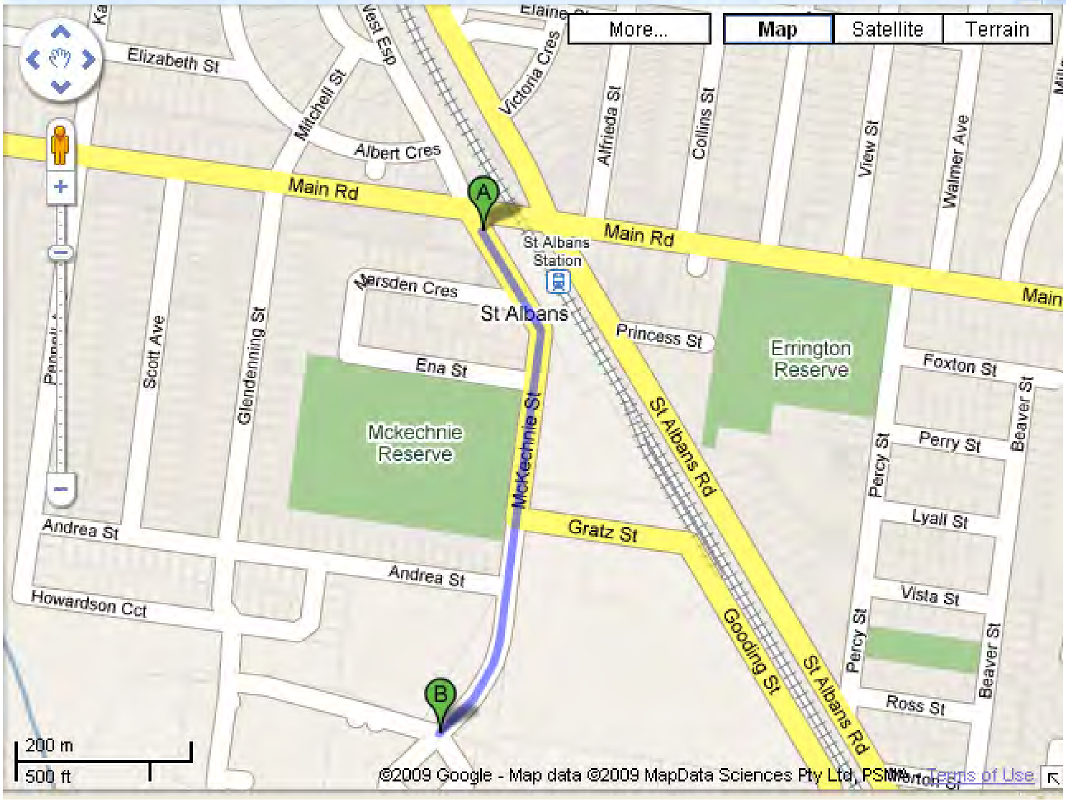
CHIC Program Celebration

Location: Building 1E – Room 101. Victoria University (VU), St Albans Campus. McKechnie Street, St Albans, VIC 3021

Contact: Vicky Totikidis – 0421 529 566

Directions: Drive into Mc Kechnie street, turn right as soon as you enter the VU gate and find a parking. Then walk towards the portables in between portables L & M to portable E and enter from the front as indicated by the arrow. Please note that there is a $2.00 parking metre charge in operation.



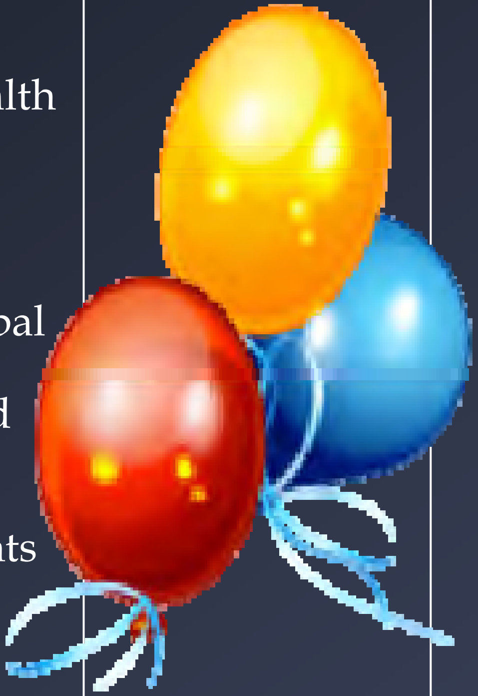


Appendix N

CHIC Celebration

Guests

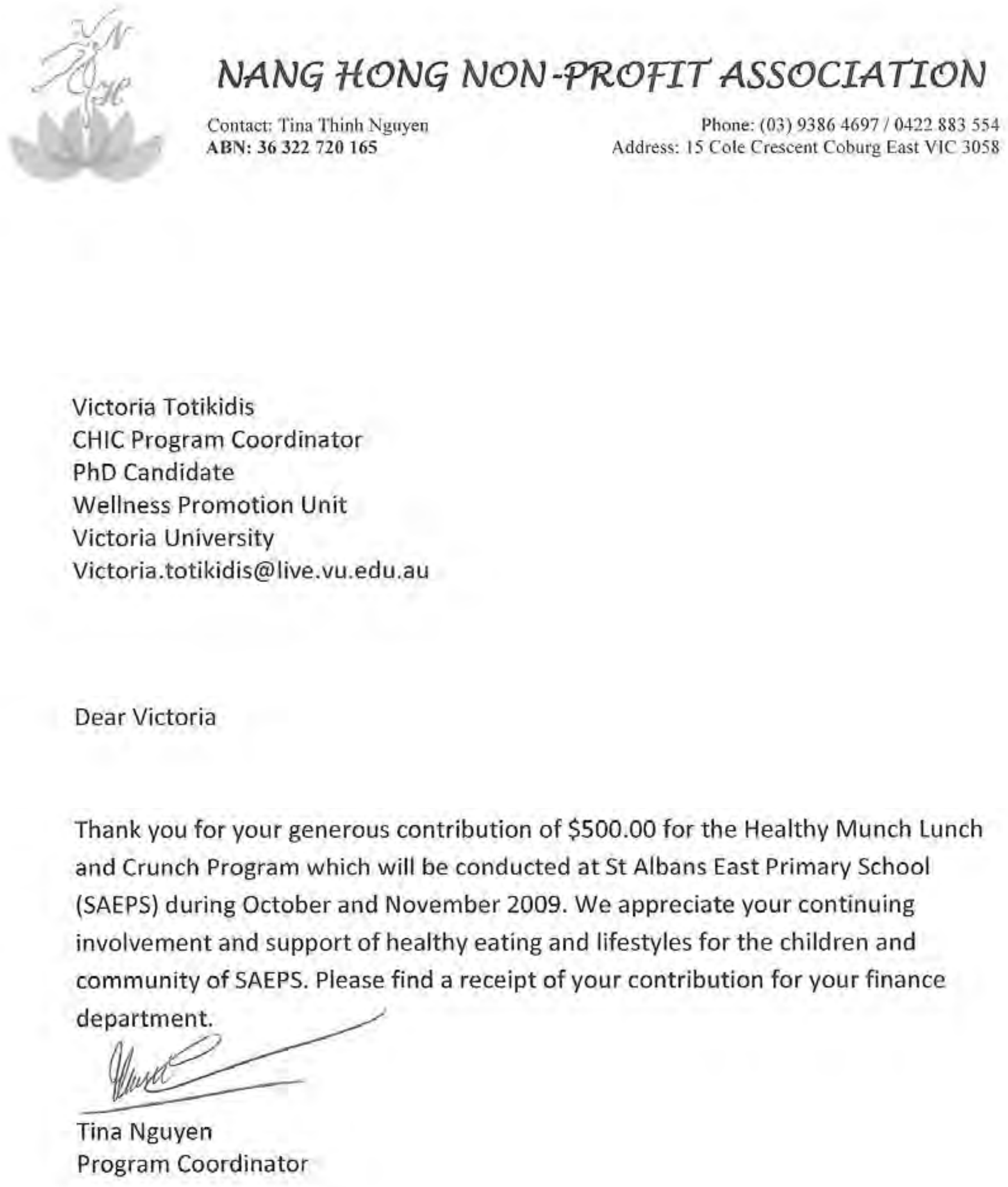
- Mr Telmo Languiller, State Parliamentary Secretary for Health and Human Services
- Mr Sam David JP, Brimbank Councillor, former mayor of Brimbank
- Ms Anne-Maree Kliman, Principal - St Albans East Primary School
- Assistant principal, teachers and parents from St Albans East P.S and St Albans P.S
- Victoria University staff/students interested in health and/or conducting research on health
- Vicky's supervisor Associate Professor Jenny Sharples
- **Members of the Brimbank CHIC team (Arlene, Cecilia, Chi, Kim, Tien, Tina and Victoria)**
- Service providers/social workers from Centrelink, Western Region Outreach Service, Good Shepherd Youth and Family Service and the Indo-Chinese Elderly Refugee Association.



Menu

- Vietnamese rice paper rolls with hoisin dipping sauce
- Vegetarian fried rice
- Latin-American baked fish with vegetables
- Baked zucchini halves with mozzarella cheese
- Cold roast chicken pieces with chutney & sweet chilli sauce
- Greek salad
- Provolone and antipasto platter
- Whole wheat bread
- Nuts and dates
- Cantelope & strawberry platter
- Grapes
- Apples, mandarines & pears

Appendix O



NANG HONG NON-PROFIT ASSOCIATION
Contact: Tina Thinh Nguyen
ABN: 36 322 720 165
Phone: (03) 9386 4697 / 0422 883 554
Address: 15 Cole Crescent Coburg East VIC 3058

Victoria Totikidis
CHIC Program Coordinator
PhD Candidate
Wellness Promotion Unit
Victoria University
Victoria.totikidis@live.vu.edu.au

Dear Victoria

Thank you for your generous contribution of $500.00 for the Healthy Munch Lunch and Crunch Program which will be conducted at St Albans East Primary School (SAEPS) during October and November 2009. We appreciate your continuing involvement and support of healthy eating and lifestyles for the children and community of SAEPS. Please find a receipt of your contribution for your finance department.

Tina Nguyen
Program Coordinator

Appendix P

Healthy munch, lunch and crunch festival

Dear Teachers,

We are seeking your support in a healthy eating program that we are conducting at SAEPS. The program will involve four main parts as outlined below:

1. Children working in groups of four to research healthy eating

2. Creation of a poster on a whole day of healthy eating for a child of that age (breakfast, school day lunch and all snacks & evening meal)

3. In class selection of two best posters to be displayed in hall from the 21st -30th October.

4. Dress up in fruit and vegetable colours/themes on festival day and announcement of poster award winners

The first three parts are to take place within the classroom/art room as organised by teachers while the fourth will take place at assembly on Thursday 5th November.

<u>Research and Poster Guidelines</u>

The poster should be done on A3 size project paper and can include drawings, writing, photos, magazine cut outs, or other craft materials. Also write on the paper:

- Names of the children in the group and class
- List of all food items/ingredients
- What is special about this food/why is it healthy?

When the posters are finished, children should judge and pick which are the best two posters to display in the school hall from Friday 30th October until Friday 6th November. A panel of judges will pick a final winning poster from each class. All winners will be announced at assembly on Thursday the 5th November and certificates will be awarded to the winning teams.

Posters should be judged by the following criteria:

- Poster should display creative, artistic and research merit
- Food represented on the poster should be healthy and no unhealthy food should be included.
- The food should consist of food from the five food groups (protein/meat, fish, legumes etc; dairy/calcium group, fruit group, vegetable group and breads, grains, cereals group.
- There should be food for a whole day of eating for a child of the appropriate age, including breakfast, a school lunch, evening meal at home and all snacks and drinks.
- The Food for health - Dietary Guidelines for Children and Adolescents Pamphlet should be the main resource for deciding which foods to put on the poster. This will be given to each child and can also be accessed on the National Medical Health and Medical Research Council website at:

http://www.nhmrc.gov.au/publications/synopses/_files/n30_pamphlet.pdf

Some other useful websites on healthy eating that teachers and children may want to access are:

http://www.goforyourlife.vic.gov.au/hav/articles.nsf/pages/Healthy_lunch_boxes_for_children?OpenDocument

http://www.nutritionaustralia.org/Nutrition_for_All_Ages/Children/lunch_ideas_fs.asp

http://nutritionweek.nutritionaustralia.org/at_school.html

http://www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Lunchbox_tips?OpenDocument

http://kidshealth.org/kid/stay_healthy/food/pyramid.html#a_The_Pyramid_Speaks

Kind Regards

Tina Nguyen (position) and the Brimbank Community Health Information Collaboration (CHIC)

http://home.iprimus.com.au/vickydownunder/CHIC/

Appendix Q

Mời Bạn Dự Khóa Học Về Bệnh Tiểu Đường

Do **Trung Tâm Phụ Trách về Bịnh Tiểu Đường ở Úc** / **Nhóm Thông Tin Sức Khỏe Cộng Đồng**
Trường Tiểu Học St Albans East / **Đại Học Victoria** / **Nhóm Vũ Thiếu Nhi Nắng Hồng** hợp tác tổ chức.

MỖI THỨ NĂM từ 22/10/09 đến 12/11/ 2009
THỜI GIAN: từ 10g sáng đến 12g30 trưa

TẠI: Hội trường Trường Tiểu học ST ALBANS EAST
(Góc đường Station Ave & Lester Ave- St Albans)
Mel way 26 C1

Khóa học này nhằm tạo cơ hội cho các thành viên của cộng đồng người Việt tìm hiểu thấu đáo và biết cách phòng ngừa Bệnh Tiểu Đường cùng những biến chứng nguy hiểm của nó.

1. THỨ NĂM 22/10/2009
- Bệnh Tiểu Đường là gì?
Professor Kerry Bennett – Trung Tâm Phụ Trách Về Bệnh Tiểu Đường ở Úc (Đại họcVictoria)
- Phần thảo luận bằng tiếng Việt: Cô Hoàng Thịnh điều khiển.

2. THỨ NĂM 29/10/2009
- Phòng ngừa và Kiểm Soát Bệnh Tiểu Đường.
Oriole Paul – ISIS Primary Care
- Phần thảo luận bằng tiếng Việt: Cô Hoàng Thịnh điều khiển.

3. THỨ NĂM 05/11/2009
- Cách Ăn Uống và Dinh Dưỡng
Dr. Bhensri Naemiratch - Trung Tâm Phụ Trách Về Bệnh Tiểu Đường ở Úc (Đại họcVictoria)
- Phần thảo luận bằng tiếng Việt: Cô Hoàng Thịnh điều khiển.

4. THỨ NĂM 12/11/09
- Tập luyện thân thể
Kiemi Lai – Đội banh SpritWest Western Bulldogs
- Các Bí Quyết Giúp Sống Khỏe Sống Vui: Cô Hoàng Thịnh trình bày.

Thông Dịch viên: **Cô Hoàng Thịnh*
Sau mỗi buổi học, sẽ có **Bữa Ăn Trưa Lành Mạnh ngon lành miễn phí.*

***Thắc mắc hoặc ghi danh, xin liên lạc với: Tina Nguyen on 9366 2071 (BH) / 0422 883 554**

ACCD

ST ALBANS EAST PRIMARY SCHOOL EXCELLENCE IN EDUCATION

Community Health Information Collaboration
CHIC

NH

VICTORIA UNIVERSITY
A NEW SCHOOL OF THOUGHT

Appendix R

Healthy Lunch, Munch and Crunch
2009 Art Award

Presented to:

Vicky Totikidis

Grade One

St Albans East Primary School

………………………………………………...

Tina Thinh Nguyen
Director, Nang Hong Non-Profit Association &
Multicultural Coordinator, St Albans East Primary

…………………………………………………….

Victoria (Vicky) Totikidis
Coordinator, Community Health Information Collaboration
PhD Candidate & Research Officer, Wellness promotion Unit &
Australian Community Centre for Diabetes, Victoria University

WELLNESS PROMOTION UNIT
ACCD
ST ALBANS EAST PRIMARY SCHOOL EXCELLENCE IN EDUCATION
Community Health Information Collaboration CHIC
VICTORIA UNIVERSITY
A NEW SCHOOL OF THOUGHT

ST ALBANS EAST PRIMARY SCHOOL

Station Ave St Albans Vic 3021

Principal: **Anne-Maree Kliman**
Assistant Principal: **Senka King**

Phone: 03 9366 2071 **Fax: 03 9366 4237**
Email: st.albans.east.ps@edumail.vic.gov.au

Appendix S

22nd February 2011

Dear Vicky

I have much pleasure in announcing that the refurbishment of the Community Room is now completed.

We would like to invite you to celebrate the official opening of the Community Room. This room will be used by the school and the community.

Date: Tuesday 1st March 2011

Time: 12.30pm

Venue: St Albans East Primary School – Community Room.
Corner of Station Ave & Lester Ave St Albans 3021.
Melway: 14 C12

The refurbishment was funded by Department of Education and Early Childhood Development, under the program “Go for Your Life / Healthy Start in School Grant 2010 and the contribution of St Albans East Primary School. This room will be used for Healthy Cooking Program for our students and their families. Thank you for your great support in bringing the community to school and to promote healthy eating habits in our community.

Lunch will be served.

We look forward to seeing you all on the day.

Tina Nguyen

RSVP: 25/02/11

Tina Nguyen: 9366 2071 (BH) 0422 883 554 (Mob)
Email: nguyen.thi.t@edumail.vic.gov.au