

Preventing Chronic Disease: A Strategic Framework

Background Paper



National Public Health Partnership
October 2001

Preventing Chronic Disease: A Strategic Framework was endorsed by the Australian Health Ministers' Advisory Council on 31 May 2001 as the basis for further national collaborative action.

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Preface

Chronic, non-communicable diseases are conditions of great concern, because of the significant burden they place on individuals, communities and health services. Yet many chronic diseases are highly preventable, and effective action on prevention is, therefore, a high priority. The Background Paper *Preventing Chronic Disease: A Strategic Framework* presents a national framework for system-wide strategic action that draws on the evidence about underlying determinants of poor health, knowledge of risk factors that are common to a number of diseases, and a lifecourse perspective on predisposing factors.

The framework is based on public health principles and practice, with a strong emphasis on health promotion, and describes how this practice can be incorporated across the continuum of care. A wide range of health-related disciplines must join forces if opportunities to reduce the morbidity and mortality associated with chronic disease are to be realised. These opportunities are present in established settings for primary prevention, such as schools and workplaces; in community-based services that can incorporate early intervention strategies; and in specialist and community care services where prevention efforts focus on disease management and continuing care.

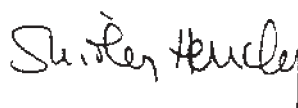
International research shows that health systems can be designed to prevent and manage chronic disease more effectively. However, it is essential that system level change is accompanied by, and supportive of, the empowerment and active participation of individuals, their families and communities.

In consulting on the Background Paper it was evident that there is growing support in Australia for a more integrated approach to chronic disease prevention. There are now a wide range of initiatives – at national, statewide and local levels – aimed at creating policies and implementing programs to co-ordinate action to improve the early detection and management of chronic disease as well as addressing risk and protective factors. The strategic approach proposed in the Paper would aim to build on the current developments, recognising that a broader, systematic and collaborative prevention effort has the potential to significantly increase the impact on health outcomes.

The National Public Health Partnership Group, in conjunction with the National Health Priority Action Council and with the support of the Australian Health Ministers' Advisory Council, will build on the Background Paper to agree and implement areas of national priority for public health. This work will be undertaken in partnership with the many stakeholders in government and non-government sectors concerned with the determinants and consequences of chronic diseases.



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List of Abbreviations

ABS	Australian Bureau of Statistics
ACQSHC	Australian Council on Quality and Safety in Health Care
AHMAC	Australian Health Ministers' Advisory Council
AIHW	Australian Institute of Health and Welfare
ANAPHI	Australian Network of Academic Public Health Institutions
CINDI	Countrywide Integrated Non-communicable Disease Intervention program
DALYs	Disability Adjusted Life Years
GPPAC	General Practice Partnership Advisory Council
HIRC	Health Inequalities Research Collaboration
IGCD	Intergovernmental Committee on Drugs
JAG	Joint Advisory Group on General Practice and Population Health
NATSIHS	National Aboriginal and Torres Strait Islander Health Strategy
NCD	Non-Communicable Diseases
NGO	Non-Government Organisations
NHIMG	National Health Information Management Group
NHMRC	National Health and Medical Research Council
NHPC	National Health Performance Committee
NHPAs	National Health Priority Areas
NHPAC	National Health Priority Action Council
NICS	National Institute for Clinical Studies
NMHWG	National Mental Health Working Group
NPHPG	National Public Health Partnership Group
NPHIWG	National Public Health Information Working Group
NSCWG	National Strategies Coordination Working Group
PCDS	Preventable Chronic Diseases Strategy
PHCRI	Primary Health Care Research Institute
RAGGP	Royal Australian College of General Practitioners
THS	Territory Health Services
WHA	World Health Assembly
WHO	World Health Organisation
YLD	Years of Life Lost due to Disability
YLL	Years of Life Lost

Executive Summary

Introduction

This paper sets out a strategic framework for the prevention and control of chronic non-communicable diseases in Australia. The framework is intended to provide the basis for a comprehensive, evidence-based, public health response to the National Health Priority Area initiative. The paper's focus is on the relationship between the chronic diseases (and associated conditions) designated as NHPAs and the modifiable risk and protective factors (behavioural, psychosocial and biomedical) shared by many of these conditions. The framework is intended to inform research, priority setting, service planning and action at all levels of the health system in Australia. Leadership to translate the framework into action will be the responsibility of the National Public Health Partnership Group (NPHPG), working in close collaboration with the National Health Priority Action Council (NHPAC).

Together, the health priority areas and associated conditions are responsible for approximately three quarters of the total burden of disease in Australia. Significant disparities exist in rates of these conditions between different population groups. Many of these conditions share common risk factors, and a large proportion of the disease burden could be prevented through changes in lifestyle, early detection of health problems and other measures. Effective preventive action on a national basis therefore has the potential to make a significant contribution to improving health outcomes and health related quality of life, reducing inequalities in health, and minimising unnecessary demand for health care services.

The paper and its recommendations originated with the NPHPG's report *Guidelines for Improving National Public Health Strategies Development and Coordination*, prepared by the National Strategies Coordination Working Group (NSCWG). This report proposed a number of ways of improving the efficiency, effectiveness and responsiveness of national health strategies through better coordination and integration of activities. The report was well received in the public health community during the consultation process and was endorsed by Australian Health Ministers' Advisory Council (AHMAC) in 1999.

The report recommended that many strategies may be more effectively "clustered" on the basis of a number of overarching themes derived from commonalities in aetiology or control measures. One of the major clusters proposed focused on chronic disease strategies. In order to progress this idea, the NPHPG agreed to auspice the development of a **national chronic disease prevention**

framework. This proposal drew heavily on the integrated approach to chronic disease prevention and control, the Preventable Chronic Diseases Strategy (PCDS), developed by Territory Health Services (THS). AHMAC endorsed the NPHPG leading the development of the framework, and this was then referred to and noted by Australian Health Ministers in August 1999. The development of the framework became part of the work program for the NSCWG.

While the major interest of the NPHPG lies in effective primary and secondary prevention, the National Health Priority Area (NHPA) initiative and the establishment of the NHPAC now provides an important opportunity to build a national approach to the prevention and control of chronic, non-communicable disease across the continuum of care. This would then bring Australia's approach into broad alignment with the comprehensive strategy for chronic disease prevention and control prepared by the World Health Organisation.

Content and organisation of the paper

The paper is organised in four parts.

Part One provides an introduction and background. It describes the genesis of the chronic disease prevention strategy framework and where and in what ways the framework is consistent with, and supportive of, other initiatives, both in Australia and internationally.

These include:

- The WHO Global Strategy for Prevention and Control of Non-Communicable Diseases;
- The National Health Priority Area initiative;
- The National Healthy Ageing Strategy;
- State and Territory initiatives, such the Northern Territory's *Preventable Chronic Diseases Strategy*; and
- The National Aboriginal and Torres Strait Islander Health Strategy (NATSISHS)¹.

Part Two outlines the magnitude of the current burden of chronic non-communicable disease in Australia. This section also provides examples of disparities in chronic disease rates across different population groups, and of new research findings on the social determinants of health.

Part Three sets out the "organising framework" which is at the heart of the proposed approach. This consists of

1 In draft at time of writing

both a conceptual framework and recommendations for which conditions, risk factors and approaches should be included in the scope of the overall strategy. Part Three also outlines a national strategic management structure to drive implementation of the framework.

Part Four outlines a implementation strategy based on the framework, including possible goals and objectives, and suggests a number of priority action areas which would support strategy implementation, many of which are currently under development or consideration.

A brief description of the main themes of the paper is provided below.

Why the framework is needed

The paper argues that a new approach to chronic disease prevention and control is needed. Reasons given include the following:

- While important gains have been made in the prevention and control of chronic disease – for example, through the significant reduction in smoking rates – not all population groups have benefited equally from these improvements. Differential rates of chronic disease are the cause of the most significant health inequalities between different groups in Australian society. “Closing the gap” requires new approaches which more effectively respond to the needs and interconnected problems faced by many disadvantaged groups.
- While the current way in which the public health effort is organised – based on vertical, single issue programs – offers many strengths, it is also less than efficient in a number of respects, given that many programs involve the same population groups, settings or the same service providers. Similar conditions and problems often cluster in the same population groups. For these groups in particular, current national efforts are often seen by providers and communities as fragmented and lacking coherence.
- New scientific evidence suggests the need to move beyond a “static” model of adult lifestyle risk (while acknowledging the continued importance of action in this area) to one based on a **lifecourse perspective** which recognises the interactive and cumulative impact of social and biological influences throughout life, in particular the importance of early life factors (in utero and early childhood) in creating predispositions to chronic disease in adulthood.
- Complex new problems associated with the chronic disease epidemic – such as the increasing prevalence of conditions such as obesity and depression – require a multifaceted response involving action outside as

well as within the health system. In the case of obesity, for example, new directions and partnerships required include collaboration with the transport sector, town planners, local government, the sport and recreation sector, local communities and the media to help foster social norms of active living.

- There is also a strong evidence base emerging which confirms the contribution of psychosocial factors – such as a “sense of control”, social support networks, resilience, family environment and chronic stress – to a wide range of health and social problems, including chronic disease. It is difficult for “single issue” strategies to address these factors adequately.
- A comprehensive approach to chronic disease requires effective action across the continuum of care. Prevention and management are complementary not competing strategies. Prevention strategies are often insufficiently connected to, and understood by, the mainstream health system. New alliances between public health, clinicians and consumers are needed.

In various forums and consultations organised to inform the framework’s development, there has been wide support for a more coordinated and strategic approach to chronic disease prevention and health promotion. It is widely agreed that prevention efforts need to be sustained over the long term and require effective coordination across many boundaries. Addressing health inequalities is seen as a priority but one that also offers major challenges to current ways of working. The new approaches required must mesh with an already complex and dynamic system with many players.

For many people in the health system working on these issues at the local level, dealing with a wide range of often apparently unconnected national initiatives, a national framework reflecting “joined up” thinking about these problems, accompanied by national leadership, would provide a greater sense of direction, coherence and shared purpose.

The recommendations contained in this paper have been developed by the NPHPG to address these and other issues and to contribute to building a stronger, more cohesive and strategic effort to improve health and well-being in Australia.

Overview of strategic framework

The framework (described in detail of Part Three of the paper) draws on current best practice in Australia and internationally, and is structured to be consistent with the World Health Organisation’s *Global Strategy for Prevention and Control of Non-Communicable Diseases*.

In line with the recommendations of the *Global Strategy*, and the challenges described above, the framework recommends building the organisation of the national prevention effort in Australia around three key domains of activity. These are:

- *Ensuring an effective information base to guide action (eg):*
 - systematic surveillance of risk factors and their determinants
 - systematic development of the evidence base to inform policy and program design
 - evaluation and performance measurement
- *Strengthening prevention and health promotion (eg):*
 - reduce risk factors and their determinants; enhance protective factors
 - promote health across the life course
 - build partnerships for intersectoral action and supportive public policies
 - give priority to populations most at risk
- *Improving systems of care for those with chronic disease (eg):*
 - strengthening the role of prevention in the health care system
 - improving early detection and intervention
 - integrated primary health care systems
 - care partnerships and consumer participation

Clustering linked conditions and risk factors

The paper identifies a “cluster” of modifiable risk and protective factors, biological risk factors (or markers) and preventable conditions, broadly aligned with the National Health Priority Areas, which should comprise the focus for the prevention effort. These conditions can be grouped together based on commonalities in their risk factors and pathogenesis. Many are associated with what has been called the “metabolic syndrome” (or “syndrome x”). The cluster framework also recognises the role played by non modifiable factors; and the relationship of broader social and environmental determinants to patterning of individual risk factors and the distribution of health outcomes. A more detailed schema setting out the causal pathways and relationships between risk factors and health outcomes across the lifecourse is provided in Appendix 4.

By grouping together a range of related health issues which are often addressed independently, the cluster approach can help to:

- Provide a basis for integrated service planning, partnerships and organisation of the prevention effort
- Define parameters for surveillance, and development of “leading health indicators”

- Make explicit the connection between the burden of disease and the common risk factors
- Highlight the links between physical and mental health
- Reflect the connections between many of the health problems and concerns of Aboriginal and Torres Strait Islander people
- Underscore a theme of “healthy people in healthy communities” by acknowledging the social determinants of health, and not focusing solely on individual factors

The conditions and risk factors included in the framework are set out in Figure 1 on the following page.

The cluster does not include all chronic diseases and conditions, nor all possible risk factors. The intention in the first instance is to improve coordination around a manageable number of related conditions which are known to be preventable, share commonalities in pathogenesis and risk factors, and constitute a significant proportion of the total burden of disease. If “clustering” population health activity around these “core” conditions and risk factors proves successful, other conditions and risk factors (eg skin cancer and sun exposure) may be added to the framework in the future. Figure 1 includes some conditions not directly linked to the current NHPAs (such as oral health) but which share some commonality in risk factors (eg poor diet) and which could logically be included in local plans based on the cluster, where these represented areas of high need.

Injury prevention, although a NHPA, is not included in this initial version of the cluster, although effective action on several areas identified in the framework should contribute to injury prevention. For example, alcohol misuse, obesity, physical activity and depression may all be directly or indirectly associated with injury. However, while the sequelae of injury may include chronic disability, injury is not a disease, and many interventions to prevent injury occur in different domains (eg road safety) and are focused on different risk factors (eg not wearing protective clothing, environmental hazards) than those for the conditions which are the major focus of the framework (ie cardiovascular disease, diabetes, certain cancers and chronic lung disease). Where appropriate however – for example, in particular settings such as schools or aged care institutions – it is recommended that chronic disease prevention activities are coordinated with injury prevention initiatives.

Examples of current or planned national strategies that could be linked under the cluster of conditions and risk factors proposed include:

- *Eat Well, Australia* (national nutrition strategy) and the National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan

Figure 1: Initial cluster of preventable chronic diseases, risk factors and determinants

Risk and Protective Factors	Biological Risk Factors/Markers	Preventable Chronic Diseases and Conditions
<p>Behavioural Factors</p> <ul style="list-style-type: none"> • Diet • Physical Activity • Smoking • Alcohol misuse <p>Psychosocial Factors</p> <ul style="list-style-type: none"> • “Sense of control” • Social support/social exclusion • Resilience and emotional well-being <p>Early Life Factors</p> <ul style="list-style-type: none"> • Maternal Health • Low birthweight • Childhood infections • Abuse and neglect 	<ul style="list-style-type: none"> • Obesity • Hypertension • Dyslipidemia (disordered lipids, including elevated cholesterol) • Impaired Glucose Tolerance • Proteinuria 	<ul style="list-style-type: none"> • Ischaemic Heart Disease • Stroke • Type 2 Diabetes • Renal Disease • Chronic Lung Disease (COPD & Asthma) • Certain Cancers (eg colorectal, lung) • Mental health Problems/Depression* <p><i>Possible inclusion:</i></p> <ul style="list-style-type: none"> • Oral health* • Musculo-skeletal conditions²
<p>Non modifiable factors: Age, sex, ethnicity, genetic make-up, family history</p> <p>Socio-environmental determinants (<i>may or may not be modifiable</i>): Socio-economic status, community characteristics (eg presence/absence of social capital), working conditions, environmental health etc</p>		

* can also be defined as risk/protective factors

- *Active Australia* (national physical activity and health strategy – jointly developed with Australian Sports Commission)
- National Tobacco Strategy
- National Alcohol Action Plan
- National Mental Health Strategy: *National Action Plan for Promotion, Prevention and Early Intervention for Mental Health*
- Sharing Health Care (Commonwealth funded program which promotes partnerships between patients and clinicians, and self management of chronic disease)
- National Diabetes Strategy
- National Healthy Ageing Strategy

2 Musculoskeletal disorders such as osteoarthritis are not preventable on the basis of current knowledge, although some conditions are related to obesity (eg osteoarthritis of the knee); and osteoporosis is related to diet and physical activity. However, the major reason for inclusion is that musculoskeletal disorders affect more than a quarter of the population; and frequently present as a comorbidity with depression, and with vascular conditions in older people. There are many opportunities to improve self management and improve quality of life for people with these conditions in conjunction with health promotion programs targeting other health problems faced by older people.

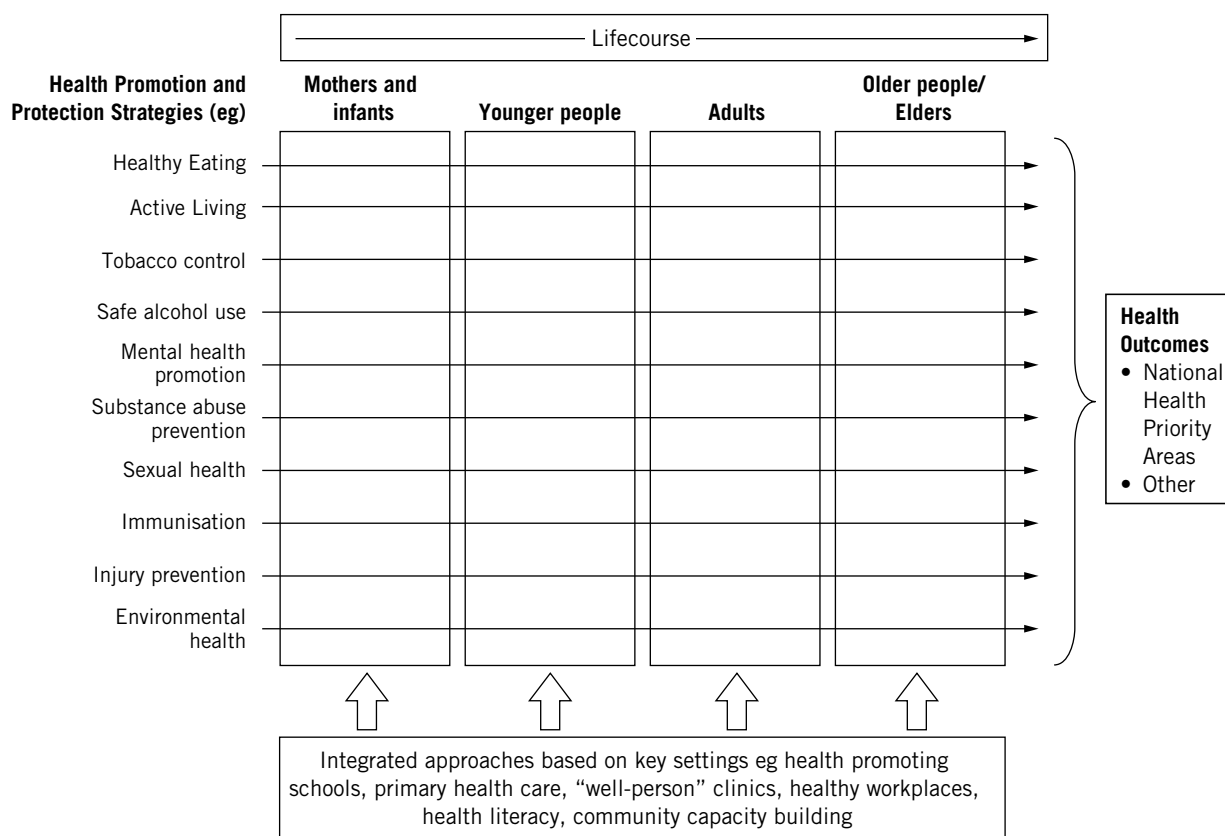
Whole of life approach

As noted above, the risk of chronic disease in adulthood is now understood to be associated with risk exposures across the life course. The framework therefore underlines the importance of a “whole of life” approach to prevention and health promotion. It is argued that a comprehensive prevention strategy requires the systematic identification, prioritisation and application of cost-effective interventions for each stage of the life course. The lifecourse approach is illustrated in Figure 2 opposite. This shows strategies addressing the common risk factors for chronic disease mapped against each of four life stages. Figure 2 also incorporates other important health improvement strategies, all of which may be delivered through common **settings** (eg schools, primary health care). The importance and influence of the settings relevant to different life stages are therefore emphasised as key arenas for population health action on chronic disease.

Integrated planning and community involvement

The occurrence and distribution of chronic diseases are influenced by changing lifestyles, and a range of social and environmental determinants. It is therefore important to harness the contribution of many groups and interests

Figure 2: “Whole of life” approach to chronic disease prevention



in society to address the burden of chronic disease. Extensive community and consumer involvement in planning and implementation is necessary. Action at the local level needs to be supported by “healthy public policy” at all levels of government, which in turn requires community support.

Many disadvantaged groups face particular challenges. Health may be just one dimension of a series of interconnected problems, which are compounded by social change. As part of the effort to address health inequalities associated with chronic disease, health improvement strategies need to be designed to take account of local circumstances and context, and social and environmental barriers to change. This may often require closer linkages between health sector initiatives and other programs and services that affect people’s lives.

A key recommendation in the paper is to encourage “joined up” action at local and regional levels, based on the frameworks and approaches proposed, but responsive to local needs and conditions. This would be facilitated through the development of regional or local health improvement plans for tackling preventable chronic diseases, and the participation of local communities in the development and implementation of these plans. Priority would be given to areas of high social disadvantage. Regional plans and the accompanying planning process would be designed to:

- Engage the whole health system (public and private) in that geographic area, building on existing health service and health promotion plans
- Target health inequalities
- Promote partnerships with other sectors such as local government, community services, education, transport and private industry
- Encourage action in key settings such as schools and workplaces, and provide an interface between national “vertical” strategies and local settings and services
- Engage local communities and opinion leaders in chronic disease prevention
- Involve NGOs, consumer groups, self help groups and others to strengthen networks of social support for people with chronic disease
- Be integrated with primary health care reforms eg coordinated care trials, primary care partnerships
- Develop local strategies based on local needs
- Build partnerships with academic institutions to support intervention testing and monitoring, for example through designated “prevention research centres”
- Provide a framework for considering new funding models, for monitoring and evaluation, and capacity building requirements.

A “whole of health system” approach

At each stage in the course of the development and progression of the chronic diseases considered in this paper, there are important opportunities for prevention and health gain. The paper takes the position that “while prevention is better than cure, control is better than complication”. Figure 3 illustrates a comprehensive model of chronic disease control across the continuum of care, and the role of prevention and health promotion at each stage. The model highlights the need for integrated planning for chronic disease prevention and control across the health system, in order to ensure, at a minimum, consistency in lifestyle advice, and reinforcement of these messages at all levels of the system. At each point on the spectrum of care, there also important opportunities for improving health literacy, patient empowerment and supporting self care. Seen from this perspective, the potential contribution of the health system as a whole to prevention and health promotion is significant yet too often remains a largely untapped resource.

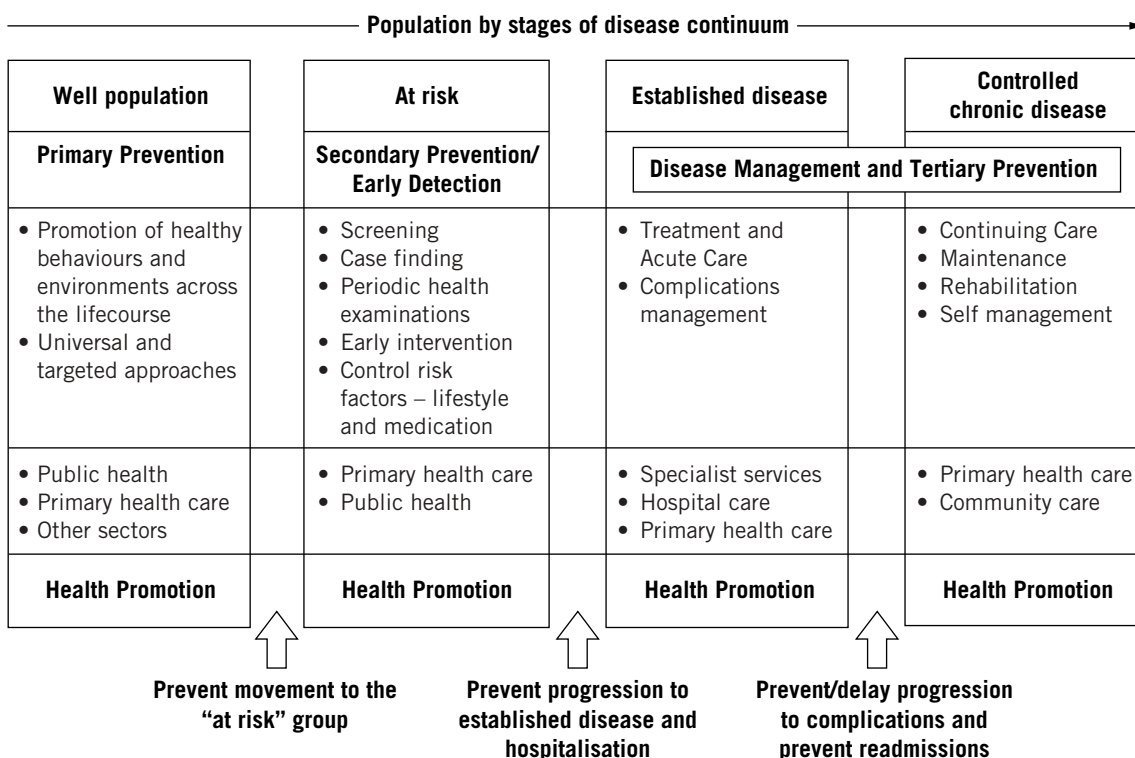
The conceptualisation suggested by Figure 3 can provide a basis for dialogue between the public health workforce, clinicians and allied health professionals on the respective contributions of each area to health improvement, and the opportunities for partnerships and joint planning. In more technical forms, the model can provide a basis for identifying data requirements, resource allocation,

economic modelling, service planning and workforce development.

The “whole of system” response suggested by this model is provided nationally by the collaborative agreement between the National Public Health Partnership Group and the National Health Priority Action Council (which has responsibility across the continuum of care for the agreed Health Priority Areas); and through agreements with various other bodies such as the Intergovernmental Committee on Drugs, and the National Institute for Clinical Studies, and the non-government sector. Within this overall approach, the major focus of the paper reflects the NPHPG’s interest in the “front end” of the continuum of care, that is, primary prevention and health promotion aimed at the common risk factors (for conditions known to be preventable), and the social determinants of health.

Early detection of health problems and screening for specific diseases are vitally important measures in disease control. However, early detection is only considered in this paper in relation to the preventable conditions included in the “cluster”. The significant contribution of organised screening programs for early detection of conditions (such as breast cancer) for which effective prevention measures remain unknown, are recognised, and would be included in a more comprehensive framework for chronic disease control. Major challenges associated with genetic testing will also need to be addressed from a

Figure 3: Comprehensive model of chronic disease prevention and control



public health perspective in the near future, but fall outside the current scope of this framework. Many aspects of treatment and management also contribute to prevention as Figure 3 illustrates, but the clinical management of individuals (including drug therapy, surgery, radiotherapy) does not generally fall within the scope of the framework.

However, the paper recommends building strong linkages, at all levels of the system, between the domains of prevention, early detection, management and on going care, as part of a comprehensive national approach to reducing the burden of chronic disease.

Strategic Management

To give effect to the “joined-up” approach recommended in the paper will require the development of suitable coordination mechanisms and strategic management processes. To this end a national “Chronic Disease Prevention Strategy Coordination Group” (or executive group) is proposed, bringing together leaders of key national strategies (including representatives from mental health and healthy ageing strategies) reporting to both the National Public Health Partnership Group and the National Health Priority Action Council. This group would meet twice annually to receive reports on progress, to consider longer range scenarios and to recommend new work programs as appropriate.

Also recommended is the establishment of a national Preventable Chronic Disease and Health Promotion Planning Forum with broader membership – including key public health, primary care, government, NGOs, professional bodies, research institutions, and consumer organisations, with similar mechanisms reflected in each jurisdiction, and regional and local levels where appropriate. The national body – which would be consistent with the WHO recommendation for the formation of a national coalition of all stakeholders – would meet annually.

Development of a national “chronic disease prevention and health promotion network” based on the successful Northern Territory model, supported by a web site, and a biennial conference is also proposed in this section.

An agenda for action

Part Four suggests a number of goals and objectives for a national chronic disease prevention strategy based on the framework outlined above. Also recommended are a number of key actions to progress under a staged implementation strategy. Many key activities are already underway, and some already have a long history of successful action. In some cases it will be necessary to build on or strengthen these initiatives, or better integrate their work in relation to particular settings or population

groups. In addition, the action agenda contains recommendations for new initiatives, and strengthening the infrastructure to support prevention strategies. Building the evidence base for action – for example, through improvements in systems for monitoring health behaviours, and a national research strategy – is proposed as a high priority.

An overarching recommendation is for the preparation of a **national preventable chronic disease and health promotion policy statement** based on the framework in this document to provide a guide to action and a more coherent approach across all levels of the health system.

The policy statement should provide the basis for national agreement – initially between governments through Health Ministers – on key policy objectives and strategic directions for chronic disease prevention and control in Australia over the next decade. Such an agreement would then provide the basis for aligning financial resources and institutional arrangements with these policy objectives, across all jurisdictions. The statement would also form the basis for agreements between government and non-government organisations, professional bodies, consumer organisations and other stakeholders.

Conclusion

The framework and recommendations in this paper aim to improve the coherence of the national public health effort in reducing the burden of chronic illness and improving health and well being, and in harnessing resources more effectively to achieve shared goals.

The proposed framework seeks to complement the broader range of health improvement initiatives in Australia. These include strategies focused on the health needs of Aboriginal and Torres Strait Islander peoples, rural health initiatives, reforms to primary and acute care to better support people with existing chronic disease and complex care needs, prevention programs designed to minimise harm associated with substance abuse and broader initiatives to strengthen communities and build social capital.

The approach proposed allows for the continued independence and autonomy of individual strategies and agencies concerned with specific diseases or risk factors, while providing the conceptual and organisational basis for the development of shared programs and coordination of effort where it is agreed this would add value.

While public health action to prevent chronic disease will be led on a national basis by the National Public Health Partnership Group, the implementation of much that is recommended in the paper will need to occur in, and in partnership with, local communities and the primary health and community care sector.

Part 1: Background and context

Introduction

*Because several risk factors contribute to more than one disease or health problem, many control efforts – including school and workplace health education programs and health care setting interventions – are more efficient and effective when delivered as part of an integrated program. For example, developing and delivering different school health curricula on tobacco, drugs, alcohol and nutrition is not efficient or effective, in terms of either outcomes or cost. Similarly, to make the most out of the sometimes difficult task of getting a person to a health care setting ...all preventive measures that can and ought to be done in the same visit ...should be encouraged or at least scheduled. (Scutchfield and Keck, *Principles of Public Health Practice*, 1997)*

Chronic, non-communicable diseases are currently responsible for around 70% of the total burden of illness and injury experienced by the Australian population. The proportion is expected to increase to close to 80% by 2020. The burden due to morbidity is increasing, even as mortality is declining. Changes in the risk factor profile of the population, in demographics, advances in health care, and a variety of social and technological changes, are driving the shift in patterns of disease. Globally, chronic disease is now considered of epidemic proportions. Chronic diseases are among the most prevalent, costly, and *preventable* of all health problems.

There are no “magic bullet” solutions for chronic diseases. Prevention efforts need to be sustained over the long term; optimal disease management requires effective coordination across many boundaries. Health inequalities pose a particular challenge. These are difficult requirements in an already complex, and, it is often said, fragmented system. Duplication of effort and “reinventing the wheel” are common problems.

In recognition of the dimensions of the chronic disease burden and the need for strategic action, the *National Health Priority Area* initiative has been established by Health Ministers as an important ‘focal point’ for governments to develop effective strategies across the continuum of care in relation to the leading causes of mortality, morbidity and disability.

To date there has been no clear and systematic articulation of a population health response to the Health Priority initiative, despite the wide range of current and planned investments and activities in this area, many of which fall broadly under the auspice of the National Public Health

Partnership (NPHP). The NPHP Group has agreed that a more coherent and coordinated approach to national public health strategies is needed in this area.

It is the purpose of this paper to set out a strategic framework incorporating the key elements of a comprehensive population health response to the *National Health Priority Area* initiative – focusing on those conditions that are preventable – and to propose how such a response might be designed. The aim is to articulate a coherent and strategic policy framework to underpin and strengthen the national effort in chronic, non-communicable disease prevention and control in Australia consistent with international developments and the current evidence-base in this field. The framework can therefore also be seen as a contribution to Australia’s response to the World Health Organisation’s *Global Strategy for Non-communicable Disease Prevention and Control*.

Because of the relationship between population ageing and chronic illness, and the contribution of protective factors such as good nutrition and physical activity to healthy and successful ageing, this framework can also be seen as a contribution, from a population health perspective, to the *National Strategy for an Ageing Australia*. Similarly, because of the close and established relationship between mental health and well being, and physical chronic illness, the framework also seeks to be consistent with and to support the *National Action Plan for Promotion, Prevention and Early Intervention for Mental Health*. Finally, the framework is designed to align with, and to support, the *National Aboriginal and Torres Strait Islander Health Strategy* (draft).

Chronic Disease or Noncommunicable Disease?

Defining the national health priority conditions as “chronic diseases” is generally consistent with international terminology, although the WHO continues to use the term “non-communicable diseases”. Chronic diseases are usually characterised by complex causality, multiple risk factors, a long latency period, a prolonged course of illness, functional impairment or disability, and in most cases, the unlikelihood of cure (see Box 1).

Some commentators have noted that while many major chronic diseases such as heart disease and cancers are not transmissible via an infectious agent, the behaviours which predispose to chronic disease can be *communicated*, through advertising, news media, popular entertainment and product marketing (Marks and McQueen, 2001, Yach 2001). The term chronic disease is therefore preferred for this paper, but with the implied meaning of

“chronic, non-communicable disease” in the traditional epidemiological sense of “non-communicable”.

Communicable or infectious diseases, which are also chronic in nature, such as Hepatitis C or HIV/AIDS, are not included in the conditions addressed in this paper, as these conditions are not included in the designated National Health Priorities Areas, nor do they share commonalities in aetiology with the NHPAs. Prevention pathways and monitoring requirements therefore differ for these conditions and are addressed through other strategies and reporting mechanisms.

A new agenda

While the paper argues that there are gains to be made from a more coordinated and strategic approach to existing and planned population health activities focused on chronic disease prevention, the framework as proposed aims at more than the improvement of current efforts. A new public health agenda is needed, which integrates current practice with new directions and approaches.

Reasons given in the paper for why this new agenda is needed include:

- While important gains have been made in the prevention and control of chronic disease – for example,
- While the current way in which the public health effort is organised – based on vertical, single issue programs – offers many strengths, it is also less than efficient in a number of respects, given that many programs involve the same population groups, settings or the same service providers. Similar conditions and problems often cluster in the same population groups. For these groups in particular, current national efforts are often seen by providers and communities as fragmented and lacking coherence.
- New scientific evidence suggests the need to move beyond a “static” model of adult lifestyle risk (while acknowledging the continued importance of effective action in this area) to one based on a **lifecourse perspective** which recognises the interactive and cumulative impact of social and biological influences

Box 1

Defining Chronic Disease

In Australia, there is a lack of an agreed general definition of what constitutes chronic disease or illness.

The RACGP has used the following definition for its Curriculum Statement on Chronic Illness: *“Chronic illness is the irreversible presence, accumulation, or latency of disease states or impairments that involve the total human environment for supportive care, maintenance of function and prevention of further disability”*. The term ‘chronic condition’ is interpreted as including any form of chronic illness, disease or symptom complex or disability.

In the United States, the Centers for Disease Control and Prevention (CDC) suggest that chronic diseases are generally characterised by uncertain aetiology, multiple risk factors, a long latency period, a prolonged course of illness, noncontagious origin, functional impairment or disability, and in most cases, incurability. CDC defines a chronic disease as one that, in general terms, has a prolonged course, that does not resolve spontaneously, and for which a complete cure is rarely achieved.

These definitions of chronic disease obviously include a wide range of conditions. However, for the purpose of defining strategies for prevention and control of chronic disease, CDC uses the term to encompass the following diseases and disorders:

- Cardiovascular diseases, including heart disease, stroke and hypertension
- Diabetes (and complications eg renal disease)
- Arthritis and other musculoskeletal diseases
- Cancers
- Chronic lung diseases
- Chronic neurological disorders

These conditions are all of intermediate or serious levels of severity, place a high burden on the health system and the community, and, in many cases can be effectively prevented or managed.

throughout life, in particular the importance of early life factors (in utero and early childhood) in creating predispositions to chronic disease in adulthood.

- Complex new problems associated with the chronic disease epidemic – such as the increasing prevalence of conditions such as obesity and depression – require a multifaceted response involving action outside as well as within the health system. In the case of obesity, for example, new directions and partnerships include collaboration with the transport sector, town planners, local government, the sport and recreation sector, local communities and the media to help foster social norms of active living.
- There is also a strong evidence base emerging which confirms the contribution of psychosocial factors – such as a “sense of control”, social support networks, resilience, family environment and chronic stress – to a wide range of health and social problems, including chronic disease. It is difficult for “single issue” strategies to address these factors adequately.
- A comprehensive approach to chronic disease requires effective action across the continuum of care. Prevention and management are complementary not competing strategies. Prevention strategies are often insufficiently connected to, and understood by, the mainstream health system. New alliances between public health and clinicians are needed.
- Health systems designed to deliver acute and episodic care are not well placed to provide the on going care required for those with chronic conditions; nor to foster the long term partnerships required between patients and clinicians. As health care reforms respond to the health transition from acute to chronic illness, consistent approaches to prevention and health promotion need to be embedded in the new systems of care. Changes to better reflect the needs of people with chronic conditions are already being introduced in primary health care; this requires a more coherent response from public health strategies and stronger engagement with the primary care sector.
- Prevention and health promotion can make a major contribution to the health related quality of life of people with existing chronic conditions; a focus on primary prevention alone reduces the scope of health promotion to engage with a large proportion of the population and limits alliances between public health and health consumers.

To address these challenges, many practical examples of new approaches are emerging, in all jurisdictions and in the non-government sector. Examples include:

- The *Preventable Chronic Diseases Strategy*, developed by Territory Health Services;

- The *Chronic and Complex Care Initiative* in NSW;
- The *Sharing Health Care* initiative, developed by the Commonwealth Department of Health and Aged Care;
- The *Eat Well, Australia* national nutrition strategy, developed by the Strategic Intergovernmental Nutrition Alliance (SIGNAL), under the National Public Health Partnership;
- The *North Queensland Chronic Disease Strategy* (Indigenous);
- The formation of the *National Vascular Disease Prevention Partnership* by a group of leading health non-government organisations;
- The development of the *Smoking, Nutrition, Alcohol and Physical Activity* (SNAP) framework for general practice by the Joint Advisory Group on General Practice and Population Health;
- The *Gatehouse Project* in Victoria, designed to promote mental health and emotional well being in schools, but which has also demonstrated an impact on other risk factors, such as smoking; and
- National Mental Health Strategy, *National Action Plan for Promotion, Prevention and Early Intervention for Mental Health 2000* which aims to address many of the psychosocial factors and social determinants associated with chronic disease risk.

The framework described in this paper aims to provide a strategic policy “umbrella” which can help bring coherence at a national level to these diverse activities, and create an environment in which the “lessons learnt” can be shared, disseminated and built upon.

It is intended that the framework should provide the basis for agreements on key policy objectives and strategic directions for chronic disease prevention between governments, non-government organisations, professional bodies, consumer organisations and other stakeholders over the next decade. In the longer term this should enable financial resources and institutional arrangements to be more effectively aligned with chronic disease control policy objectives, across jurisdictions and the non-government sector. The framework should inform research, priority setting, service planning and action at all levels of the health system in Australia.

Responsibility for leading and coordinating action arising from this paper lies primarily with the National Public Health Partnership Group, working in close collaboration with the National Health Priority Action Council (NHPAC) and other national bodies, including the Intergovernmental Committee on Drugs (IGCD).

The National Public Health Partnership was established by Australian Health Ministers to “*enhance national efforts in public health, concentrating on matters where concerted national effort, collaboration and consistency among jurisdictions are important*”. Until recently, there has been no national institution with a similar mandate

for action across the continuum of care. Now, however, the National Health Priority Action Council has been created with the explicit purpose of *“working with others to improve health and well-being and reduce health inequalities across the continuum of care in Australia, by identifying, advocating and facilitating actions and strategies both within and across national health priorities”*.

In various stages of consultation on the framework undertaken by the National Strategies Coordination Working Group, there has been a strong view that wider engagement of stakeholders, greater commitment and a more unified national effort overall could be achieved if it could be seen that actions to address the conditions and risk factors were located within an overall organising framework and strategy, rather than seen as a series of unconnected, “vertical” programs. This would provide a greater sense of coherence and shared purpose. For many in the health system, “joined up” thinking and planning, and more integrated program delivery and funding arrangements are considered a high priority.

Current theory and best practice internationally in the prevention and control of chronic, non communicable disease and injury suggest that an integrated, whole of system effort, is likely to produce the most optimal outcomes. The collaborative arrangements between the NPHPG, as the leader of the national population health effort, and the NHPAC, now enable for the first time a truly national and comprehensive approach to chronic disease control across the continuum of care. This paper seeks to build on this opportunity.

Background: Strategy Coordination and the “Cluster” approach

Historically, the public health effort in Australia has tended to be organised around strong vertical programs of activities to prevent and control priority diseases, and to target risk factors and population groups. Each health problem or issue has had its own strategy. This approach has also been mirrored to a certain extent in the work of the non government health organisations which have also largely been organised around specific diseases such as cancer, heart disease, diabetes and so forth. In many instances, this dedicated, “single issue” approach has proved remarkably successful, particularly when organised as a cohesive, consistent and sustained national effort. In areas such as tobacco control, HIV/AIDS prevention, immunisation, cancer screening, the decline in heart disease rates and in road injury reduction, Australia has a well deserved international reputation.

As the importance of an increasing number of health issues has come to be recognised, the number of single

issue (also known as single purpose or “categorical”) programs and initiatives has expanded. Currently in Australia, there are more than twenty national public health strategies at various stages of development, and six diseases/conditions designated as National Health Priority Areas, each of which has or is intended to have its own “strategy”.

Notwithstanding the achievements of the single purpose programs, from a public health perspective a number of limitations inherent in this approach have been identified, related to concerns about effectiveness, efficiency and equity, some of which have been referred to above. These limitations include:

- Problems of consistency in health messages and advice across programs;
- Action to address different risk factors often occurs in the same or similar settings (eg schools, local communities, workplaces, primary health care) and through the same service providers or channels (eg health professionals, opinion leaders, media); this leads to multiple demands from different strategies being placed on settings and providers (eg multiple reporting requirements), unnecessary transaction costs and the potential for duplication. “Health message overload” can become a problem for both providers and consumers;
- Similarly, in many cases, multiple health problems, risk factors or risk exposures are present in the same individual or family – single issue approaches may not adequately respond to their “whole life” experience, the contexts in which people live and work, their underlying concerns, and perceptions of health, illness and risk;
- Single issue strategies have less ability to address the determinants which shape health behaviours – for example, the stresses of unemployment; or the building blocks for sustainability – for example, strengthening community capacity;
- Where single issue strategies operate in isolation, opportunities for optimising the use of expertise, infrastructure in areas such as workforce development, research and development, data collection and monitoring, fostering cross program learning and knowledge transfer are reduced;
- Fragmentation at the national level can hinder collaboration and effective action at the local level.

Recognising these concerns, the National Public Health Partnership (NPHP) embarked on a process to develop a more coherent approach to the organisation of national public health strategies. In mid 1999, following a substantial period of work and consultation by the Partnership’s National Strategies Coordination Working Group (NSCWG), the NPHP published a report *Guidelines for Improving National Public Health Strategies*

Development and Coordination which proposed a number of ways of improving the effectiveness, efficiency, and responsiveness of national health strategies through better coordination and integration of activities. This report was well received in the public health community during the consultation process and was endorsed by the Australian Health Ministers' Advisory Council (AHMAC).

In addition to proposing improvements in the sharing of information and infrastructure across all strategies, the report recommended that many strategies may be more effectively "clustered" on the basis of a number of overarching themes derived from commonalities in aetiology or control measures, an approach adopted by WHO and other international organisations. Two of the major clusters proposed in the *Guidelines* report were based on *Communicable Disease Strategies and Chronic Disease Strategies*. Both "clustering" approaches received in principle support from the AHMAC in April 1999. Other clusters have also been proposed.

The "clustering" proposal was not intended to reduce the autonomy of individual strategies, but rather to ensure that potential synergies between similar issues and approaches could be better captured, duplication reduced, and value added to the total effort of health improvement. There was also a concern to ensure improved and more appropriate linkages between vertical and "horizontal" programs, and, in particular, to strengthen the interface between public health and primary health care.

In order to progress the clusters identified in the *Guidelines* report, the National Public Health Partnership Group (NPHPG), agreed to auspice the development of national frameworks for each area. The proposal for the chronic disease framework drew heavily on the comprehensive approach to chronic disease prevention and control initiated in the Northern Territory by Territory Health Services (THS), the *Preventable Chronic Diseases Strategy* (PCDS).

In addition to its contribution to strategy coordination, the chronic disease framework was seen to provide the basis for an integrated public health response to the National Health Priority Area (NHPA) initiative. The paper noted the important relationship of many of the public health strategies, and the relevance of the *Guidelines* report to the NHPAs:

While this paper focuses on public health strategies, there are broader health initiatives, such as the National Health Priority Areas (NHPA) initiative, which may have shared interests in the work under development and its application ... The NHPA initiative takes a whole of health system approach to coordinating and achieving health gain, encom-

passing the continuum of care from prevention through to treatment and management. National public health strategies tend to focus more on the contribution that prevention, protection and promotion can make to health improvement. While the NHPA initiative is consistently broader in its scope, there are clear areas of common interest between the NHPA and efforts at coordination of national public health strategies in the areas of prevention and promotion and in the respective relationships to individual strategies (such as the National Cancer Control Initiative and the developing National Injury Prevention Strategy). The development of a broader shared framework for national strategy coordination, may therefore be of benefit. (pVIII)

AHMAC endorsed the NPHPG leading the development of the chronic disease framework, and this was then referred to and noted by the Australian Health Ministers' Conference in August 1999. The development of the framework became part of the work program for the NSCWG, with the Commonwealth taking the role of lead agency, through the Population Health Division.

Consistency with, and relationship to, other initiatives

The approach proposed is consistent with and supportive of a number of related developments in Australia and internationally. A number of these are summarised below. This section provides only a brief review of related initiatives – it does not attempt to review all the government and non-government activity related to chronic disease prevention. An overview of many relevant activities can be found in the various National Health Priority Area reports, and in the Annual Reports of the NPHPG. Relevant national strategies and programs are listed later in the document.

National Health Priority Areas

The relationship of the framework to the NHPA initiative has already been discussed briefly above.

In his June 1999 report to the Commonwealth on the initiative, an international reviewer, Professor David Hunter stated that

...while the NHPA initiative has merit in providing a series of (six) hooks on which to hang things, it remains, by its very design, a vertical disease based model of care rather than one which seeks, or is even able, to articulate a cross-cutting framework out of which may evolve a matrix structure linking health problems with settings and population groups. Such a structure might then start to address the wider socio-economic determinants of health

alongside (not supplanting) a disease model. Both a population-based and a disease-based approach are needed – it is not a case of either or.

The framework proposed in this paper aims to address this critique by providing the cross-cutting framework and the matrix structure the report recommends. As noted above, the formation of the National Health Priority Action Council (NHPAC) and the collaborative agreements being developed with the NPHPG now provide the basis for linking operationally the vertical disease based approach with cross-cutting (horizontal) public (population) health strategies, including those focused on the wider determinants of health.

Territory Health Services – Preventable Chronic Diseases Strategy

As noted above, the *Preventable Chronic Diseases Strategy* (PCDS) developed by THS over the last three to four years, was one of the principal influences on the NPHP proposal for a “chronic disease” cluster and national framework.

The PCDS stands out in the strength of its theoretical framework, evidence base and use of economic analysis. It is simultaneously a health promotion, disease prevention and management strategy. The Strategy sets out to create systems that support self-care, link community health services with hospital services and link medical care with a public health approach, through a three point framework – prevention, early detection and best practice management.

The Strategy states that:

*The chronic disorders of **type 2 diabetes, renal disease, hypertension, ischaemic heart disease and chronic airways disease** can be grouped together from a public health perspective as they have **common underlying factors**, most notably poor nutrition, inadequate environmental health conditions, alcohol misuse and tobacco smoking. The origins of these diseases are set **in utero** and early childhood (most notably through low birth weight, malnutrition, and repeated childhood infections) and are worsened by lifestyle changes (weight gain, lack of physical activity and substance abuse). The diseases and their risk factors are also inextricably linked with the broader socio-economic determinants of health and quality of life, particularly education and employment. Lifestyle choices are often more reflective of unrelenting socio-environmental constraints rather than personal preferences. Therefore an **integrated, intersectoral and whole of life** approach is needed. (Weeramanthri et al, 1999)*

A comprehensive review of the evidence base was undertaken specifically for the purpose of informing strategy development and implementation, leading to the establishment of 6 key result areas: four for prevention, one for early detection and one for best practice management. These, together with a set of recommended “best buys” (a discrete program or set of interventions that can be identified and purchased), assist operational areas within THS to incorporate elements of the PCDS within their business plans. Refer to Appendix 1.

Dissemination of the evidence base, and updates on guidelines for action has been facilitated by the creation of a Chronic Diseases Network. To date, the Strategy has been welcomed and well accepted by both service providers and the communities they serve.

Townsville Workshop

Concurrent with the work being pursued by the NPHPG, a workshop was held in Townsville in October 1999 – convened by a consortium of the National Heart Foundation, James Cook University, the National Aboriginal Community Controlled Health Organisation (NACCHO), and the National Rural Health Alliance with support from the Commonwealth Department of Health and Aged Care – to explore ways of implementing the recommendations from the *National Health Priority Area report on Cardiovascular Health* that related to Aboriginal People, Torres Strait Islanders and Rural and Remote Populations. Also drawing on the NT experience with the PCDS, the workshop participants recommended that, in preference to a new vertical disease-based strategy, a “National Chronic Disease Strategy” should be developed addressing common determinants of chronic disease across the lifespan, and that relevant stakeholders should be brought together in the development and implementation of such a strategy. This more integrated approach was considered appropriate to the needs of Aboriginal, rural and remote communities. At the Townsville meeting, as in many other forums, concern was expressed about national programs that divide people up into “body parts” and diseases, or the single issue programs that “helicopter in” to a community with the latest campaign materials, and then disappear, to be followed a short time later by a different program targeting similar groups or working through the same providers.

Considerable interest, by the NGOs and others, including Aboriginal and rural health groups, has been shown in following up the Townsville meeting with concrete action to develop the recommendations further, including development of an integrated chronic disease strategy, and the formation of a non-government alliance to support this. A review of cardiovascular disease research in rural and remote settings, and Aboriginal and Torres Strait Islander populations was undertaken to provide information about the state of knowledge about cardiovascular disease and

to identify gaps in that knowledge. A workshop held in Alice Springs as a joint initiative of the National Heart Foundation of Australia and the Centre for Remote Health also supported the Townsville recommendations, with a focus on a strategic approach to research, health care and disease prevention.

These recommendations have been further developed and supported in later workshops. Follow through on many of the recommendations is now being progressed under the auspice of the Chronic Disease Alliance, a partnership led by the NACCHO.

International programs

World Health Organisation (WHO) – Global strategy for the prevention and control of non-communicable diseases

In January 2000, the Executive Board of WHO endorsed a global non-communicable diseases strategy and recommended that the 53rd World Health Assembly (WHA) urge member states to adopt this strategy. The Director-General's Report to the WHA notes that:

The rapid rise of noncommunicable diseases represents one of the major health challenges to global development in the coming century. This growing challenge threatens economic and social development as well as the lives and health of millions of people.

The Report states that:

Four of the most prominent noncommunicable diseases – cardiovascular disease, diabetes, cancer, and chronic obstructive pulmonary disease – are linked by common preventable risk factors related to lifestyle. These factors are tobacco use, unhealthy diet and physical inactivity. Action to prevent these diseases should therefore focus on controlling the risk factors in an integrated manner. Intervention at the level of the family and community is essential for prevention because the causal risk factors are deeply entrenched in the social and cultural framework of the society. Addressing the major risk factors should be given the highest priority in the global strategy for the prevention and control of noncommunicable diseases. Continuing surveillance of levels and patterns of risk factors is of fundamental importance to planning and evaluating these preventive activities.

Much is known about the prevention of noncommunicable diseases. Experience clearly shows that they are to a great extent preventable through interventions against the major risk factors and their envi-

ronmental, economic, social and behavioural determinants in the population.

Global Strategy papers note a number of successful examples of comprehensive, long term, integrated non-communicable diseases prevention programs, as shown in Box 2 below. Several of these developed from the WHO initiated CINDI program (Countrywide Integrated Non-communicable Disease Intervention) which has focused on preventing non-communicable diseases through a partnership approach aimed at controlling a limited number of common risk factors. The CINDI approach has addressed behavioural risk factors through multi level prevention strategies, while aiming to control biological risk factors and conditions through early detection and effective management to prevent progression to chronic disease and complications. (Additional examples of successful comprehensive programs are given at Appendix 2.)

While CINDI related programs have achieved a certain level of success in European countries, the Global Strategy recognises the very real challenge posed by the disproportionate impact of the rapid increase of NCDs on poor and disadvantaged populations, and the contribution to widening health gaps between and within countries.

In the Western Pacific Region, a Regional Plan for Integrated Prevention and Control of Cardiovascular Diseases and Diabetes was released by the WHO Regional Office in 1998, and a Pacific NCD Control Strategy, linked to the Healthy Islands program, was developed in 1999.

The Global Non-Communicable Diseases Strategy country level guidelines proposed by WHO are summarised in Box 3 on the following page.

It can be seen that while the WHO Global Strategy places a major emphasis on health promotion and prevention, it also recognises the opportunities for health gain in the development of a more systematic approach to NCD control in the context of health care reforms. WHO has also placed a major emphasis on its NCD surveillance program, through which internationally applicable methods and frameworks are being developed for integrated NCD and risk factor surveillance.

The reorganisation which has taken place since the appointment of Director-General Brundtland, is instructive for Australia. WHO moved to cluster vertical programs to enhance their effectiveness and efficiency, and has now merged the cluster for Non-communicable Diseases with that of Social Change and Mental Health. The new Non-communicable Diseases and Mental Health cluster strategically links disease management and systems of care under the same management framework as initiatives in prevention, health promotion and risk factor

Box 2

Comprehensive Non-Communicable Disease Prevention Programs

- **Norway**

The two decades of the North Karelia project demonstrated several prerequisites for success. These include community participation, supportive policy decisions, intersectoral action, appropriate legislation, health care reforms, and collaboration with non-governmental organisations, industry and the private sector.

- **Finland**

The comprehensive approach taken in Finland over twenty five years is reported to have contributed to a decline in smoking among men, major dietary changes and significant reductions in serum cholesterol and blood pressure levels. For substantial reductions in the levels of risk factors and in disease outcomes, delivery of interventions should be of appropriate intensity and sustained over extended periods of time.

- **Mauritius**

After a five year population-wide intervention program promoting a healthy lifestyle, significant reductions were found in the reported prevalence of hypertension, hypercholesterolemia, and smoking.

Intersectoral action

Past experience also demonstrates that various decisions made outside the health sector often have a major bearing on NCD risk factors and their determinants. More health gains in terms of NCD prevention are achieved by influencing policies in these domains than by changes in health policy alone. These include domains such as trade, food and pharmaceutical industry, agriculture, urban development and taxation policies. Health protection through national, fiscal and legislative changes have been shown to be effective in many countries.

WHO, 1999

surveillance. Recent WHO documents talk of the need to move “from vertical action to shared planning and implementation”. (Yach, D, Surveillance: A Core Cluster Initiative, WHO 2000).

The Cluster Mission is:

To provide global leadership to promote health across the lifecourse; to prevent and control noncommunicable diseases (including mental disorders) as well as injuries and violence; to ... reduce the toll of morbidity, disability and premature mortality associated with those diseases; and to enhance the quality of life of people with disabilities.

Cross cluster initiatives address surveillance; health care (ie generic health system reforms concerned with chronic illness per se as opposed to disease specific guidelines for management and care which fall within the NCD management program), and long term care (with the emphasis on the needs of carers). Bringing together areas such as long term care with health promotion within a lifecourse perspective gives the cluster a number of strengths in addressing cross cutting issues such as healthy ageing.

The health care program also has responsibility for the “*managing for health*” project which is concerned with

the training and development of health managers to manage across health care and public health, and engage local communities, to achieve noncommunicable disease health outcomes. The structure of the cluster is depicted in Figure 4 opposite.

While the cluster has a broader agenda, the Global Strategy focuses on four disease groups – **cardiovascular disease (heart disease, stroke, hypertension, lipids), diabetes, cancer, and chronic obstructive pulmonary disease** – and three major risk factors – **tobacco use, unhealthy diet and physical inactivity**. The Strategy states that action to prevent these diseases should “focus on controlling the risk factors in an integrated manner”. Links to **injury prevention** and **mental health** are made through the cluster structure, and through the lifecourse perspective.

England – Our Healthier Nation

While not specifically identified as a chronic, non-communicable disease strategy, the British Government’s White Paper *Saving Lives: Our Healthier Nation* provides a framework for tackling a similar set of conditions ie coronary heart disease and stroke, cancer, accidents, mental illness. Saving Lives goes some way towards being a “next generation” approach to health improvement, which recognises the complex linkages between social and environmental factors, risk behaviours, consumer empowerment, health service quality and health

Box 3

WHO country level guidelines for implementing a comprehensive NCD strategy

Generate an information base for action, eg

- Assess and monitor NCD mortality, the level of exposure to risk factors and their determinants in the population
- Provide a mechanism for surveillance information to contribute to policy making, advocacy and the evaluation of health care

Establish a national program for NCD prevention, eg

- Form a national coalition of all stakeholders and set realistic targets
- Establish pilot programs for NCD prevention based on an integrated risk factor approach that may be extended nationally
- Build capacity at the national and community level for the development, implementation and evaluation of integrated NCD programs
- Promote research on issues of NCD prevention and management

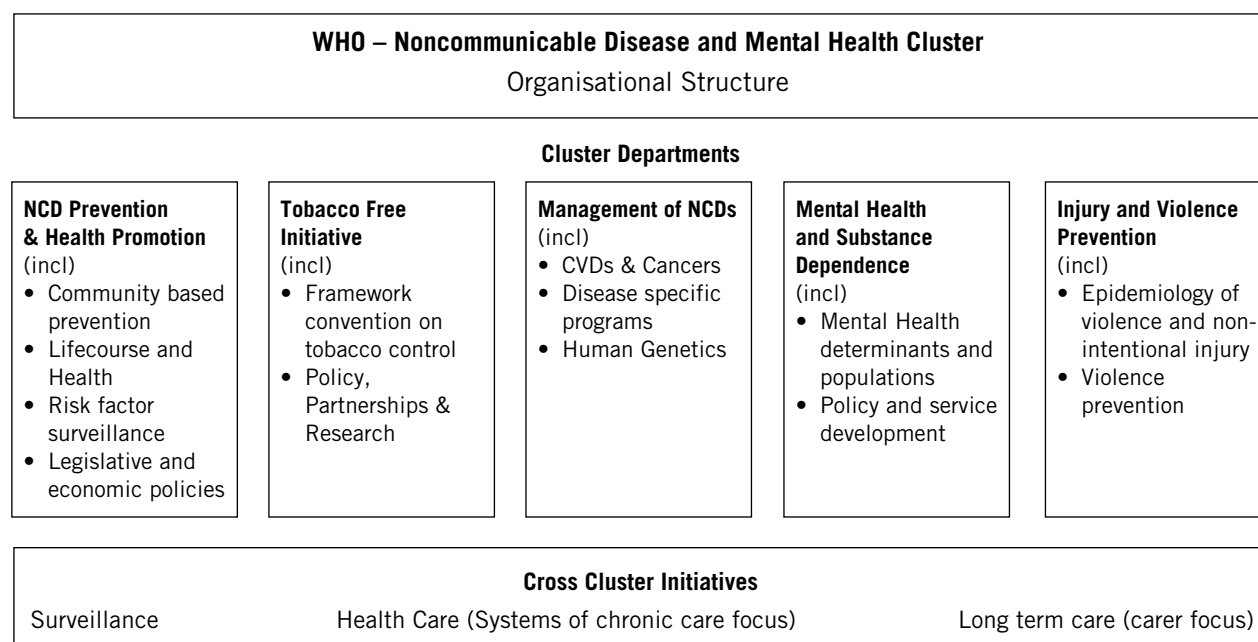
Address issues outside health sector which influence NCD control, eg

- Assess the impact of social and economic development on the burden of the major NCDs with a view to developing a comprehensive, multi-disciplinary analysis
- Develop innovative mechanisms and processes to help coordinate government activity as it affects health across the various arms of government

Ensure health sector reforms responsive to NCD challenge, eg

- Develop cost effective health care packages and evidence based guidelines for the effective management of priority NCDs
- Transform the role of health care managers by vesting managers the responsibility not for institutions (eg hospitals) but for the effective management of resources to promote and maintain the health of a defined population

Figure 4: WHO – Non-communicable Disease and Mental Health Cluster



outcomes. One of the two major goals of the White Paper is “to improve the health of the worst off in society and to narrow the health gap”. *Saving Lives: Our Healthier Nation* is supported by a range of special initiatives to address health inequalities including Health Action Zones and Health Improvement Programs.

United States

The Centers for Disease Control and Prevention (CDC), through the National Center for Chronic Disease Prevention and Health Promotion is building a nationwide framework for Chronic Disease Prevention. This is underpinned by systematic development of surveillance systems (eg Behavioural Risk Factor Surveillance System, conducted annually since 1984), evidence base development (Guide to Community Preventive Services), development of local planning and management tools (eg APEXCPH) and workforce development (eg through the Association of State and Territorial Chronic Disease Program Directors (ASTCDPD)). The ASTCDPD recently held its fifteenth national conference on chronic disease prevention and control. Chronic Disease prevention is a major focus for the network of Prevention Research Centres established in universities across the US by the CDC. The research theme for the Centre at the University of California at Berkeley, for example, is *Chronic Disease Prevention: Partnerships for Action with Families, Neighbourhoods and Communities*.

CDC publishes a report *Chronic Diseases and their Risk Factors* which draws together Detailed Mortality File data for Cardiovascular Disease, Diabetes and Cancers; Behavioural Risk Factor and Preventive Services survey data (smoking, physical activity, nutrition and screening services) and data from the Youth Risk Behaviour Survey. A newsletter, *Chronic Disease Notes and Reports*, is published quarterly.

The nationwide chronic disease prevention infrastructure will play a major role in the implementation of *Healthy People 2010*, an umbrella framework which supports virtually all facets of health improvement in the US, containing 467 objectives in 28 focus areas, and ten leading health indicators (the majority of which are associated with chronic disease and injury prevention). An overarching theme of *Healthy People 2010* is eliminating health disparities.

Relationship of Preventable Chronic Disease Framework to other health problems

The prevention and control of chronic, non-communicable disease is one component of a society's total health improvement effort. The proposed preventable chronic disease cluster can be conceptualised as one of at least

three overlapping clusters of health issues in which prevention and a population health approach can make a major contribution. Two of these clusters were referred to above in the context of the *Guidelines for Improving National Public Health Strategies Development and Coordination* report. While imperfect, this categorisation is suggested in order to locate the proposed chronic disease framework within the overall universe of preventive activity. This perspective also helps to identify where opportunities for collaboration across clusters might exist, for example, in relation to particular settings.

The three “clusters” are:

- Preventable chronic diseases and their risk factors – includes the “new epidemics” of obesity, type 2 diabetes; and issues associated with population ageing;
- The “new morbidities” of substance abuse, addictions, behavioural disorders, depression, violence, suicide, and mental illness; and
- Infectious diseases, including emerging and re-emerging diseases; and environmental hazards and threats

The clusters are clearly not mutually independent, and recognition of the many overlaps that exist is important in shaping preventive strategies. For example, some chronic diseases have an infectious origin; some infectious diseases are now managed as chronic illnesses (eg HIV/AIDS); smoking is a chronic disease risk factor but tobacco is also a drug of addiction, depression is a comorbidity for many chronic diseases. In high risk populations, several clusters of issues may be experienced together, suggesting that even this level of aggregation is somewhat artificial in terms of how health problems are experienced by individuals and communities.

However, for each cluster there are relatively discrete “systems of care” and treatment which do differ according to specific conditions and needs. Treatment for drug addiction, for example, involves a different set of providers and services than does diabetes care.

Underpinning all of the “health problem” clusters, however, sit a number of categories of issues generic to many of the health problems, for example common settings, risk behaviours or social factors, representing in some cases common underlying causal pathways, including more distal contributing factors. Low socioeconomic status is a risk factor common to most health problems.

Achieving improvements in some of these underlying factors may contribute to improved outcomes across many conditions. For example, the *National Action Plan for Promotion, Prevention and Early Intervention for Mental Health 2000* states that:

Many of the factors that influence mental health and mental ill health also influence outcomes in these other sectors, such as the education and the criminal justice systems. Promotion, prevention and early intervention for mental health have the capacity to deliver benefits well beyond the traditional health services sector – to individuals, to families, to our communities, and to our society as a whole.

Similarly, the evaluation of the National Youth Suicide Prevention Strategy suggests that a “generic approach to capacity building” – enabling service agencies to be more responsive to problems identified and prioritised by local communities – may provide the basis for a more comprehensive and systemic response to many health problems.

The proposal for the preventable chronic disease strategic framework recognises these perspectives, and where appropriate it would be expected that initiatives designed under the framework would seek to address or take account of both underlying determinants and capacity building factors, in collaboration with those working in other “cluster” domains.

Part 2: Chronic diseases – the need for comprehensive action

The burden of chronic illness

As noted above, the need for more effective action in Australia on the chronic, non-communicable diseases has been recognised in the agreement by all Health Ministers, to designate the leading causes of mortality and morbidity as National Health Priorities. Taken together, the NHPAs represent around 70% of the burden of illness and injury currently experienced by the Australian population, comprising 81% of years of life lost (YLL) and 56% of years of life lost due to disability (YLD). (Mathers et al, 1999)

Calculated as DALYs (disability adjusted life years), the major chronic diseases and conditions rank in the top ten leading causes of disease burden. This is shown in the following table.

Despite improvements, there is evidence that there are a number of areas where the chronic disease burden due to morbidity is increasing, in part due to population ageing, improvements in health care and the changing risk profile of the population. For example:

- While mortality from cardiovascular conditions has declined, heart and vascular disease prevalence increased between 1989/90 and 1995 from 174 per 1000 adults to 209 per 1000 adults; (DHAC/AIHW Cardiovascular Health Report, 1999);
- The prevalence of diabetes has almost doubled since the early 1980s; numbers of those with diabetes are

projected to pass one million over the next fifteen to twenty years; mortality associated with diabetes is expected to double in men by 2016. The AusDiab study suggests a prevalence rate of 7.5%, nearly twice as high as previous estimates (Dunstan, Zimmet et al 2001);

- The obesity rate in Australia increased from less than 8% in 1980 to nearly 20% in 1995; 56% of Australian adults were overweight or obese in 1995, with almost 64% of males and 49% of females overweight. Recent studies suggest that around 20% of young people are overweight or obese. The risk of Type 2 diabetes is five to ten times higher in those classified as obese, compared with those within a healthy weight range – hence the obesity epidemic has the potential to reverse reductions in heart disease mortality achieved over the past two decades (AIHW, 2000; Zimmet, 1999)
- The prevalence of chronic disease increases with age, as does the extent of co-morbidity. It is now estimated that the mean number of chronic conditions for people 60 years of age and above is more than two. For many people, co-morbidity usually results in a significant reduction in quality of life, including social isolation. For example, SF-36 scores drop dramatically for people with two or more serious conditions. Co-morbidity is likely to become an increasing problem with population ageing (AIHW Australia's Health, 1998, p. 20; ABS 1997, National Health Survey: Summary of Results);

Table 1: Leading causes of disease burden: DALYs by sex, Australia, 1996

Males	% of total	Females	% of total
1 Ischaemic heart disease	13.6	1 Ischaemic heart disease	11.1
2 Stroke	4.8	2 Stroke	6.1
3 Lung cancer	4.5	3 Depression	4.8
4 COPD ^a	4.2	4 Dementia	4.7
5 Suicide and self inflicted injuries	3.3	5 Breast cancer	4.6
6 Road traffic accidents	3.0	6 COPD ^a	3.2
7 Diabetes mellitus ^b	3.0	7 Asthma	3.1
8 Depression	2.7	8 Diabetes mellitus ^b	3.0
9 Colorectal cancer	2.7	9 Osteoarthritis	2.9
10 Dementia	2.5	10 Colorectal cancer	2.7

a Chronic obstructive pulmonary disease (chronic bronchitis and emphysema)

b Includes type 1 and type 2 diabetes

(Source: AIHW, *The Burden of Disease and Injury in Australia*, 1999: p.66)

- More than 60% of GP visits for people over age 65 are for a chronic physical illness, but significant increases in prevalence rates for a number of common chronic conditions are seen in the 45–54 and 55–64 age groups (ABS 1997, National Health Survey: Summary of Results);
- The impact of chronic disease on families of those who have a chronic illness is significant. For example, 1 in 20 Australian households has a family carer, looking after one or more people with illness or disability. Carers are themselves vulnerable to anxiety and depression (DHAC/AIHW Mental Health Report, 1999).

Many of the leading chronic conditions share commonalities in their pathogenesis. For example, recent advances in understanding of the “metabolic syndrome” (or “syndrome x”) are helping to improve knowledge of the physiological processes underlying the chronic disease epidemic. The metabolic syndrome helps to explain the relationship between insulin resistance and central obesity, Type 2 Diabetes, hypertension, kidney disease and heart disease, and low birthweight; it also suggests possible pathways between these conditions and long term exposure to adverse psychosocial factors. It has been suggested that the global chronic disease epidemic is centred around the metabolic syndrome, with glucose intolerance as the “tip of the iceberg” sitting above a range of emerging cardiovascular risk factors (Zimmet, 1999). This has significant implications for a national prevention agenda for chronic illness, and highlights the important emphasis which now needs to be given to the prevention and control of overweight and obesity.

Implications for health system reform

The figures above underline the increasing impact of chronic disease morbidity, and highlight the need for change in the configuration of health care systems originally designed primarily to deal with acute, episodic and infectious conditions.

The many commonalities in both patient needs and behaviours, and in the health system requirements for more effective management of chronic conditions has led some commentators to suggest that chronic diseases should now be treated as an overall phenomenon, alongside investments in improving disease-specific research, treatment and intervention. For example, Hoffman et al have commented:

Although [the extent of chronic disease] prevalence has been recognised by some observers for at least three decades, neither the general public nor health professionals recognise the full implications of this for training, care, health insurance, and indeed for health care institutions themselves. We are just beginning to pass into a period when chronic illness

per se (rather than specific or categorical chronic diseases) is referred to, thought about, and acted on as a general reality. (Hoffman et al, 1996)

For patients, there are many commonalities in the experience of having a chronic disease. For example, Lorig (1996) notes that living with a chronic disease involves three types of work, no matter what the condition:

- Work necessitated by the disease, eg medications, health professional visits;
- Work of maintaining everyday life, eg chores, family responsibilities; and
- Work of dealing with an altered view of the future, eg frustration, anger, depression.

Supporting people with chronic illness to manage their conditions more effectively in partnership with their health care provider requires many similar steps and processes over and above the clinical management of the specific condition. The WHO recently suggested that “... much more health can be created if health care systems recognise and acknowledge the actual and potential contribution people can make to their own health (self care) and take active steps to empower them to do so ...” (Health 21 – WHO European Region, 1998).

The need to move to more integrated systems of care which recognise the specific requirements of chronic illness is explained in the NSW Health Report *Improving health care for people with chronic and complex needs in NSW*, prepared by the Chronic and Complex Care Implementation Coordination Group (CCCICG). The report states:

New and advancing medical technologies, improved longevity and an aging population have changed dramatically the main business of health systems in developed countries, including Australia. The emergence of chronic health problems as a growing area of health care need is an obvious manifestation of this change ... At the same time, the culture and structure of health service delivery systems in Australia have evolved to focus primarily on people with temporary or acute health needs and acute episodes of care. This acute-care orientation is reflected in the current system's emphasis on illness diagnosis, patient-initiated consultations, and curative and/or symptom relieving treatments. Further, funding arrangements that support one-to-one service provision and divide responsibility for health care between the different levels of government and different program areas perpetuate a lack of health service integration in this country. In the absence of any coordinating entity, people who rely on multiple health services for ongoing care and their quality of life must themselves provide the

'glue' in the health system, organising and linking the care that they receive in the primary and community health and acute care settings. This situation has led chronic illness to be described as 'a need in search of a system' (CCCICG, 2000).

The contribution of prevention

A large proportion of the premature mortality and much of the morbidity associated with the NHPAs is preventable. Many of the conditions which contribute the greatest proportion of the burden of disease exhibit multifactorial patterns of causation and "share" many risk factors. Preventive action on common risk factors can therefore provide benefits across several diseases and conditions simultaneously.

Table 2 below shows the interrelationships between various chronic diseases and conditions encompassed by the NHPAs and common modifiable risk factors. Consistent with WHO terminology, the NHPAs are categorised as "chronic diseases" and "other". Injury is not a

"disease"; and while mental disorders are often chronic conditions, mental health is defined in the *National Action Plan for Promotion, Prevention and Early Intervention for Mental Health 2000* as "the capacity of individuals and groups to interact with one another and their environment in ways that promote subjective well-being, optimal development and use of mental abilities" (p.3). Mental health is therefore simultaneously an outcome, a risk factor and a protective factor and also associated with a number of other conditions and risk factors as a comorbidity (eg depression).

There are important connections between mental health and each of the other priority areas. A number of aspects of "mental health" such as depression and chronic stress are shown in the horizontal axis as risk, protective or associated factors for other conditions.

Of the behavioural risk factors, the major risk factor shown here for injury is alcohol use, with links to drink driving, domestic violence, suicide etc. The potential contribution of physical activity to injury (eg sports

Table 2: Interrelationships between National Health Priority Areas and common risk factors

Risk and Protective Factors	National Health Priority Areas					
	Chronic Diseases				Other	
	Heart Disease & Stroke	Diabetes	Cancers	Asthma	Mental Health	Injury
Tobacco use*	•	•	•	•	+	
Alcohol misuse*	•		•		•+	•
Hypertension	•	+			+	
Dyslipidemia	•	+				
Diet*	•	•	•	?	+	
Physical Activity*	•	•	•		•	•
Obesity*	•	•	•		+	?
Chronic Stress	?	?	?	?	•	
Social Support	•	?			•	
Depression*	?+	?+	+	+		•
Early life factors (eg low birth weight, infections, abuse and neglect)	•	•	?	?	•	?
Low socio-economic status	•	•	•	?	•	•

• established risk/protective factor ? possible risk/protective factor + association/comorbidity

* current national population health strategy or in development

(Source: adapted from Brownson et.al, *Chronic Disease Epidemiology and Control*, APHA, 1998; Wilkinson and Marmot (eds), *Social Determinants of Health: The Solid Facts*, WHO, 1998; *Australia's Health 2000*, AIHW, 2000; *Global NCD Risk Factor Surveillance*, WHO 2000)

injuries) is suggested. Most other injury risk factors (eg unsafe machinery, not wearing seat belts) are not directly related in an aetiological sense to the other chronic diseases.

The proportion of the burden of disease attributable to some of the modifiable risk factors is shown below.

Table 3: The burden of disease attributable to 10 major risk factors, Australia, 1996

	Per cent of total DALYs		
	Males	Females	Persons
Tobacco	12.1	6.8	9.7
Physical inactivity	6.0	7.5	6.7
High blood pressure	5.1	5.8	5.4
Alcohol harm	6.6	3.1	4.9
Alcohol benefit	- 2.4	- 3.2	- 2.8
Obesity	4.3	4.3	4.3
Lack of fruit and vegetables	3.0	2.4	2.7
High blood cholesterol	3.2	1.9	2.6
Illicit drugs	2.2	1.3	1.8
Occupation	2.4	1.0	1.7
Unsafe sex	1.1	0.7	0.9

Source: AIHW, *Burden of Disease and Injury in Australia*, 1999: adapted from Chapter 7

Together these risk factors account for close to 40% of the total burden of disease and injury in Australia.

A number of commentators have proposed that these “risk factors” should really be considered the “actual causes of death” (McGinnis and Foege, 1993). For example, the US Healthy People 2010 report suggests that:

The leading causes of death in the United States generally result from a mix of behaviours; injury, violence, and other factors in the environment; and the unavailability or inaccessibility of quality health services. Understanding and monitoring behaviours, environmental factors, and community health systems may prove more useful to monitoring the Nation’s true health, and in driving health improvement activities, than the death rates that reflect the cumulative impact of these factors.

Connecting prevention and management

The natural history of chronic disease without intervention is one of a continuum from disease-free state, to asymptomatic biological change to clinical illness, impairment and disability, development of complications, and, for many conditions, ultimately death. At each point of the continuum of care the objective therefore is to control the

condition and to prevent or delay progression to more severe forms of disease or complications. Each stage of intervention in this process therefore has a preventive component, requiring not only best practice clinical management, but the active contribution of the patient to their own care (as noted above). Healthy behaviours – such as physical activity, a healthy diet, not smoking etc – play a key role not only in the onset of disease, but also in management of many conditions. The principles, approaches and messages of health promotion – for example, empowerment, health literacy, supportive environments, recognising the links between mental and physical health (WHO, 1986, 1997, 1998) – are therefore relevant across the spectrum of care, and not only at the primary prevention end of the continuum.

For the purpose of this paper, prevention therefore needs to be considered at the levels of primary, secondary and tertiary prevention. Traditionally these terms are defined as follows (Brownson et al, 1998):

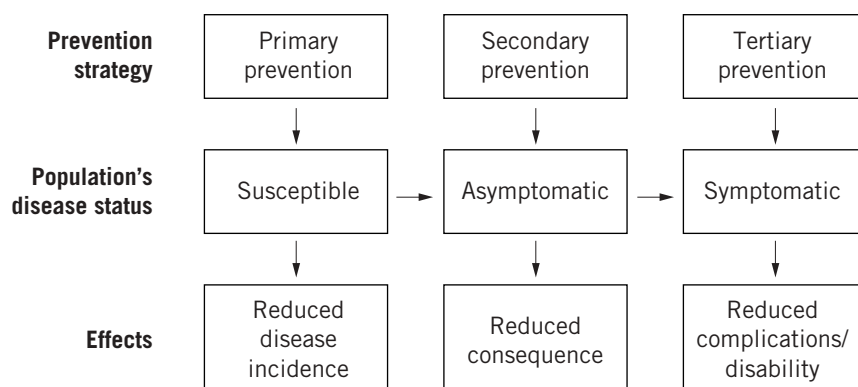
- Primary prevention is the protection of health by measures which eliminate causes and determinants of departures from good health and control exposure to risk; primary prevention decreases the number of new cases of a disorder, illness, and premature death (reduces incidence).
- Secondary prevention is defined as the measures available to individuals and populations for the early detection and prompt and effective intervention to correct departures from good health; secondary prevention may lower the rate of established cases in the community.
- Tertiary prevention consists of the measures available to reduce or eliminate long-term impairments, disabilities and complications from established disease, and to minimise suffering caused by existing departures from good health.

Figure 5 provides a schematic outline of the relationship between these levels of prevention.

The importance of connecting prevention and management in a comprehensive approach for combating chronic disease is particularly evident in relation to the needs of Indigenous communities:

Chronic diseases are the main cause of early death and sickness in Aboriginal and Torres Strait Islander people. The key chronic diseases are diabetes and heart, kidney and respiratory disease. They are considered as a cluster because of the common risk factors and strong clinical associations that allow them to be considered in an integrated manner through prevention, screening/diagnosis and management. This cluster forms the basis of a chronic disease strategy which is underpinned by a

Figure 5: Levels of prevention for chronic disease control



Source: Brownson et al, 1998.

“whole of life” approach ... Given the high impact of chronic disease on Aboriginal and Torres Strait Islanders, it is important that systematic action be undertaken to reduce the numbers of people with chronic disease and also to improve its management. The thinking is not new to many Aboriginal community-controlled health services that are already implementing strategies aimed at the prevention, detection and management of chronic diseases. Whilst the notion of “prevention is better than cure” is clearly true it needs to be complemented, in the context of chronic disease, with “control is better than complication”. In terms of chronic disease cure is not an option. However by improving control there is clearly the capacity to make a difference today. Interventions need to encompass both prevention and control activities. (Ashbridge, D. Health Matters, Spring, 2000)

To adequately address the chronic disease burden therefore requires a balanced approach across all levels of prevention, treatment and care, including self care. It also requires special measures to ensure that those who have missed out from the success of prevention to date are adequately catered for. This is considered in the following section.

Health inequalities and the burden of chronic disease

Other than the gender differences shown in the burden of disease tables, the aggregate data provided above do not indicate the disproportionate chronic disease burden experienced by disadvantaged population groups.

Much of the research which has helped to put the issue of health inequalities firmly on the agenda of health systems around the world, has been based on prospective studies of chronic disease – particularly coronary heart disease –

among groups of differing socioeconomic status. As noted above, the impact of chronic disease on poor and disadvantaged populations is explicitly recognised in the WHO Global Strategy.

There is now a considerable stock of empirical data and studies showing the socioeconomic and geographic differentials in chronic disease rates in Australia. The recently published 2nd edition of the Social Health Atlas, the summary of studies contained in the 1999 Queensland University of Technology Report on the Socioeconomic Determinants of Health, the AIHW Burden of Disease and Injury Report, and the baseline reports on the Health Priority Areas, are noteworthy sources. A few examples only are therefore provided here.

- Death rates from heart disease are still nearly twice as high in people living in the most socioeconomically disadvantaged areas in Australia as compared with those living in the areas of least disadvantage (Glover et al, 1999).
- Between the periods 1985–1989 and 1992–1995, the differential in death rates between most well-off and most disadvantaged areas increased from 1.79 to 2.41 times higher for respiratory system diseases; from 1.55 to 1.94 times higher for circulatory system diseases (despite an overall decline in death rates of 40%); and from 1.53 to 1.93 times higher for lung cancer (Glover et al, 1999).
- The Australian Burden of Disease and Injury study found that the excess mortality burden associated with socioeconomic disadvantage was “particularly high for diabetes, chronic respiratory diseases, injuries and acute respiratory conditions (males)” (AIHW 1999).
- Deaths from coronary heart disease (CHD) in 1996 were 30% higher for men and 21% higher for women who live outside capital cities than for those who live in capital cities – the gap has widened since 1986 when the CHD mortality difference (for men and women) was 13% (Heller, 2000).

- CVD is the single biggest cause of excess deaths in Aboriginal populations; the prevalence of diabetes is two to four times that of the non-Indigenous population. Rates of end-stage renal disease are 12–20 times the rate of the non-Indigenous population (DHAC/AIHW).
- The impact of chronic illness morbidity falls disproportionately on those of lower socioeconomic status. For example, there is significantly higher reporting of serious chronic illness between low and high family income groups. Recent studies also suggest that disease severity is greater for those in lower socioeconomic positions, especially in those with the greatest co-morbidity (Mathers, 1994; Eachus et al, 1999).
- Social relationships, or lack thereof, “constitute a major risk for health, rivalling the effects of well-established risk factors such as smoking, high blood pressure, blood lipids and obesity” (VicHealth, 1999);
- A sense of control (in work and in life more generally) is predictive of coronary heart disease and other health outcomes (Wilkinson and Marmot, 1998; Marmot and Wilkinson, 1999);
- Psychosocial factors such as control and social support are believed to impact on physical health outcomes through complex psychobiological stress responses involving neuroendocrine pathways (allostatic load hypothesis) (Marmot and Wilkinson, 1999)
- Social capital appears to be associated with chronic disease outcomes. For example, ecological studies have shown that the lower the levels of trust in a society, the higher the mortality rate from coronary disease (Berkman and Kawachi, 2000; Putnam, 2000).

The differences in both causes of death and morbidity, and in the impact of chronic disease associated risk factors between males and females, also clearly demonstrates that an explicit *gender perspective* is required to inform chronic disease prevention and control efforts.

Chronic disease and the lifecourse – emerging evidence

While differential rates of risk behaviours such as being physically inactive and tobacco smoking explain much of the variation in disease rates between population groups, these do not explain fully the social gradient in health which is found for almost all chronic diseases.

As noted above, there is now an emerging body of scientific evidence which points to the need to take greater account of the impact of cumulative and interactive exposures to both risk and protective factors (biological, behavioural, social and environmental) over the entire life course (McMichael, 1999) in order to better understand and act on health disparities. Health outcomes are likely to be most optimal when good health is promoted throughout life, beginning with the prenatal period and infancy.

Recent studies show, for example, that:

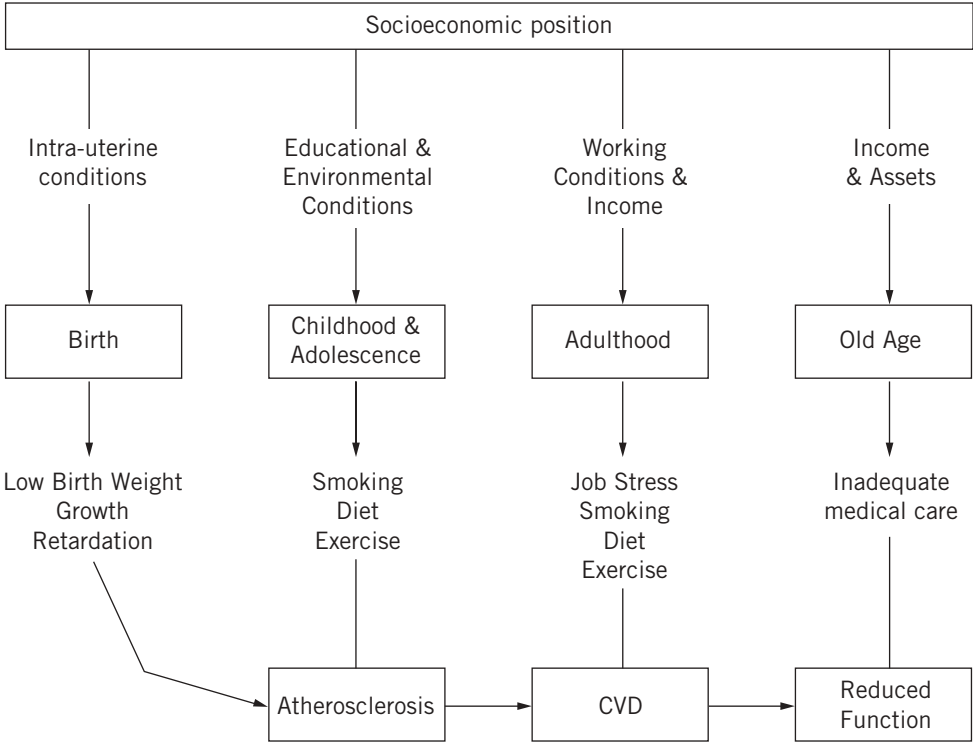
- Adverse events such as foetal exposure to tobacco smoke, low birthweight, malnutrition, repeated infections and abuse and neglect in the early years of life help establish predispositions to a range of chronic diseases in adulthood (Kuh et al, 1997; Keating and Hertzman, 1999; Barker, 1993, 1994, 1999; Mathews, 2000);
- There is strong evidence that social support is an independent aetiological and prognostic factor for coronary heart disease, and may also be protective with regard to diabetes and depression (Hemmingway and Marmot, 1999);

A simplified example of how socioeconomic position may combine with various influences over the life course to produce adverse cardiovascular outcomes has been depicted schematically by Lynch and Kaplan (2000) – see Figure 6 opposite.

As has been noted, socioeconomic disparities in chronic disease rates are significant in Australia, and redressing these disparities should be the highest priority for a comprehensive national strategy. Social determinants research provides an established evidence base for refocusing efforts on health inequalities, drawing on the life course approach. From this perspective, maternal and child health, adolescent health and healthy ageing strategies can all be seen as contributing to a comprehensive agenda to reduce the incidence of chronic disease – in addition to their importance in their own right. The life course perspective and a recognition of the contribution of psychosocial factors are therefore incorporated as key components of the national framework for chronic disease prevention.

However, it is recognised that in almost all cases these differentials take the form of a gradient between the most and least advantaged groups, and therefore excess rates of premature mortality and morbidity can be found in most population groups. This suggests the need to combine approaches which specifically target the most disadvantaged groups, with broader universal and environmental measures which benefit the whole population.

Figure 6: Socioeconomic influences on cardiovascular disease from a life course perspective



Part 3: A strategic framework

Based on the arguments and evidence presented above, Part 3 sets out the key elements of the chronic disease prevention framework. These include:

- A “cluster” of specified risk and protective factors, and preventable conditions (**Section 3.1**)
- Models of joined up action (**Section 3.2**)
- Components of a comprehensive strategy (**Section 3.3**)
- Strategic management requirements (**Section 3.4**)

3.1 Defining content – chronic diseases, risk and protective factors

To help organise the national population health effort more effectively and efficiently, the framework “clusters” a number of preventable conditions – based on the NHPAs – which share commonalities in their aetiology, and the major modifiable risk and protective factors, and determinants for these conditions.

A reasonably precise specification of which conditions and risk factors are and are not to be included in the cluster is important as this helps determine, for example:

- Who should be involved in partnerships and taking action;
- Which risk and protective factors are the focus of preventive action;
- The relevant policies and funding streams;
- The evidence base used to inform decision making; and
- Which outcome measures are to be used, and so on.

The criteria used in the choice of what is included in the cluster described below, include the following:

- The diseases and conditions included contribute to a significant proportion of the burden of disease, overall and /or for particular population groups;
- They can be prevented, or controlled, on the basis of current knowledge;
- They share common modifiable risk factors and underlying determinants which are amenable to primary prevention;
- There is a strong evidence base for the inclusion of each condition, risk or protective factor, including preventive measures;

- The conditions share elements in their pathogenesis and hence are frequently present as comorbidities in the same individual, and in population groups with similar exposures;
- The interrelationships between psychosocial factors, mental and physical health are recognised;
- There is a logical relationship between the various components;
- The areas included are compatible with other credible policy frameworks (eg WHO);
- There is agreement and support for what is included among key stakeholders; and
- Improvements in coordination, collaboration and integration across the nominated areas are expected to deliver benefits which outweigh the costs of doing so.

On the basis of these criteria, the conditions and risk factors proposed for inclusion in the framework are as follows.

The primary conditions (diseases and biological risk factors) targeted are:

- Heart Disease and Stroke³
- Type 2 Diabetes
- Hypertension
- Dyslipidemia
- Obesity⁴

Conditions for which outcomes should also be improved by action on the primary risk factors and other interventions proposed under the framework (or which may exist as comorbidities) include:

- Renal disease⁵ (low birthweight, childhood infections, hypertension, diabetes)
- Certain cancers, including – lung (smoking), colorectal (diet, activity)

3 All of the other conditions which follow ie diabetes, hypertension, dyslipidemia, and obesity are also *risk factors* for cardiovascular disease.

4 Obesity is now defined as a disease by the WHO but is more usually referred to as a risk factor.

5 The proportion of renal disease that is preventable is not yet well established. However, it is a major chronic disease problem for Aboriginal and Torres Strait Islander communities, and evidence suggests that early life interventions (including infection control), improved nutrition and effective control of diabetes and blood pressure could lead to significant improvements. It is also included in the framework for consistency with the THS PCDS.

- Chronic lung disease, including COPD (smoking)⁶
- Mental health problems/Depression (social support, control)

The primary behavioural risk factors targeted (which have direct and widely agreed physiological effects) are:

- Smoking
- Diet
- Physical Activity
- Alcohol misuse

As noted earlier, the framework also encompasses other risk and protective factors, which move beyond the traditional focus on the “classical” risk factors for cardiovascular disease. These are included on the basis of the evidence outlined in Part 2 above, and are characterised as psychosocial factors and early childhood factors. Preventive health behaviours more generally, such as having regular check ups, and the capacity for self care, could also be included as important psychosocial/behavioural factors with an indirect impact on health. Psychosocial factors are associated with chronic disease in three ways, involving both direct and indirect impacts. It is believed that psychosocial factors – such as chronic stress – can have “direct” adverse physiological effects through the stimulation of changes in the neuroendocrine system. Psychosocial factors can also underpin unhealthy behaviours – for example, low self esteem or loneliness may encourage smoking and excessive drinking (indirect effects). Finally, for people with chronic disease, psychosocial factors, for example, self efficacy or access to social support – can help determine capacity for self care and confidence in dealing with the health care system.

The full range of risk factors and target conditions included in the framework are set out in Figure 1 reproduced opposite. Underneath the target conditions and risk factors, is a box which shows the contribution of non-modifiable factors, and the socio-environmental context and underlying determinants which may not be modifiable but which influence outcomes and which must be taken account of in intervention design or service delivery.

While not a National Health Priority, renal disease is included as a result of the significance of this condition to Aboriginal and Torres Strait Islander communities (as well as being a complication of diabetes). Asthma is not shown in the table as a separate condition, as it is not a

⁶ Chronic Obstructive Pulmonary Disorder (COPD) is the 4th leading cause of burden of disease for men (and 6th for women); it is a major health problem in Aboriginal and Torres Strait Islander communities and for lower income groups more generally; it is also included for consistency with the WHO Global Strategy and the PCDS.

“preventable” condition as such, but is included in the broad category of chronic lung disease, which includes chronic bronchitis and emphysema. Smoking is the major modifiable risk factor for most of the chronic lung conditions.

Mental health concerns are not usually included in strategies concerned with prevention of cardiovascular and related conditions, which tend to focus only on the “classical risk factors” of smoking, diet and activity. However, depression is included here as it is often present as a comorbidity with all of the other diseases and conditions; and it may also be a risk factor for some conditions. By incorporating psychosocial factors known to contribute to mental health outcomes and chronic illness, the framework seeks to create a strong synergy with the National Mental Health Strategy. Effective mental health promotion in turn should also have benefits for physical health.

In its first iteration it is suggested that the framework does not encompass the disease specific screening initiatives, such as the National BreastScreen or National Cervical Screening Programs. These are well established initiatives which are flagships of the national effort in cancer control. However, it is not clear that inclusion in the chronic disease prevention “cluster” would add value to these programs, as there would appear to be few areas, for example, in which joint planning would offer benefits over existing arrangements. This could be revisited at a later stage. For example, in the US an approach which incorporates cardiovascular screening for women into mammography programs is being piloted for hard to reach groups, as CVD risk for women increases most markedly at around the same age as that at which mammography is offered.

The framework as proposed also does not explicitly include injury prevention, although effective action based on the framework should contribute to injury prevention eg alcohol misuse, obesity, safe physical activity, nutrition (eg adequate calcium intake), and depression are all directly or indirectly associated with injury (intentional and unintentional). However, a large proportion of the interventions required to prevent injury occur in different domains and are focused on different risk factors than for the vascular and endocrine disorders which are the priority focus of the framework.

Thus the cluster conditions broadly align, and are consistent with, preventable aspects of five of the National Health Priority Areas (and could address all six), but are situated within a framework which:

- Groups together a range of related health issues which are often addressed independently

Figure 7: Initial cluster of preventable chronic diseases, risk factors and determinants

Risk and Protective Factors	Biological Risk Factors/Markers	Preventable Chronic Diseases and Conditions
<p>Behavioural Factors</p> <ul style="list-style-type: none"> • Diet • Physical Activity • Smoking • Alcohol misuse <p>Psychosocial Factors</p> <ul style="list-style-type: none"> • “Sense of control” • Social support/social exclusion • Resilience and emotional well-being <p>Early Life Factors</p> <ul style="list-style-type: none"> • Maternal Health • Low birthweight • Childhood infections • Abuse and neglect 	<ul style="list-style-type: none"> • Obesity • Hypertension • Dyslipidemia (disordered lipids, including elevated cholesterol) • Impaired Glucose Tolerance • Proteinuria 	<ul style="list-style-type: none"> • Ischaemic Heart Disease • Stroke • Type 2 Diabetes • Renal Disease • Chronic Lung Disease (COPD & Asthma) • Certain Cancers (eg colorectal, lung) • Mental health Problems/Depression* <p><i>Possible inclusion:</i></p> <ul style="list-style-type: none"> • Oral health* • Musculo-skeletal condtions⁷
<p>Non modifiable factors: Age, sex, ethnicity, genetic make-up, family history</p> <p>Socio-environmental determinants (<i>may or may not be modifiable</i>): Socio-economic status, community characteristics (eg presence/absence of social capital), working conditions, environmental health etc</p>		

* can also be defined as risk/protective factors

- Contains a manageable number of issues which strikes a balance between a single issue approach and trying to do everything
- Makes explicit the connection between the burden of disease and the common risk factors
- Recognises the links between physical and mental health
- Emphasises the contribution of the overweight and obesity to the national health priority conditions
- Can inform the development of integrated planning, partnerships and organisation of the prevention effort
- Helps define parameters for surveillance, and development of “leading health indicators”
- Reflects many of the health problems and concerns of Aboriginal and Torres Strait Islander people

- Underscores a theme of “healthy people in healthy communities” by acknowledging the social determinants of health, and not focusing solely on individual factors
- Is adaptable to local needs and local implementation (by serving as “menu” of related health issues with a variety of possible entry points for local action)

It should be emphasised that the clustering of issues as proposed above will be a test of a new way of organising the population health effort; if the approach is seen to be effective and to add value, new areas may be incorporated later. Two areas for which a good case can be made for inclusion (but which fall in some respects well outside the NHPA initiative) are suggested in Figure 7. These are oral health and musculoskeletal disorders. Oral health problems are related to early childhood experiences, diet, smoking, environmental exposures (fluoride) and health behaviours, and poor oral health can in turn affect diet and other problems. Many oral health problems are preventable.

Musculoskeletal disorders such as osteoarthritis are not preventable on the basis of current knowledge, although some conditions are related to obesity (eg osteoarthritis of the knee); and osteoporosis is related to diet and physical activity. However, the major reason for inclusion is that musculoskeletal disorders affect more than a quarter of

⁷ Musculoskeletal disorders such as osteoarthritis are not preventable on the basis of current knowledge, although some conditions are related to obesity (eg osteoarthritis of the knee); and osteoporosis is related to diet and physical activity. However, the major reason for inclusion is that musculoskeletal disorders affect more than a quarter of the population; and frequently present as a comorbidity with depression, and with vascular conditions in older people. There are many opportunities to improve self management and improve quality of life for people with these conditions in conjunction with health promotion programs targeting other health problems faced by older people.

the population; and frequently present as a comorbidity with depression, and with vascular conditions in older people. There are many opportunities to improve self management and improve quality of life for people with these conditions in conjunction with health promotion programs targeting other health problems faced by older people.

Conditions such as oral health and musculoskeletal disorders could therefore logically be included in local health plans based on the cluster, where these represented areas of high need. In addition, the fact that a condition or issue is not included should not inhibit partnerships with those (eg NGOs concerned with other conditions) who may wish to become involved and participate in joint activities – for example, in the promotion of healthy eating.

Relationship to existing initiatives

There are a large number of existing strategies and initiatives that might contribute to or be linked under the “umbrella” of the preventable chronic disease framework “cluster”.

The various national health strategies which fall broadly within the scope of the framework are suggested below. This implies that some level of strategic alignment would be sought with and among these strategies through the coordination role of the NPHPG, in collaboration with NHPAC and other national bodies such as the IGCD.

- *Eat Well, Australia* (national nutrition strategy); National Childhood Nutrition Program (Commonwealth)
- National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan
- *Active Australia* (national physical activity and health strategy – jointly developed with Australian Sports Commission)
- *Acting on Australia's Weight*: NHMRC strategic plan for prevention of overweight and obesity
- National Tobacco Strategy
- National Alcohol Action Plan
- National Diabetes Strategy (certain elements)
- National Mental Health Strategy, *National Action Plan for Promotion, Prevention and Early Intervention for Mental Health 2000* (certain elements)
- National Cancer Control Initiative (certain elements)
- National Cardiovascular Health Strategy (when developed)
- National Asthma Action Plan (certain elements)

Population focused strategies would include:

- National Aboriginal and Torres Strait Islander Health Strategy (draft)
- Rural Health Strategy

- National Strategy for an Ageing Australia – Healthy Ageing Strategy
- Women's and Men's Health Strategies
- National Initiative for the Early Years (NIFTEY)
- Health Inequalities Research Collaboration
- Consumer participation and collaboration initiatives

Settings and provider based strategies and programs would include:

- Primary Health Care redevelopment initiatives (States/Territories)
- Enhanced Primary Care (Commonwealth)
- Sharing Health Care (Commonwealth)
- General Practice Strategy
- Health Promoting Schools
- Strengthening Families and Communities Strategy (Commonwealth, FACS)

Non government partner organisations would include:

- National Vascular Disease Prevention Partnership
- Chronic Disease Alliance (Indigenous health)
- Australian Network of Academic Public Health Institutions
- Professional associations and colleges
- Divisions of General Practice
- and many others.

Under the framework, existing and developing national public health strategies and the NHPA strategies, whether government or NGO led, would still continue their specialised work programs. However, communication and planning mechanisms established under the framework should facilitate opportunities for joint and collaborative approaches to be developed wherever appropriate.

3.2 Models of joined-up action

3.2.1 A lifecourse approach

The importance of a **life course perspective** to chronic disease prevention has been noted above. This conceptualises chronic disease as the outcome of the cumulative and interactive impact of exposures to various risk and protective factors – social and biological – throughout life. Each life stage has unique behavioural and contextual aspects, as well as physiological needs, and therefore strategies to reduce risk factors or strengthen protective factors need to be suitably designed. These also need to take account of variables such as socioeconomic status, gender, ethnicity, and geographic location. For each point of the lifestage, or other critical life transitions, the systematic identification, prioritisation and application of cost-effective, evidence based interventions is required.

Most national public health strategies incorporate programs targeting adolescents and adults. The benefits

of early life interventions – for example, not smoking during pregnancy, breastfeeding, good nutrition for mothers and children, opportunities to be physically active and for social engagement – are also recognised in many relevant national strategies. However, to date, the population health effort has not been organised to address the needs of population groups at each life stage in a coordinated and systematic manner. For example, health promotion activities may not be connected to programs offering social, educational and emotional support for families with young children. National strategies could work with others to develop a more integrated response.

The contribution of public health and health promotion strategies across the life course, and their relationship to the National Health Priorities, can be conceptualised as shown in Figure 8 below. This also illustrates how **settings** relevant to each stage of the life course become focal points for strategy integration. Other important health improvement strategies, such as those aimed at preventing substance abuse or sexual health promotion, are also shown in Figure 8. While not directly related to the National Health Priority Areas, these are often delivered through the same settings for the same population groups as chronic disease prevention initiatives (eg schools, primary health care, workplaces). This perspective suggests the potential benefits of collaboration

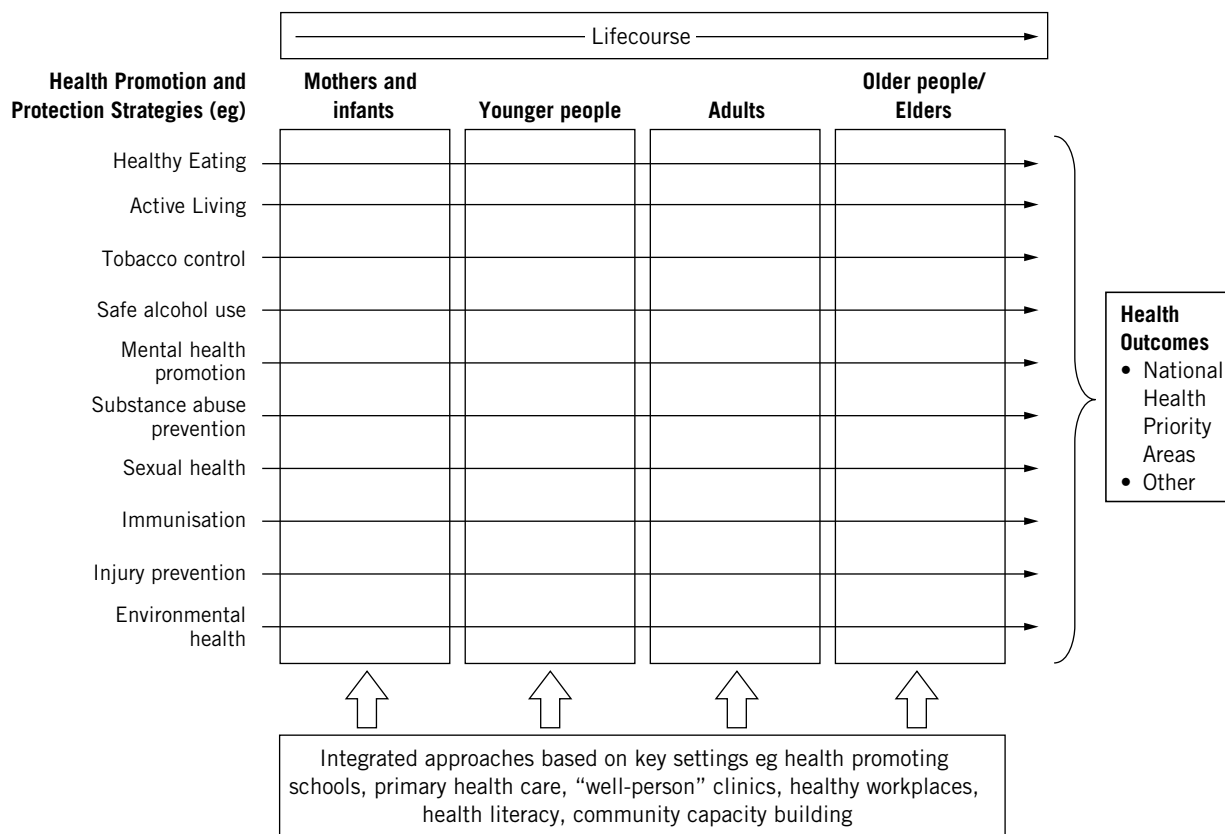
between chronic disease prevention initiatives and other strategies in appropriate circumstances.

3.2.2 Integrated local action: working with communities

“When social problems are combined, people’s health can suffer disproportionately ...Connected problems require joined up solutions” (Our Healthier Nation – Green Paper, 1998)

The occurrence and distribution of chronic diseases are influenced by changing lifestyles and patterns of living and working. Many disadvantaged groups face a series of interconnected problems – of which health is but one dimension – which may be compounded by social change. For example, unemployment may lead to chronic stress and poverty, with health problems exacerbated by poor transport services and lack of access to affordable fresh food. To address health inequalities in chronic disease, health improvement strategies need to be designed to take account of local circumstances and context, and social and environmental barriers to change. This may often require closer linkages with other programs and services that affect people’s lives. Local initiatives in turn need to be supported by “healthy public policy” and policy coherence at all levels of government.

Figure 8: “Whole of life” approach to chronic disease prevention



The Integrated Public Health Practice Project established by the National Strategies Coordination Working Group, has argued that it is at the regional/local/setting level, where providers are forced to confront the interconnected nature of the many health and social issues for individuals and communities. (NPHP, 2000) The Project report suggests that more integrated, responsive program delivery at the local level may be more effective in helping to confront these problems. The recommendations arising from this project reflect the tendency in public administration reforms more generally, to move towards “joined up” solutions to complex and connected problems. Joined up solutions can range from better coordination across vertical programs (“silos”) to more extensive system redesign, depending on what is required to improve responsiveness to the needs of individuals and communities. “Place management” strategies in NSW are an example of an attempt by government to create “joined up” solutions for local communities faced with dealing with a plethora of government agencies.

Policy coherence and improved coordination nationally can be an important facilitating factor for “joined up” action at other levels. Agreement between national strategies to collaborate under a common framework, for example, could enable greater support for capacity building at the local level. The strategic plans of most national strategies currently recognise the need for local health service and community capacity building, but the tendency is for each strategy to set up its own processes, training programs, local staffing etc. A collaborative approach nationally would provide opportunities to share investment in capacity building, local planning and community engagement, consistent for example, with the NPHPG’s *A Statement of Core Functions: Public Health Practice in Australia Today*. (NPHPG, 2000)

Regional/local chronic disease health improvement plans, based as appropriate on the components of the national framework, would provide a key point of intersection between vertical population health strategies and local action. Health improvement plans could draw on the strengths of specialised “single issue” programs, while allowing adaptation to meet local needs and circumstances.

Regional/local health improvement plans would build on similar initiatives which are developing around health care service planning and integration, for example, primary care partnerships, coordinated care trials, regional chronic and complex care programs.

Effective prevention and patient centred management of chronic disease requires the contribution of many parts of the health system as well as other sectors. Hospitals, general practitioners, Divisions of General Practice, community health and ambulatory care services, nursing

services, disability services, non-government health organisations (such as Diabetes Australia, Heart Support Australia), private sector providers, pharmacists, consumer self-help groups, public health and health promotion units in regional health services, are all important contributors within the broader health sector. All have an important role to play to ensure consistency and continuity across the continuum of care, and effective monitoring and evaluation. In addition, local government, and local state and Commonwealth departments, including regional development, schools, community services, transport, housing and recreation, voluntary community organisations have an important role to play. Improved coordination and communication among these players would benefit communities, patients and their families, particularly in lower income areas.

Regional/local preventable chronic disease health improvement plans (and the accompanying planning process) would be designed to:

- Engage the whole health system (public and private) in that geographic area, building on existing health service and health promotion plans
- Target health inequalities
- Promote partnerships with other sectors such as local government, community services, education, transport and private industry
- Encourage action in key settings such as schools and workplaces, and provide an interface between national “vertical” strategies and local settings and services
- Engage local communities and opinion leaders in chronic disease prevention
- Involve NGOs, consumer groups, self help groups and others to strengthen networks of social support for people with chronic disease
- Be integrated with primary health care reforms eg coordinated care trials, primary care partnerships
- Develop local strategies based on local needs
- Build partnerships with academic institutions to support intervention testing and monitoring, for example through designated “prevention research centres”
- Provide a framework for considering new funding models, and for monitoring and evaluation.

A regional (or local) Preventable Chronic Disease (or Health Improvement) Planning Forum could provide the basis for on-going service and program development consistent with the needs of particular areas, and a focal point for community consultation, involvement and information sharing. In the longer term this should contribute to building a more coherent and systematic approach to chronic disease prevention and management at the local/regional level.

Appendix 5 outlines a number of key principles for effective chronic disease interventions which could help inform regional prevention plans.

3.2.3 A whole-of-health-system strategy

This component of the framework locates prevention and health promotion within a broader “whole of health system” approach to health gain. This is illustrated in the conceptual model, shown below, which shows the components and objectives of a comprehensive strategy across the continuum of care for chronic disease, and embeds the “whole of life” approach to prevention, discussed above, within this. The rationale for this comprehensive model has been described in the earlier section *Connecting prevention and management*.

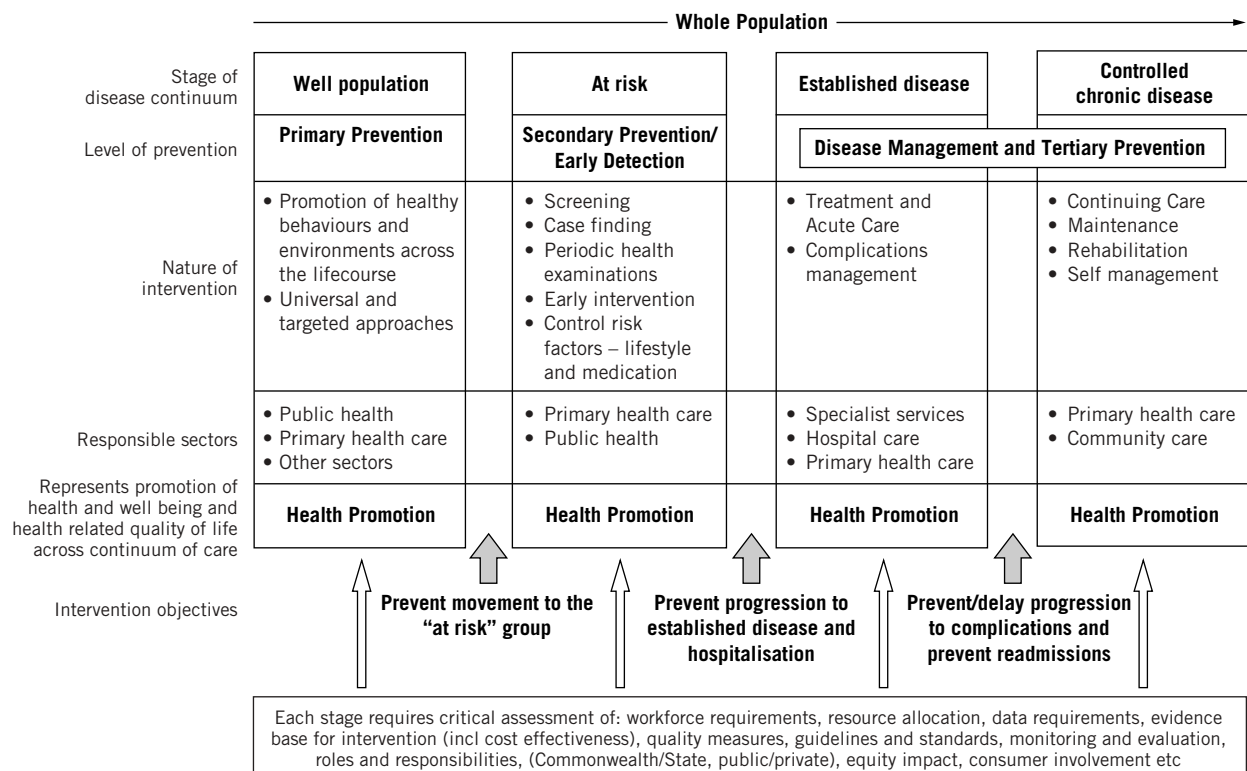
Support systems and drivers of change

Figure 9 also depicts examples of critical system drivers needed to inform or enable action at each point of the care continuum. These include factors such as the evidence base for intervention, surveillance systems, financial incentives, quality assurance, consumer involvement, and performance measurement. The National Health Performance Committee’s performance framework could be mapped against the components of this model to provide the basis for reporting and monitoring progress.

“Equity impact assessment” is proposed as a key consideration at each point on the continuum. As discussed earlier in this paper, there are significant health inequalities across the chronic diseases and their risk factors. While the major task of redressing health inequalities lies in public health action and reduction of risk factors, there is a significant body of evidence suggesting that variations in the delivery of preventive services, treatment and care also impact on health disparities.

The importance of incorporating a focus on health improvement and health-related quality of life across the spectrum of care is illustrated by the inclusion of health promotion in each column, including at the level of disease management and tertiary prevention. This is particularly important for conditions such as obesity, type 2 diabetes and hypertension, where non-pharmacological measures can play an important role in effective management. Health promotion advice for those with chronic disease is essentially the same as in primary prevention eg promotion of a healthy diet, being active, quitting smoking, strengthening social support networks, promoting self care and a sense of control etc. This implies the need for consistent prevention guidelines and systematic approaches to consumer empowerment across the spectrum of care.

Figure 9: Comprehensive model of chronic disease prevention and control



In more technical applications, each stage in the continuum of care can be populated with data and assessments made of the match between population needs in each category, the cost effectiveness of various interventions and whether the health system response is optimal. This approach has been used by Territory Health Services using the Health Benefits Groups/Health Resource Groups methodology, as a basis for resource allocation decisions, economic modelling, service planning and evaluation.

The continuum of care model highlights the need for chronic disease prevention initiatives to be fully engaged with the range of reforms and developments in **primary health care** designed to improve the management, care and quality of life of those with existing chronic conditions. A key component of the WHO global non-communicable disease strategy is to ensure that health sector reforms are responsive to chronic disease challenge. In Australia, these reforms are currently exemplified by the Commonwealth's Enhanced Primary Care program and Chronic Disease Self Management initiative, the Coordinated Care Trials, the primary care reforms occurring in many States/Territories, and many of the approaches designed to facilitate preventive and population health measures under the General Practice Strategy, and the General Practice and Population Health initiative of the NPHPG and GPPAC. Primary health care is the critical focal point where broader prevention initiatives and disease management intersect.

3.3 Components of a comprehensive strategy

Consistent with the country level guidelines contained in the World Health Organisation's Global Strategy for Non-communicable Disease Prevention and Control, (as described above), the key action components of the national framework proposed here are as follows:

1. Ensuring an effective information base to guide action.
2. Strengthening prevention and health promotion.
3. Improving systems of care for those with chronic disease.

Each component is considered in more detail below.

3.3.1 Ensuring an effective information base to guide action

This component contains a number of elements, bridging the domains of surveillance and research.

In the area of surveillance, systems are required to monitor and assess chronic disease mortality and morbidity, and the level of exposure to risk factors and their determinants in the population; together with mech-

anisms which enable surveillance information to contribute to policy making, advocacy and the evaluation of both preventive programs and health care services. The design of surveillance systems and instruments to enable effective tracking of health and health behaviours in sub population groups, in order to assess progress in addressing health inequalities is of critical importance.

The preventable chronic disease framework offers an important opportunity to integrate a range of existing and new data collection activities into a comprehensive national surveillance and monitoring system, which would support chronic disease prevention and control by providing consistent and comparable data on population health and health behaviours across Australia. This is discussed in detail at Appendix 3. The public face of the national monitoring and surveillance effort could be provided through the establishment of "leading health indicators" for chronic disease similar to those developed in the United States (US DHHS, 2000; IOM, 1999).

Relating health system performance to progress in managing and reducing the chronic disease burden is also needed. The National Health Performance Committee's performance framework could be utilised to provide the basis for reporting and monitoring in this area.

Similar to the requirements in surveillance, a systematic approach to building, consolidating and disseminating the research evidence base to underpin policy and action on chronic disease prevention and control is required, including the development of a strategic research agenda to fill gaps in current knowledge. This research agenda would need to encompass the full continuum of knowledge generation, from basic research to intervention research. Economic studies would be a high priority to help determine and optimise marginal shifts in resource allocation and investment needed across the continuum of care.

3.3.2 Strengthening prevention and health promotion

Many of the building blocks for an effective national program in chronic disease prevention and health promotion are already in place. National strategies exist or are being developed to address the key risk factors of tobacco smoking, alcohol misuse, unhealthy diet and physical inactivity. Increased investment in the latter areas, accompanied by strong linkages between these strategies, will be necessary to deal with the problem of obesity. Implementation of the *National Action Plan for Promotion, Prevention and Early Intervention for Mental Health 2000* should provide important opportunities to address some of the psychosocial factors highlighted in the preventable chronic diseases framework. In appropriate circumstances, joint planning and collaboration

between mental health promotion initiatives and the risk factor strategies could be expected to contribute more to health improvement than by either area acting alone.

It is also important, given current understandings of chronic disease aetiology, that risk factor strategies also have appropriate linkages to other dimensions of social and community development – for example, early childhood programs, livable communities, family support networks, “place management” and regional development initiatives.

The whole of system model discussed above highlighted **infrastructure** issues in the context of a comprehensive approach to planning chronic disease prevention and control initiatives. Many initiatives to strengthen the population health infrastructure – which will have important implications for building national capacity in chronic disease prevention – are already being undertaken by the NPHP. These include the establishment of work programs in the areas of:

- Public Health Information
- Evidence base for population health
- Population Health and General Practice
- Public Health Workforce Development
- Public Health Leadership
- Public Health Planning and Practice Improvement (including statement of Core Functions)
- Public Health Legislation

In general, it would be expected under the proposed framework, that sustaining current efforts and directions for each major risk factor strategy as well as in relevant areas of infrastructure development, would be a priority. However, new (or underdeveloped) areas of activity might include the following. These may require additional resourcing.

- Building stronger intersectoral linkages (eg with the transport sector to promote active living and physical activity; with the community services sector to help build social support networks).
- Giving special emphasis to needs of disadvantaged groups, while continuing investment in environmental and universal measures which benefit the whole population (eg reducing fat in the food supply).
- Contributing to a strategic research agenda focused on improving understanding of the factors underpinning health inequalities in chronic disease.
- Strengthening links to primary health care.
- Collaborating with other strategies (including but not limited to other risk factor strategies) to foster a more integrated approach to particular settings relevant to different life stages; or to work on common infrastructure issues eg to ensure consistency in surveys of health behaviour; or in workforce development.

- Incorporating or supporting activities as components of regional or local health improvement plans which take account of local needs and context.
- Incorporating psychosocial considerations into implementation plans.

The rationale for many of these approaches has been set out above. Two areas of particular importance to the framework – the life course perspective and action at the community level – are discussed in more detail below.

3.4 Strategic Management

A comprehensive national approach to chronic, non-communicable disease control, particularly in a federal system, requires a high order of coordination and strategic management.

Overall leadership for the comprehensive approach across the continuum of care implied by the model shown above in Figure 9 will be provided through the collaborative agreements between the NPHPG and the NHPAC, and other AHMAC committees. Condition-specific expert groups will advise the NHPAC of priority actions required in specific areas of treatment and disease management. Similarly, specific details of action required in relation to the major risk factor-focused population health strategies will be developed and recommended to the NPHPG by the national groups responsible for these areas eg the Strategic Intergovernmental Nutrition Alliance (SIGNAL).

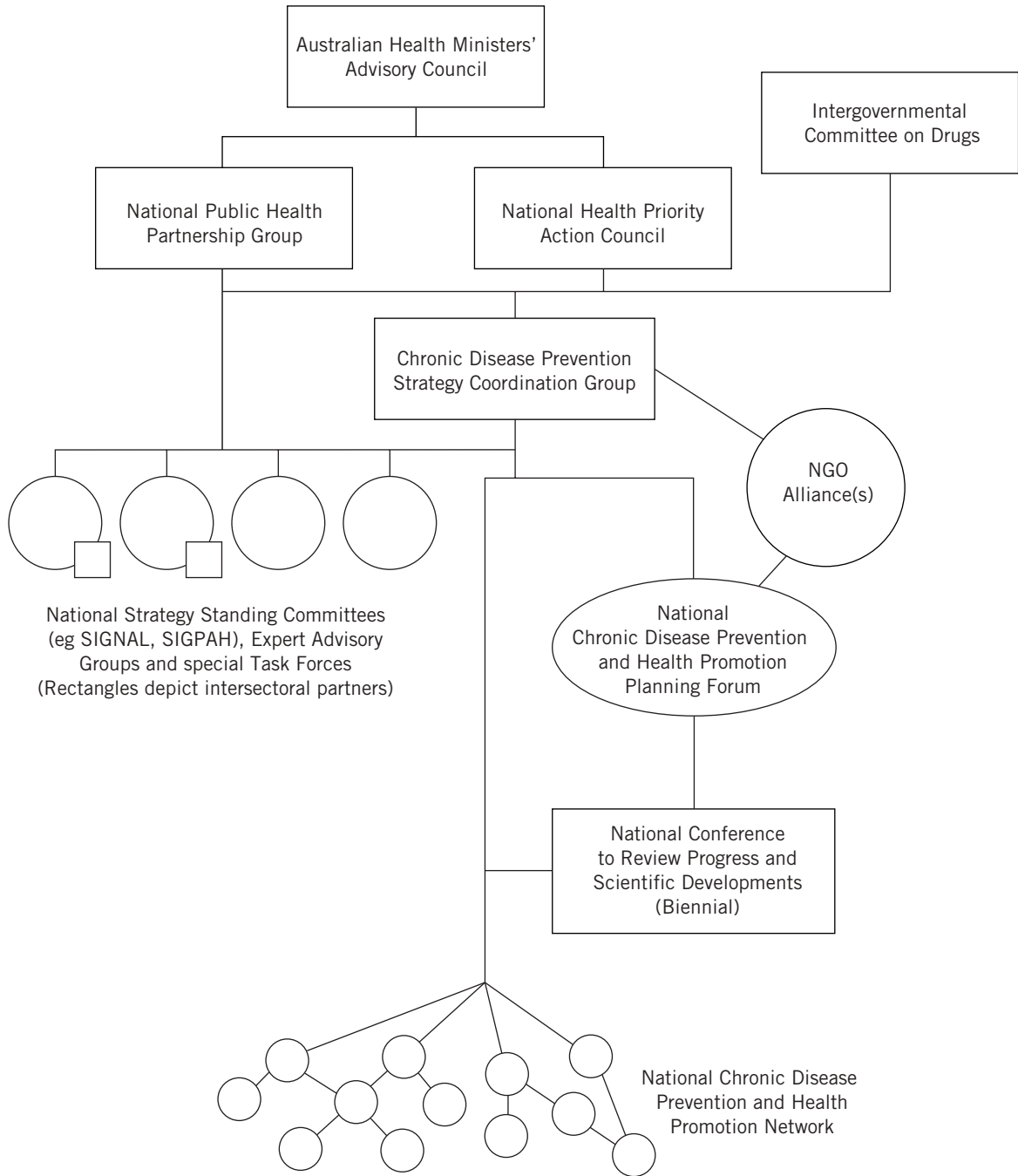
The recommendations below do not attempt to duplicate any of these structures. Rather, they are concerned with coordination of the total effort, with an emphasis on the prevention components, and management of cross cutting issues and themes. The key steps, structures and relationships proposed are set out below. The overall “strategic architecture” proposed is illustrated in Figure 10.

- Formation of a national “Chronic Disease Prevention Strategy Coordination Group” (or Executive Group), bringing together the key national population health strategies and the disease/condition specific strategies (through Chairs, strategy secretariats and NGOs as appropriate) and including representation from the Mental Health Working Group – reporting to both the NPHPG and the NHPAC. This group would meet twice annually to review progress, consider longer range scenarios and new proposals for development. Once a year this group would meet with a wider group of stakeholders, including Indigenous and consumer organisations, the AIHW and the NHMRC, IGCD representatives, professional associations and colleges, as the “Chronic Disease Prevention and Health Promotion Planning Forum”.

- Formation of an expert advisory group with Australian and international representation to advise and support this forum. International representation might include eg US Centers for Disease Control, Centre for Chronic Disease Prevention and Health Promotion; WHO Noncommunicable Disease and Mental Health Cluster; Robert Wood Johnson Foundation (USA); Canadian Institute for Advanced Research; International Centre for Health and Society, University College, London; the Health Development Authority (England) – which has a specific charter to map and disseminate the public health evidence base, support the government on health inequalities work and research innovative means of health promotion.
- Development (where similar arrangements do not already exist) of a Chronic Disease Prevention Planning Forum in each jurisdiction, linking public health, primary care, government, NGOs, professional bodies, research institutions, consumer organisations; with similar mechanisms reflected at regional and local levels where appropriate.
- Development of a national “chronic disease prevention and health promotion network” based on the Northern Territory model, supported by a web site and other communication channels. Every two years network members and others would be invited to participate in a national conference (similar to the CDC chronic disease conferences) which would provide an opportunity for updates on recent research, share experiences, learn from international developments etc. This would also help support development of a health workforce that can effectively respond to the needs of chronic disease prevention and control, dissemination of the evidence base etc

Given the wide range of building blocks and activity already in place, a major priority for the mechanisms proposed above is to create the connections and communication systems that could add value to existing activity. A key aim is to build sustainable systems for learning and knowledge transfer across strategies and programs which fall within the scope of the strategy framework. The overall structure proposed is outlined in the diagram opposite.

Figure 10: Proposed overall structure for a national response to chronic disease prevention



Part 4: Outline of Action Plan

Goals and Objectives

To move from the framework presented in this paper to a national strategy and action plan for chronic disease prevention and control will require, at a minimum, specification of, and agreement on, goals, objectives, and actions. In this section a number of draft goals and objectives are proposed, as examples, to inform the process of strategy development.

It should be noted that specific goals and objectives for many of the conditions and risk factors identified in the framework and for many associated intervention activities have already been defined by individual public health strategies, and through the National Health Priority Area initiative. In addition broad health promotion goals are also proposed under health strategies developed for particular population groups, such as the National Strategy for an Ageing Australia and the National Aboriginal and Torres Strait Islander Health Strategy. These should be factored in to the objectives agreed for an overall chronic disease prevention strategy.

Goals

- To improve the health and well being of all Australians by reducing the health, social and economic impacts of chronic disease on Australian society.
- To reduce health disparities (including differences that occur by socioeconomic status, gender, ethnicity, location) among different segments of the Australian population with regard to the chronic diseases and risk factors identified in this framework.
- To establish a national system of health promotion and chronic disease prevention strategies appropriate to the needs of population groups at each stage of the lifecourse (promote health throughout life)
- To incorporate chronic disease prevention objectives into policies and practices throughout the health and aged care system
- To create and sustain the partnerships, systems and leadership needed to achieve these goals.

Health gain objectives

- To reduce the projected incidence and prevalence of morbidity and mortality associated with the conditions identified in the framework (ischaemic heart disease, stroke, type 2 diabetes, renal disease, chronic obstructive pulmonary disease, certain cancers and depression) in the Australian population.

- To reduce the proportion of adults with the biological risk factors identified in the framework (eg obesity, hypertension, IGT, high blood cholesterol).
- To increase the proportion of adults with identified risk factors or disease whose conditions are under control.
- To reduce inappropriate demand on the health care system and reduce the projected impact on hospitalisations and financial costs of the chronic diseases identified in the framework.
- To increase the proportion of the population engaging in protective behaviours (eg healthy eating, being physically active) and reduce the proportion engaging in unhealthy behaviours (eg tobacco smoking).
- To increase the proportion of Australians with chronic illness who report a satisfactory level of health-related quality of life.
- To increase the proportion of Australians who report an adequate sense of control in relation to their health, and adequate levels of social support.
- To increase the proportion of Australians aware of the impact of chronic disease on individuals and society, and the steps they can take as individuals, families and communities to prevent the illnesses and their complications.

Recommendations for action

As noted, many of the necessary building blocks or actions needed to implement an effective national effort in chronic disease prevention and control, and to achieve the objectives set out above, already exist. Included among these are initiatives in the current or planned work programs of the national public health strategies and the leading health NGOs, in the various capacity building activities of the NPHPG, in the workplan of the NHPAC, in moves to reform primary health care, in the work of institutions such as the AIHW and the NHMRC, and many other areas. Without an overall organising framework or strategy however, there is a risk that many of these initiatives may be developed or implemented independently of each other, and opportunities for synergies may not be realised.

Establishment of the coordinating and strategic management mechanisms proposed under Part 3 is an important first step in laying the foundations for effective implementation.

Thus implementation of the chronic disease prevention framework primarily requires action at two levels – coordinating and consolidating existing initiatives, and the identification of areas where there are currently gaps, where new, cross cutting initiatives would be most likely to make a difference, and to initiate action in these areas.

An agreed policy framework

An overarching recommendation is for the preparation of a **national preventable chronic disease and health promotion policy statement** based on the framework in this document to provide a guide to action for all levels of the health system. This would be submitted to AHMAC and Health Ministers for endorsement.

The policy statement should provide the basis for national agreement initially between governments, on key policy objectives and strategic directions for chronic disease prevention and control in Australia over the next decade. Such an agreement would then provide the basis for aligning financial resources and institutional arrangements with these policy objectives, across all jurisdictions. The policy objectives should be incorporated into business plans across all areas of health and aged care system. The statement would also form the basis of agreements between government and non-government organisations, the private sector, professional bodies, consumer organisations and other stakeholders.

Projects and programs

This section outlines a number of recommendations for action which could be taken forward under the auspice of the National Public Health Partnership, in association with other key stakeholders.

The recommendations should be seen in the context of existing activities and commitments. A shift in the investment mix may be required over time. Implementation will require a staged approach, taking account of current commitments, with planning and priority setting overseen by the proposed Chronic Disease Prevention Strategy Coordination Group.

The section is organised under the strategy components derived from the WHO Global Non-Communicable Diseases Strategy country level guidelines, described above.

1. Ensuring an effective information base to guide action

1.1 Strengthening nation-wide capacity to track change in the risk profile of the population, including:

- Building on existing approaches to improve nation-wide capability in surveillance of behavioural risk factors, particularly for sub population groups;

- Development of an on-going national health measurement survey to provide information on biomedical risk factors;
- Development of a nation-wide, integrated, chronic disease and associated risk factors (including health literacy) monitoring and surveillance system for improving information for prevention and management of chronic diseases, utilising Computer Assisted Telephone Interview system and other technologies as appropriate (see Appendix 3);
- Development of mechanisms which enable surveillance information to contribute to policy and intervention development;
- Development of a set of “leading health indicators” which provide a basis for regular public reporting on key dimensions of disparities in population health and risk factor status associated with chronic disease
- Monitoring the use of surveillance information in policy development and decision making.

1.2 Develop a comprehensive evidence base for chronic disease prevention (including cost effectiveness studies), and an accompanying dissemination strategy, including:

- Undertake systematic review (and ongoing updating) of the evidence base for chronic disease prevention, building on the “Best Buys” review conducted by Territory Health Services and similar bodies of work;
- Undertake systematic review of the existing evidence base for interventions addressing the social determinants of health associated with chronic disease (these would also be likely to affect other health outcomes), in association with the Health Inequalities Research Collaboration (HIRC);
- Development of a national research strategy, in association with the NHMRC, ANAPHI, HIRC and other relevant bodies, to build the Australian evidence base in areas of chronic disease prevention where there are significant gaps in knowledge. This would be developed across the domains of:
 - *Determinant research* – examines how various risk and protective factors affect health
 - *Intervention research* – identifies or develops promising programs and examines their effectiveness in reducing disease and promoting health.
 - *Dissemination research* – examines strategies for promoting widespread adoption and maintenance of effective practice
- Support ongoing research and development, and evaluation for community-based chronic disease interventions and improve interface between

community-based programs and academic institutions through development of a network of chronic disease prevention research centres (in association with ANAPHI/IPHERP) (see 2.1 below)

- Development of a program of economic modelling and analysis, drawing on the Health Benefits Groups methodology and other priority setting approaches, to recommend the optimal mix of investment in chronic disease prevention and control both nationally and for service planning at the regional level (see also 2.1 below); and to provide advice on appropriate financing models and options which support prevention
- Development of a systematic dissemination strategy to ensure wide access to the knowledge base in chronic disease prevention, utilising web based platforms and the proposed chronic disease prevention and health promotion network, among other channels.

2. Strengthening prevention and health promotion

New initiatives

2.1 *Supporting and trialing the development of regional “chronic disease health improvement plans” (as proposed in 3.2.2 above) in disadvantaged areas.*

2.2 *Develop an agenda setting and communication strategy to promote the significance of the obesity problem as one that should be of concern to the health sector as a whole and to other policy sectors*

2.3 *Identification and specification by existing national health strategies of ways in which they can individually and collectively:*

- Contribute to reduction of health inequalities
- Support capacity building at the local level in context of regional health improvement plans (see 2.1)
- Collaborate to develop integrated prevention programs suitable for primary and secondary school use which connect behavioural and psychosocial risk and protective factors eg resilience and social support in context of a health promoting schools approach (see 2.4)
- Collaboratively support or contribute to the implementation of intervention programs focused on the early years of life (see 2.5)
- Investigate collaborative development of integrated educational resources suitable for consumers, families and community groups (eg “Wellness Guide”).

2.4 *In collaboration with education sector stakeholders, strengthen health promoting schools initiatives, building on the findings of programs such as the Gatehouse Project.*

2.5 *Develop a strategic health sector response to the evidence of the impact on long term health outcomes of the early years of life, in collaboration with Commonwealth Department of Family and Community Services, State and Territory programs, the National Initiative for the Early Years (NIFTEY), Developmental Health Research Partnership, HIRC and other agencies and sectors.*

2.6 *Identify opportunities for collaboration between health and the community services sector, to foster and strengthen social support networks, followed by development of agreed joint projects.*

2.7 *Identify opportunities for building more effective chronic disease prevention and health promotion programs for older Australians, including pre-retirement workplace initiatives.*

2.8 *Develop a national workforce development strategy to ensure availability of the skills and expertise required to mount a long range national effort in chronic disease prevention and control, in association with ANAPHI, PHERP, PHA, the Australian Health Promotion Association and other professional bodies, drawing as appropriate on the experience of the Association of State and Territorial Chronic Disease Program Directors (ASTCDPD) in the United States.*

Strengthening existing initiatives

2.7 *Support implementation of the national nutrition strategy “Eat Well, Australia” and the National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan, through a whole of government approach*

2.8 *Further development and implementation of the health sector response to “Active Australia”, as part of a comprehensive national strategy to promote “active living”.*

- Build a program of intersectoral collaboration to develop integrated transport policies – at national, state, regional and local levels – which encourage walking and cycling, and which offer multiple health benefits

3. Improving systems of care for those with chronic disease

Many Commonwealth initiatives such as the Coordinated Care Trials, the Enhanced Primary Care program, the Sharing Health Care program, the Practice Improvement Program, activities supported by Divisions of General Practice, and primary health and community care reforms in States and Territories, are all making important contributions to improving systems of care for those with chronic disease. Research initiatives by the Strategic Research

Development Committee of the NHMRC will also help inform the changes needed to create a health system more responsive to the needs of those with chronic illness. These are all consistent with the conceptual framework presented in this paper, but largely fall outside the domain of the NPHPG. The major focus here therefore is on **strengthening the role of prevention in the health care system.**

- 3.1 *Establish, in association with NHPAC, NICS and NHMRC, a task force (including public health representatives, clinicians, health service managers and researchers) to develop recommendations – in the context of health care reforms and development of new systems of care for chronic disease – for a strategic program of activities (including research and workforce development) to improve integration between the domains of prevention, management and acute care, and the contribution of the health system as a whole to prevention.*
- 3.2 *Development of an integrated approach to the prevention, assessment, management and self management of chronic disease in general practice and primary health care focused on modification of behavioural, psychosocial and biomedical risk factors, linked to a program of adult health check ups, risk assessment, clinical guidelines, educational materials, decision support tools and structural supports. This would build on the SNAP (smoking, nutrition, alcohol and physical activity) framework – in progress under Joint Advisory Group on population health and general practice.*
- 3.3 *Development and implementation of guidelines for management of overweight and obesity in primary care through NHMRC Health Advisory Committee (in progress).*
- 3.4 *Collaborate with non-government health sector (such as the National Vascular Disease Prevention Partnership) to develop and implement evidence based prevention guidelines for chronic disease (aligned with 3.2 above), consumer focused programs, and other initiatives which build on this sector's expertise and constituencies.*

Appendix 1: Examples of Key Result Areas (KRA) and Best Buys (BB)

Key result area – Maternal health

- Improving infant birthweight (KRA)

Key result area – Promotion of child growth

- Breastfeeding (BB)
- Preventing childhood malnutrition (BB/KRA)
- Decreasing childhood infections through better environmental health conditions (KRA)
- Childhood immunisation (BB)

Key result area – Underlying determinants of health

- Maternal and childhood education (KRA)
- Promote 'sense of control' and mental well-being (KRA)

Key result area – Lifestyle modification

- Smoking cessation and prevention programs (BB)
- Brief intervention for hazardous alcohol use (BB)
- Nutrition, weight loss and physical activity programs in high risk populations (BB/KRA)

Key result area – Early detection and early treatment

- Screening (BB/KRA)
- Adult immunisation (BB)
- Aggressive blood pressure lowering to prevent progression of renal disease (BB)
- Regular monitoring of disease (BB)

Key result area – Best practice management

- Prevention of complications of diabetes (BB/KRA)
- Aggressive management of heart attacks and known cardiovascular disease (BB)
- Rehabilitation and outreach programs (cardiac, respiratory, renal) (BB)
- Support, education & advice re risk factors (nutrition, tobacco, physical activity) (BB/KRA)

Adapted from THS *Preventable Chronic Diseases Strategy*

Appendix 2: Selected examples of international non-communicable disease prevention programs

Singapore

Since the early 1980s Singapore has had comprehensive national policies and programs for NCD prevention. Five parts of this national strategy include:

1. Healthy Family – Healthy Nation focuses on major lifestyle risk factors.
 - Special attention is paid to young people
 - It involves strong multi-sectoral collaboration
 - top level political commitment and support
 - community intervention
 - public sector workplace healthy lifestyle program
2. Promoting healthy eating, monitoring eating habits, formulating national nutrition policies and dietary guidelines, developing public education and a food/nutrition information system and promoting healthy food supply
3. Anti-smoking program – A Nation of Non-Smokers
4. Monitoring disease trends
5. Developing screening programs for the early detection of chronic diseases.

Results include a reduction in some chronic disease and risk factors.

- Reduced hypertension prevalence
- Reduced mortality from CVD
- Reduced total cholesterol and HDL.

Integrated Prevention and Control of NCD in China

In 1984 a community-based program on the prevention and control of four NCDs (cancer, heart disease, stroke and hypertension) was launched by the Tianjin Bureau of Health to counter CVD, stroke and cancer which have been ranked as the first three causes of death since the 1970s.

- Intensive healthy lifestyle promotion has been conducted in the community focusing on healthy eating, reducing salt intake, smoking control and control of hypertension
- The prevention and control of NCDs has been integrated into community health services and become part of the city health plan
- Policy development and a supportive social environment have been set as priority areas in the project

- An information and monitoring system for NCDs has been established
- Human resources for NCD control have been strengthened.

Results include:

- Improved awareness of NCDs
- Reductions in
 - Levels of blood pressure
 - Rates of smoking
 - Intake of salt
 - Mortality from stroke.

(Source: Bagley, P and Lin, V (2000) *Acting on Non-communicable Diseases: An Advocacy Guide for the Western Pacific: Draft Report*).

Appendix 3: Monitoring and surveillance

A comprehensive, nation-wide monitoring and surveillance system for chronic diseases and associated risk factors (behavioural, socio-environmental and biological) would improve information for prevention and management of chronic diseases. It would be designed to:

- Provide quantitative estimates of the incidence, prevalence and impact of chronic diseases and their risk factors;
- Detect emerging trends in risk factors and chronic diseases;
- Identify health problems and risk factors within population groups;
- Map the geographic distribution of health problems and risk factors;
- Provide timely data for evidence based policy and intervention development;
- Inform planning and management of services nationally, regionally and locally;
- Facilitate epidemiological and health research and analysis; and
- Evaluate interventions, activities and practice at a population level.

There are currently no on-going, strategic data collections in Australia that provide the capacity for integrated, nation-wide monitoring and surveillance of chronic diseases and associated behavioural risk factors. The national health information systems that have been established focus on acute episodes, communicable diseases, specific disease registers that cannot encompass comorbidities or population health surveys that currently lack integration and lack a focus on chronic disease and behavioural risk factors. The current state of knowledge on basic population health chronic disease issues such as prevalence data on asthma or the epidemiology of established or emerging associated behavioural risk factors is very poor.

Time series analyses (over 5–10 years) of consistently collected population survey data can provide a new capacity in Australia to identify epidemics in behavioural risks and chronic diseases, and to target Public Health interventions based on strong epidemiological evidence. They also facilitate comparisons in health status within or between populations over time. Such data are now unavailable in Australia, but as in the United States Behavioural Risk Factor Surveillance System (BRFSS), a system to monitor chronic diseases and behavioural risk factors could have a key impact on the development of new Public Health policies in this country.

All states and territories (as well as jurisdictions overseas) report a pressing need for timely, valid, reliable and relevant data to increase capacity to identify new emerging population risk factors and to support local health planning and strategic policy development. A nation-wide chronic disease monitoring and surveillance system, with capacity to provide state, regional and local disaggregations, will respond to this need and be a major benefit to many health sectors.

What data would it consist of?

The system would draw together a range of data from existing administrative data bases and survey collections together with establishment of a nation-wide system to monitor the incidence of chronic disease and behavioural risk factors. To provide an appropriate and effective system there will need to be enhancement of existing collections, both administrative and survey based, improved State and regional data, coordinated nation-wide survey programs, improved national comparability of survey data. There is also a need to establish a nation-wide system to monitor the incidence of chronic disease and associated behavioural risk factors.

Data sources would include:

- Mortality – National Death Index
- Morbidity – National Hospital Morbidity collection
 - Disease Registers (Cancer, Diabetes)
 - GP data (BEACH)
- Population health surveys based on representative population samples
 - Demographic, socioeconomic
 - Incidence of disease
 - prevalence
 - severity
 - associated risk factors
 - disease management
 - health service use.

How would the system be structured?

The structure of the system needs to be developed in consultation with major stakeholders and data suppliers. The development of an integrated system that draws on national and State based surveys and existing data sources at State and national level in a cooperative and collaborative manner could be an appropriate model for consideration.

In such a system it is important that jurisdictions retain the ability to use and analyse data for their local needs as well as providing national data and data on sub popula-

tion groups. Frequency and timing are important issues for the monitoring and surveillance system, together with development of mechanisms which enable surveillance information to contribute to policy and intervention development.

What is the role of Computer Assisted Telephone Interview (CATI) health surveys?

Over the past years there has been a significant level of cooperation between state and territory jurisdictions and the Commonwealth in reaching common ground on the conduct of CATI chronic disease and behavioural risk factor population surveys. This has been facilitated by the National CATI Health Surveys Technical Reference Group (TRG) whose members include all jurisdictions, the AIHW and the ABS. All States and Territories and the Commonwealth are participating actively in the implementation of State/Territory based population health surveys. The ABS and AIHW have been key players in support of these activities.

CATI health surveys have been adopted by a number of States to address their population health and surveillance needs, and this is proving to be useful in relation to population health policy development and intervention. The TRG is a sub-committee of the National Public Health Information Working Group, which is the information advisory arm of the National Public Health Partnership. The TRG is currently seeking to further develop State and national capacity through a series of initiatives, including:

- Establishment of collaborative arrangements between CATI and non-CATI jurisdictions;
- Development of a national sample through discussions with Telstra; and
- Development of agreed national CATI modules on priority issues, including demographics and diabetes.

A nationally developed CATI system could provide the basis for an ongoing nation-wide Chronic Disease and Behavioural Risk Factor Surveillance System such as that used to great advantage in the United States for planning and informing public health activities.

For some surveys the CATI methodology may have advantages, compared to standard survey methodology. These include:

- Increased flexibility and responsiveness;
- Adequate sample size for States and regions at lower cost;
- Provision of data from regional/remote areas;
- Improved timeliness of collection and reporting;
- Cost effective;
- Efficient (ie use of technology);
- Epidemiological focus;
- Generally acceptable to respondents; and
- Safety for interviewers and respondents.

Other key national information related developments and activities to be considered in relation to the monitoring requirements of a national chronic disease strategy include the Australian Diabetes, Obesity and Lifestyle Study (AusDiab), the proposed Australian Health Measurement Survey program (biological risk factors), the Women's Health Longitudinal Study, and the proposed Longitudinal Study of Australian Children.

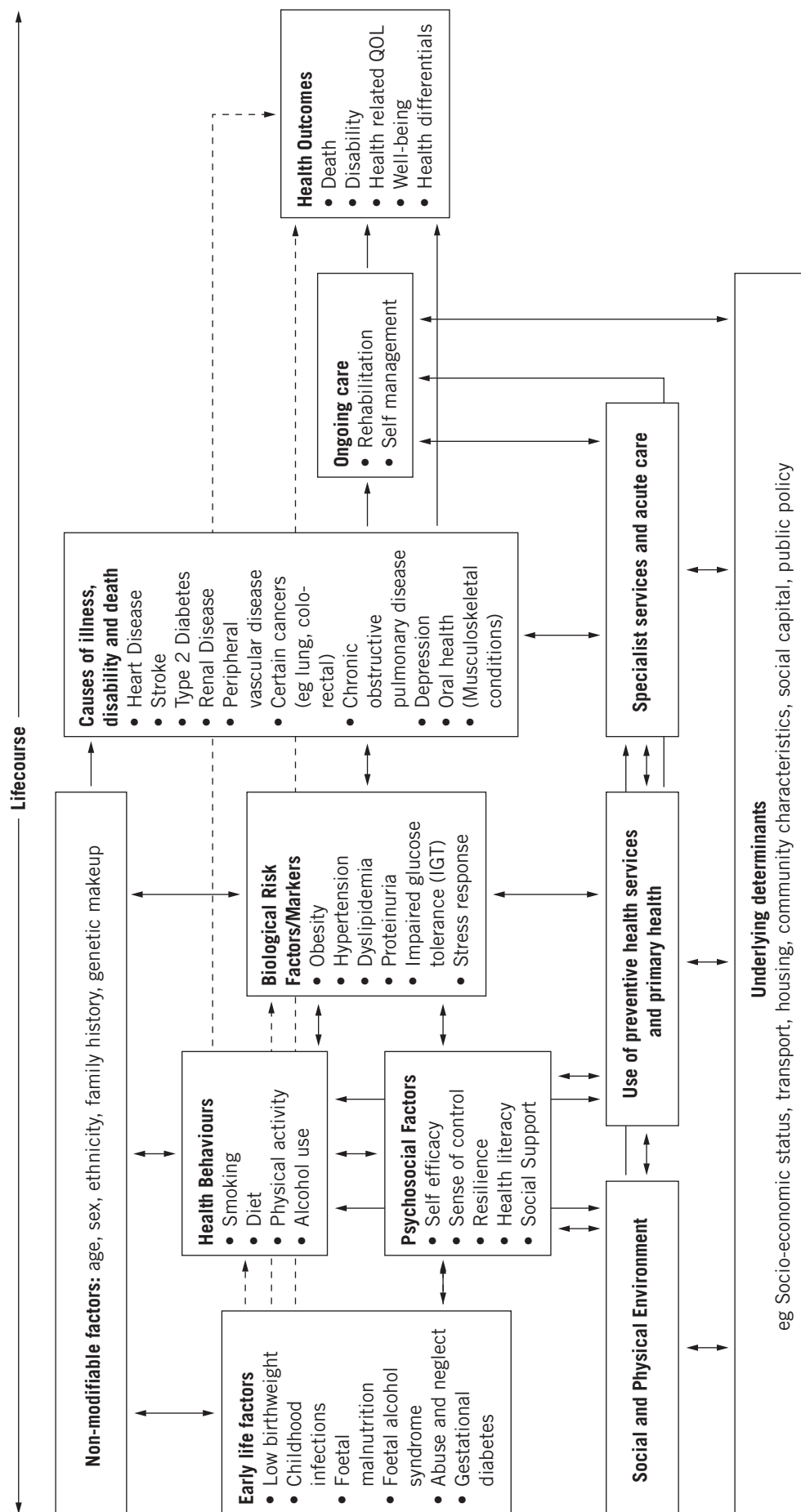
How would the information be disseminated?

Chronic disease and behavioural risk factor surveillance and monitoring involves tracking and forecasting chronic diseases and their associated risk factors through the ongoing collection of data, the integration, analysis and interpretation of that data into systematic monitoring reports and the dissemination of those reports to support improved prevention and management of chronic disease. This may involve the development of new surveillance products and reports to enable surveillance information to contribute to policy and intervention development. These will provide valuable data on health trends and threats to health and emerging diseases. The surveillance information will improve the understanding of the determinants of health, provide input for planning and evaluating health promotion and health care services, for research, and for developing policies to reduce and manage risks.

Through the NHPA reporting process, substantial baseline reports are in place for most of the chronic diseases proposed for inclusion in the chronic disease prevention framework. On going surveillance, analysis and reporting against NHPA priority indicators will be undertaken by AIHW and reported in the biennial publication, *Australia's Health*.

HealthWIZ, a product of Commonwealth Department of Health and Aged Care, could also support the dissemination of health information under the chronic disease and behavioural risk factor surveillance and monitoring system. Users of HealthWIZ can access a wide range of data including death statistics, hospital morbidity data, cancer registry data, immunisation data, Medicare, and health survey data. HealthWIZ allows comparisons between population groups across geographical areas, sexes, ages, ethnic groups, social classes and more. HealthWIZ is being further developed under the National Health Information Management Group.

Appendix 4: Schema of causal pathways influencing chronic disease and health outcomes



Appendix 5: Preventing chronic disease – intervention principles and strategies

Basic Principles of Chronic Disease Control Interventions

- Comprehensive approaches that address the economic, social and political roots of health and sickness have proven to be more effective than traditional education approaches
- Changes in underlying community norms are a key to widespread and long-term improvements in health
- Community-based approaches that target the whole population will contribute the most to reducing chronic disease mortality
- A chronic disease control program will be more effective if the at-risk population is actively involved in prioritising, developing and implementing intervention activities.
- A chronic disease control program will be more effective if community organisations (eg schools, churches, social clubs) actively involved in developing and implementing the intervention.
- Chronic disease control interventions should build on traditional practices and cultural norms
- Clearly defined objectives are essential for planning and implementing effective interventions.
- Intervention strategies should be selected based on the needs of the specific at-risk population.
- Multiple intervention strategies will increase the effectiveness of health programs
- Effective interventions require ongoing evaluation and the adjustment of strategies

Key strategies

- Coalition development and maintenance
- Modify community conditions and norms
- Establish and enforce health policies
- Establish economic incentives
- Enhance knowledge and skills
- Provide screening and follow up services

Key Intervention Channels and Settings

- Health care system
- Schools
- Workplaces
- Community organisations
- Media
- Public policy

(Source: Chapter 4 in Brownson et al (1998) *Chronic Disease Epidemiology and Control*)

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