
Towards a National Dementia Preventative Health Strategy

Alzheimer's Australia
Paper 21
August 2010



Foreword

In 2005 Alzheimer's Australia published *Dementia – Can it be Prevented?* This paper was developed by a team of Australian geriatricians and psycho-geriatricians led by Dr Michael Woodward and examined the international and local evidence for the prevention and risk reduction of dementia. It concluded that there is good evidence to support a range of lifestyle strategies as a means of reducing the risk of dementia.

Subsequently, Alzheimer's Australia updated this evidence base in *Dementia Risk Reduction: The Evidence*. There was a further publication *Dementia Risk Reduction: What do Australians Know?* that drew together the available market research to show that on average only 51% of Australians believe that dementia risk reduction is possible while 20% believe that nothing can be done to reduce dementia risk and 28% are unsure.

Remarkably, the majority of Australians do not agree that reducing vascular risk factors (smoking, high blood pressure and high cholesterol) could reduce dementia risk although it is precisely in that area that the evidence is the strongest.

The increased emphasis in public health policy on prevention encourages us to again put forward the latest evidence in respect of dementia and the potential of prevention. As is often the case, more research is needed, but dementia risk reduction can do no harm, and the available evidence based on population studies suggests that environmental factors, along with genetic and other factors play a part in dementia.

The framework and strategy put forward in this publication is modest compared with the economic and social costs of dementia. Moreover, it is a way perhaps of reducing the negativity that surrounds dementia and the hopelessness that flows from feeling that nothing can be done.



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Table of Contents

- Foreword (i)
- Executive Summary..... 1
- Introduction 3
- Dementia 4
 - The challenges of an ageing population 4
 - Factors associated with dementia risk 5
 - Hypertension 6
 - High cholesterol 6
 - Stroke..... 7
 - Obesity 7
 - Diet 7
 - Smoking..... 8
 - Diabetes..... 8
 - Chronic kidney disease 8
 - Depression 9
 - Head injury 9
 - Alcohol..... 9
 - Physical exercise 9
 - Mental activity..... 9
 - Social activity..... 10
 - The risks for dementia: heart and mind..... 10
 - Further research needed 12
- Dementia prevention strategies 14
 - A population health approach to dementia 15
 - Towards a Healthy Australia 2020 15
 - Incorporating dementia into national preventative health planning 17
- Mind your Mind 20
- Conclusion 22
- References 23

Executive Summary

Preventative health is a key element of national strategic health planning. The importance of preventing chronic physical conditions, such as heart disease, is well recognised, yet the role of prevention in one of our greatest emerging health challenges—increasing rates of dementia—remains poorly explored.

There is increasing acknowledgement of the need to place prevention and early intervention clearly on the Australian health agenda, as demonstrated by the government's response to the National Preventative Health Taskforce and the National Health and Hospitals Reform Commission's reports. As part of this agenda, there is a need to recognise dementia as a chronic disease whose impact can be lessened by a preventative health approach. The government's commitment to refocusing the health system towards the prevention of chronic illnesses, including the establishment of a National Health Promotion and Prevention Agency, is seen as an opportunity to address this.

Dementia is often negatively perceived as an inevitable, untreatable and unpreventable symptom of old age. This perception, however, is false. While dementia remains incurable, there is a growing body of evidence that suggests a number of lifestyle and health factors appear to substantially reduce the risk of developing dementia.¹ In particular, there are important inter-relationships between major physical conditions (such as heart disease, stroke and diabetes) and dementia.

Improved understanding of neuroplasticity and neurogenesis also offer great potential for improved treatment and prevention strategies for dementia. Preventative health provides one of the most promising developments to date in reducing the social and economic costs of dementia on our ageing society into the future. This paper sets out the case for the establishment of a National Dementia Preventative Health Strategy. With the prevalence of dementia projected to reach around one million by 2050 and the cost of dementia care set to outstrip any other health condition, it is timely that dementia takes its place in national preventative health planning.

It is proposed that the framework for a National Dementia Preventative Health Strategy should be guided by eight principles that are in accord with the national Chronic Disease Strategy, namely:

- Adopt a population health approach to dementia
- Invest in research to investigate prevention, early intervention and treatment of dementia
- Implement dementia risk reduction strategies

- Build community capacity to optimise self-management of risk factors
- Provide effective care
- Facilitate integrated multi-disciplinary care across services, settings and sectors
- Achieve significant and sustainable change
- Monitor progress

Initially the approach to dementia risk reduction should be founded upon:

- i. The national roll out of Alzheimer's Australia's Mind your Mind program, a public health initiative to promote awareness of the potential of dementia risk reduction among the Australian population. The provision of approximately \$4.5 million in funding Mind your Mind over three years is a relatively small cost in comparison to the benefits it could reap.
- ii. The incorporation of dementia into existing programs that aim to combat heart disease, diabetes and stroke. This would provide an increased incentive possibly for individuals not only to look after their physical health but their brain health too.
- iii. Increased funding for research into the cause and prevention of dementia to build on the important body of evidence established over the last 25 years. Alzheimer's Australia has proposed that 1% of the cost of dementia or \$50 million per annum should be provided for a targeted program of dementia research.
- iv. The medium term formulation and adoption of comprehensive and integrated public health action plans and the allocation of further resources for the delivery of preventative programs and investment into dementia prevention.
- v. The development of a longer term policy, providing evidence-based interventions with significant resources to strive for primary, secondary and tertiary prevention of dementia.
- vi. Ongoing monitoring and evaluation of the above is critical in assisting with decision making, policy and program implementation.

Introduction

In contemporary society we place a high value on physical wellbeing, and yet the loss of our cognitive health is one of our greatest fears, particularly with age. As we age, we become increasingly worried about our memory and mental flexibility, a fear that is well-grounded.

At the age of 65 years, there is a one in seventy chance of having dementia. This prevalence increases exponentially, doubling every five years. By the age of 85, the probability of having dementia increases to one in four². We have known about this increasing prevalence for many years, but there is little acknowledgement and investment in the prevention of dementia in national health programs. For many years, people have believed that nothing can be done to prevent the onset of dementia or cure the condition once the process has started. Dementia is indeed incurable at this time, however significant research advances are offering hope for the future. The current evidence suggests it may be possible to reduce the risk of developing dementia through lifestyle and medical interventions and that there are important connections between physical and cognitive health.

The absence of dementia risk reduction in national health programs may also be due to the perception that dementia is an aged care rather than a chronic health issue. Most government expenditure on dementia relates to the care of people with dementia, with limited recognition that prevention may play an important role in reducing the escalating costs of this major disease in the future.

Dementia

Dementia is a term used to describe the symptoms of a large group of conditions that result in a progressive decline in cognition caused by brain cell death. Dementia is a broad term used to describe a loss of memory, intellect, rationality, social skills and what would be considered normal emotional reactions. At some stage of the illness, some individuals may develop behavioural and psychological symptoms including psychotic symptoms.³

Different kinds of dementia are caused by a wide range of often unrelated underlying conditions. The most common type of dementia is Alzheimer's disease (accounting for 50-70% of all cases), followed by vascular dementia (around 20%), while mixed dementia may account for a third of cases.

The Australian Institute of Health and Welfare classifies dementia as the greatest single contributor to the burden of disability at older ages.⁴ In 2003, dementia was ranked as the third and fifth leading cause of non-fatal disease burden among women and men respectively.⁵ In 2007, dementia was ranked third and sixth leading underlying specific cause of death for all ages of women and men, respectively⁶.

The challenges of an ageing population

The Australian ageing population phenomenon is common across many countries. The United Nations have projected that the over 60 year age group will increase from 688 million in 2006 to nearly 2 billion by 2050.⁷

In 2007 just 13% of Australia's 21 million people were over the age of 65. By 2056, almost one quarter of all Australians in a projected population of up to 43 million will be aged over 65. In other words, up to 11 million Australians could be aged over 65 in 2056.⁸

As people age, their burden of disease tends to increase. In 2003, adults aged 65–74 accounted for 7% of the population but experienced 16% of the total burden of disease in Australia. People aged 75 and over accounted for 6% of the total population and experienced 25% of the total burden of disease. With an ageing population there will be a higher prevalence of non-communicable, chronic, progressive conditions such as dementia and other neurological conditions. As people live longer, the severity of impairment attributable to such conditions also increases⁹.

There are almost 260,000 people in Australia with dementia in 2010. Within 20 years this figure is predicted to more than double to over 560,000. By 2050, around one

million Australians could have dementia.¹⁰ Inevitably, there will be significant demand for dementia care services over the coming years. Strategies need to be in place to ensure adequate and cost-effective services can be provided. Without planning, dementia could threaten a public health crisis that will overwhelm our health care system and quality of life.

Along with the health and social challenges presented by the dementia epidemic, the rapidly ageing Australian population will also see major economic challenges. It has been estimated that the total cost of providing necessary care (formal and informal) to the 188,000 Australians with dementia in 2005 was \$10.9 billion.¹¹ The projected health expenditure for dementia and Parkinson's disease is expected to increase by 294 per cent to \$13.91 billion from 2002-03 to 2032-33. In comparison, the projected health expenditure for cardiovascular disease and diabetes is expected to be \$16.18 billion and \$6.97 billion, respectively.¹²

Australia's ability to care for those with dementia will be greatly affected by this projected increase in population and incidence. Without policy change, it is expected that, by 2029, there will be a shortage of 58,887 full time equivalent paid dementia care staff and 94,266 family carers.¹³

Factors associated with dementia risk

There is still much work to be done in understanding the causes of different types of dementia and developing treatment regimes to prevent or slow down disease progression. However, an increasing body of research suggests that certain lifestyle and health characteristics increase or decrease our risk of dementia. These risk factors overlap considerably with those for other chronic illnesses, particularly cardiovascular disease, where there is good evidence that addressing the risk factors reduces the incidence of disease. Many of these risk factors (such as hypertension, high cholesterol, obesity, lack of exercise and smoking) are already on the preventative health agenda for other conditions. Recognition of their potential role in reducing the risk of dementia only serves to reinforce their importance in preventative health measures.

Brain health and cognitive function are often impaired in patients with cardiovascular disease. Recent research has found that declines in cognitive function are associated with the presence of cardiovascular risk factors, even before overt signs of cardiovascular disease become apparent. Such findings provide scope for the possibility of preventing or slowing the progress of dementia by applying the same strategies as those for reducing cardiovascular disease¹⁴.

Several vascular risk factors have been found to be associated with both vascular dementia and Alzheimer's disease. Accordingly, the management of such risk factors, which include obesity, physical exercise, smoking and hypertension may not only reduce cardiovascular disease, but also dementia.^{15, 16, 17}

Hypertension

Several reviews of cross-sectional and longitudinal studies suggest a positive relationship between the presence of hypertension in midlife and the onset of cognitive decline 15-20 years later.^{14,15,16}

A dementia-based re-analysis of the Honolulu Asia Ageing Study found a strong correlation between the risk of dementia and midlife hypertension. The relative risk of dementia was more than four times higher in untreated patients with hypertension compared to those with normal blood pressure.¹⁶

The use of antihypertensive treatment has shown a significant reduction in the risk of dementia.^{18, 19} The length of treatment also appears to be significant. For example, the Honolulu Asia Ageing Study demonstrated that each additional year of treatment resulted in a reduction of dementia incidence. A four year follow up found that the risk of dementia was reduced by 12% for those that had active treatment with anti-hypertension drugs during that time. Those patients with recurrent stroke had their risk of dementia significantly reduced by 34% during this period. The study also found that those patients who had received at least 12 years of antihypertensive therapy had a risk of dementia or Alzheimer's disease similar to normotensive persons.^{14,15, 20}

High cholesterol

Several studies suggest that mid-life high cholesterol level appears to be a risk factor for dementia, especially Alzheimer's disease.^{14, 15, 16, 21, 22} The use of statins (drugs that lower cholesterol) has been associated with reduced dementia risk,¹⁷ but this evidence is not yet conclusive and is the subject of further ongoing research.^{17, 23}

Lifestyle modifications, through dietary interventions, weight loss and physical activity, have been shown to have significant influence on blood lipid levels. Other lifestyle modifications, such as moderate alcohol consumption and smoking cessation, have also been shown to be beneficial for blood lipid profiles. Lifestyle changes may not be enough for many people who will require medication to maintain normal cholesterol levels.

Stroke

There is clear evidence linking the incidence of stroke to the development of dementia. Ischaemic strokes are caused when blood clots prevent oxygenated blood from reaching parts of the brain, resulting in areas of brain cell death or infarcts. These infarcts may cause immediate temporary or permanent loss of cognitive function, but may also precipitate progressive cognitive decline, or vascular dementia. Vascular dementia is the second-most commonly diagnosed type of dementia and is a common contributor to mixed dementia as well.

Patients with a history of stroke were found to be 3.5 to 6 times more likely to develop dementia than those without stroke. Dementia prevalence among those with a history of stroke is similar to that seen in patients ten years older without a history of stroke.²⁴

Obesity

Obesity in midlife is also associated with increased risk of Alzheimer's disease.²⁵ Several studies, including longitudinal, population-based studies, have shown that people with a high body mass index (BMI) have a significantly higher risk of dementia.¹⁵ A 36-year longitudinal study found that people who were obese at midlife (BMI >30) had more than a threefold increased risk of Alzheimer's disease and a fivefold increased risk of vascular dementia, while those who were overweight (BMI >25) had a twofold increased risk of Alzheimer's disease and vascular dementia, independent of vascular co-morbidities.²⁶

The 2007-08 National Health Survey found that 62% of Australian adults were overweight (37%) or obese (25%) which is consistent with other industrialised countries (25-30% obese). The survey also found that one quarter of all Australian children (aged 5–17 years) were overweight (17%) or obese (8%).²⁷

While there is no evidence yet that modifying body weight reduces dementia risk, it seems likely that weight management would be a worthwhile intervention for preventing dementia alongside other chronic diseases.

Diet

Several studies have found associations between intake of dietary fats and dementia. A high intake of saturated and transunsaturated (hydrogenated) fats has been positively associated with an increased risk of dementia, whereas an intake of polyunsaturated and monounsaturated fats has provided protection against cognitive decline in elderly people.²⁸ There is some evidence that antioxidants may also be beneficial.²⁹

While there needs to be further research into the area of dietary recommendations to reduce dementia risk, it is likely that they will be in accord with recommendations for

lowering cardiovascular risk. This would include a higher consumption of fish, fruits, vegetables and healthy fats in vegetable oils and nuts and a lower intake of saturated fat in meat and dairy products³⁰. The 2007-08 National Health Survey found that only 6.5% of persons aged 15 years and over met the recommended daily intake of fruit and vegetables.

Smoking

A number of studies have shown that smokers face an increased risk of dementia, including Alzheimer's disease. The results of the Honolulu-Asia Ageing Study found an association with midlife smoking and late-life dementia, with the risk of Alzheimer's disease in smokers increasing with pack-years of smoking at both medium and heavy smoking levels. Two recent literature reviews found that current smokers have a higher risk of developing dementia than former smokers or those who have never smoked^{31, 32}. Smoking is being addressed by the National Preventative Health Taskforce, and dementia risk reduction can provide additional motivation for individuals to quit and for the expansion of quit smoking programs.

Diabetes

Several longitudinal and population based studies have consistently shown a relationship between diabetes, particularly Type 2, and dementia.^{15, 16, 33} For example, re-analysis of the Honolulu Asia Ageing Study found that diabetes mellitus was associated with an increased risk for all dementia, Alzheimer's disease and vascular dementia.³⁴

Further research is required to determine whether effective control of blood sugar in diabetes can help reduce the risk of dementia.

Chronic kidney disease

Some studies have shown a significant graded risk for cognitive decline or dementia with chronic kidney disease patients. Haemodialysis and chronic kidney disease populations share most of the same risk factors for cognitive impairment and Alzheimer's disease.³⁵

Haemodialysis patients have high rates of hypertension (80%), diabetes (60%), and cardiovascular events including stroke and carotid atherosclerosis, all of which may contribute to vascular cognitive impairment and neurodegenerative diseases such as Alzheimer's disease.

Depression

Depression commonly co-occurs in dementia and often requires direct treatment, however the nature of this association is not clear. History of depression is also recognised as a risk factor for dementia, as found in a meta-analysis of thirteen studies (both case-control and prospective).³⁶

Head injury

Head injury, particularly with a loss of consciousness, has been associated with a general increased risk of dementia^{37, 38} in addition to the specific dementias resulting from brain damage caused directly by head injuries.

Alcohol

Excess alcohol consumption may cause alcohol-related dementia. Several studies have found that moderate drinkers have a lower risk of dementia than abstainers and heavy drinkers.^{39,40}

Physical exercise

There is a growing body of research that has examined the links between physical activity and cognitive impairment and dementia in older people. Overwhelmingly, the results have shown an association between the two. Studies have linked sedentary behaviour (which includes low walking, daily household activities, and limited leisure-time activity) with increased risk of dementia. Other studies have demonstrated the positive effect of exercise on measures of mild cognitive impairment and executive function and the Mini-Mental State Examination (MMSE).^{41,42} Regular physical activity in mid and late life has been associated with lower risk of developing dementia.

Adequate physical activity is known to reduce cardiovascular risk factors, however it may have an additional beneficial role in reducing dementia risk by promoting brain health (cellular and vascular). Whilst there is limited data to support specific evidence-based recommendations for amount or type of physical activity, the research on physical activity is suggestive of positive outcomes for the prevention or delay of onset of dementia.⁴¹

Mental activity

The human brain is capable of considerable plasticity and appears to have a large reserve capacity. This apparent built-in redundancy can allow some individuals to maintain

normal cognitive function despite considerable physiological damage to the brain. Such individual variation in cognitive responses to brain damage is also apparent in dementia patients. Some patients are able to sustain almost normal cognitive functioning despite their brains having the physiological characteristics of Alzheimer's disease, while other patients with significant dementia may have few signs of physical damage.^{43, 44} This has led some researchers to propose that an individual's 'cognitive reserve' may protect against Alzheimer's disease⁴⁵ and that those who engage in mentally stimulating activities such as learning, reading, or playing games may be less likely to develop dementia compared to those who do not.

The research supports this, with those engaging in more mentally stimulating activity through education, work or leisure found to have around half the risk of developing dementia.⁴⁶ For example, a study of 700 older people found that cognitively inactive people were 2.6 times more likely to develop Alzheimer's disease than cognitively active people.⁴⁷ Other studies have reported that lower levels of educational and occupational attainment are associated with increased risk of dementia (even when other lifestyle characteristics are accounted for).⁴⁸

Social activity

There is some evidence that people with limited social interaction and engagement may be more likely to develop dementia when compared to those with more active lives. Social activity and engagement, which may include visiting friends and family, going to clubs, church and volunteering, seems to be protective against the development of cognitive impairment.

It is believed that social activity may reduce the risk of dementia through increasing brain reserve, as does physical and mental activity. It has been found that the most beneficial protective effect is achieved when individuals combine mental, social and physical activities.⁴⁹

The risks for dementia: heart and mind

The evidence for the impact on dementia risk of the various health and lifestyle factors outlined above leads to preventative strategies that could be adopted at a national level to reduce the risk of dementia (Figure 1).

Further research needed

Whilst scientific research, particularly over the last decade, has shed new hope into the area of dementia prevention, much more is needed. Additional investment in research to consider the prevention, early intervention and treatment of dementia is pivotal in addressing the looming epidemic.

In 2009, the National Health and Medical Research Council spent about \$22 million on dementia research – in comparison, cancer attracted nearly \$160 million, cardiovascular disease around \$110 million and diabetes over \$60 million⁵⁰. With dementia being the fourth projected leading specific cause of burden of disease and injury in Australia in 2010⁵¹, there is overwhelming need for greater investment in dementia prevention and early intervention research. In 2008, the formal care costs of dementia were estimated to be between \$3.9 billion and \$5.4 billion, with the cost of replacing family carers with paid carers estimated to be \$5.5 billion per year. Research investment should aim to be 1% of the cost of dementia (not including informal care costs), or about \$50 million per annum⁵².

The American National Institutes of Health (NIH) recently commissioned a panel of experts to review published literature on the factors associated with the reduction of risk of Alzheimer's disease and whether recommendations for interventions could be made. The panel concluded that "firm conclusions cannot be drawn about the association of any modifiable risk factor with cognitive decline or Alzheimer's disease", noting further research efforts needs to be increased⁵³.

At first glance, the panel's report may seem to contradict a wealth of research that has been carried out to date on the risk and protective factors of Alzheimer's disease and other forms of dementia. However, this is not necessarily the case. The panel based their review on published literature of randomised control trials (RCTs) – "the most rigorous, highest quality evidence". Carrying out RCTs for dementia prevention and risk reduction research is problematic – from an ethical and pragmatic perspective. For example, how can researchers ethically apply hypertension treatment over an extended period of time, to one group and not another, where hypertension is a known risk factor for many other conditions?

The NIH report acknowledged that there are a number of modifiable factors that have an association with risk for Alzheimer's disease. These include diabetes, elevated blood cholesterol level in midlife, depression, dietary factors, educational attainment, cognitive engagement, smoking, and participation in physical activities.

Whilst the evidence for dementia prevention is as yet inconclusive, there is a growing body of evidence that shows great promise. The NIH report noted the need for long term population-based studies that follow individuals from midlife into old age to determine how biological, lifestyle, dietary, clinical and socioeconomic factors may influence Alzheimer's disease. In the meantime, the community must be informed of existing evidence-based guidelines, such as those presented in Alzheimer's Australia's Mind your Mind program, to increase awareness and promote a 'brain healthy' lifestyle that will also be of benefit in addressing a number of other chronic illnesses.

Dementia prevention strategies

Public health programs over the last century have shifted the leading causes of disease and death from infectious to chronic diseases and conditions. As a consequence, preventative programs are now being applied to a variety of chronic conditions and their associated risk factors.⁵⁴

Unlike epidemics caused by treatable infectious diseases, the dementia epidemic can only be lessened by prevention.⁵⁵

There is a need to apply primary, secondary and tertiary preventative programs. Primary prevention aims to reduce dementia incidence through the elimination or treatment of specific risk factors which may decrease or delay the development of dementia. Secondary prevention aims to reduce the prevalence of disease by shortening its duration. Tertiary prevention aims to reduce the impact of complications and disability of dementia and consists of measures aimed at care strategies, minimising suffering, and maximising potential years of useful life.⁵⁶

Around one third of Australians surveyed in a recent study believed that dementia risk could be reduced by mental activity and exercise. Around ten percent identified socialisation as important, but the link with cardiovascular risk factors was virtually unknown.⁵⁷ While there is evidence physical and cognitive activity can alter risk of dementia, there is also strong evidence that reducing cardiovascular risk factors is likely to decrease the risk of dementia. Dementia prevention would be a beneficial added goal to already existing or planned prevention efforts which target hypertension, dyslipidemia and diabetes.⁵⁸

Modelling has demonstrated the impact of lifestyle risk factor modification, but most of these are based on altering single lifestyle risk factors rather than a multifaceted approach. For example, Access Economics estimates that if physical inactivity could be improved from a rate of 70% to 50% from 2009 to 2050, there would be an estimated 5.7% fewer cases of dementia. Similarly, if current improvements in hypertension rates could not be maintained, there would be an estimated 5.6% increase in the prevalence of dementia. It is expected that a much larger cumulative reduction would be seen if more than one risk factor was reduced at the same time.

Demographic modelling suggests that if intervention programs are successful in delaying the onset of dementia and reducing the age-specific incidence rates by even as little as 5-10%, then it is likely to lead to significant reductions in the number of those with dementia along with associated health care costs.

There is often a long delay between identifying prevention findings in research and implementing the findings into the wider community through public health programs. For example, it was 48 years before the Papanicolaou test (or Pap smear test) developed in 1943⁵⁹ led to the establishment of the National Cervical Screening Program in 1991 in Australia. The social and economic consequences of the dementia epidemic are far-reaching and a delay in implementing preventative strategies could have disastrous consequences.^{2,60}

There is an urgent need for funding to be directed towards preventive dementia strategies. In 2005–06, less than 2% of Australian health expenditure was for preventive services or health promotion⁶¹, none of which was directed towards dementia.

A population health approach to dementia

A population health approach to dementia is aimed at prevention and health promotion that shape a community's overall health status profile. The World Health Organisation (WHO) reports that it 'is not necessary to wait decades to reap the benefits of prevention and control activities. Risk factor reduction can lead to surprisingly rapid health gains, at both population and individual levels. This can be observed through national trends, sub-national epidemiological data and clinical trials.'⁶²

The proportion of the Australian population with risk factors such as tobacco smoking, high alcohol consumption, poor nutrition, inadequate physical activity, hypertension and high cholesterol is substantial, with an estimated 97% of Australian adults having at least one modifiable risk factor and around 50% having two. Interventions that are aimed at identifying and modifying these risk factors have the potential to have a significant impact on preventing or delaying the onset of dementia and other chronic diseases.⁶³

A greater recognition of dementia prevalence, risk factors and potential interventions is emerging as an increasingly important facet of public health and health care delivery.⁶⁴

Towards a Healthy Australia 2020

There is emerging acknowledgment of the need to place prevention and early intervention clearly on the Australian Health agenda, as outlined by the National Preventative Health Taskforce (NPHT) and the National Health and Hospitals Reform Commission (NHHRC). The commitment shown by the government in its response to the reports of the NPHT and NHHRC, to refocus the health system towards the prevention of chronic illness and the establishment of a National Health Promotion and Prevention Agency, is a welcome approach in providing the national leadership required to reach the Healthy Australia 2020 goals^{65,66,67}.

The preventative and early intervention objectives that have been set by the above complement the strategies required to face the challenges for the next stage of the Dementia Initiative. The proposal to redesign the Australian health system to imbed prevention and early intervention 'into every aspect of our health system and our lives'⁶⁸ is supported by Alzheimer's Australia.

Australian preventative health strategies now need to address the looming dementia epidemic. With a rapidly ageing population and no short term cure for dementia, there is an urgent need for dementia prevention to be incorporated into the *National Preventative Health Strategy*.

The *National Preventative Health Strategy* targets address some of the modifiable risk factors that contribute to a number of chronic diseases including heart disease, diabetes, stroke, chronic kidney disease and dementia. Specifically, obesity addresses the effects of body weight, diet and physical activity; tobacco addresses the effects of cigarette smoking; and alcohol addresses the effects of high risk consumption of alcohol. Further targets are needed that specifically address blood pressure, blood cholesterol and blood sugar levels rather than reliance that these are addressed through the obesity targets.

There also needs to be an appreciation that dementia and impaired cognitive function are also impacted by intellectual and social stimulation. Actions for all these risk factors can be incorporated into the three planned phases of implementation of priority actions to ensure long-term sustained actions as set out in the *National Preventative Health Strategy* to achieve the desired targets by 2020.

The May 2010 response to the NPHT paper has begun to recognise that dementia must be placed on the preventative health agenda – highlighting that 'recent studies suggest that following a healthy lifestyle may also contribute to the prevention of dementia'. Whilst the example provided established smoking as a risk factor for dementia, greater recognition must be given to the solid evidence for other dementia risk factors.

As stated in the government's *Intergenerational Report 2010*, impending decisions made by the government will impact the wellbeing of future generations. Implementing a National Dementia Preventative Health Strategy may have positive outcomes on decreasing the projected health spending on older Australians. In order to move forward and address the looming dementia epidemic, a strong focus on early intervention and prevention needs to be implemented through fostering research and community awareness and intervention programs.

Incorporating dementia into national preventative health planning

There is a need to inform Australians about brain health and create awareness about the links between cardiovascular disease, cerebrovascular disease and cognitive impairment⁶⁹ – understanding that what is good for the heart is also good for the brain.

This would be an expansion on existing and proposed preventative health strategies to combat heart disease, stroke and diabetes. These include combating obesity, improving sedentary lifestyles, promoting healthy diet, managing blood glucose, blood pressure and blood cholesterol levels, smoking cessation and moderating alcohol consumption. In addition to those strategies, a National Dementia Preventative Health Strategy will also need to address mental stimulation and structured formal learning, as well as social engagement.

The following principles are proposed for a national dementia preventative health strategy (these are in accord with the National Chronic Disease Strategy):

- Adopt a population health approach to dementia
- Invest in research to investigate prevention, early intervention and treatment of dementia
- Implement dementia risk reduction strategies
- Build community's capacity to optimise self-management of risk factors
- Provide effective care
- Facilitate integrated multi-disciplinary care across services, settings and sectors
- Achieve significant and sustainable change
- Monitor progress

The National Dementia Preventative Health Strategy will need to set ambitious yet achievable targets in addition to those set out for obesity, smoking and alcohol. These may include:

- To manage high blood pressure at mid-life
- To manage high blood cholesterol at mid-life
- To encourage and facilitate life-long learning
- To encourage and facilitate community interaction and other social engagement among Australians

In a similar manner to the *National Preventative Health Strategy*, the National Dementia Preventative Health Strategy will need to be for all Australians. All sectors of the community including government, industry, non-government and business sectors, workplaces, individuals, families and societies will need to work together to support effective action to influence a reduction in dementia prevalence.

In particular, general practitioners and other primary health care providers are uniquely positioned to identify dementia and other chronic disease risk factors at an early stage and implement brief interventions through the encouragement of lifestyle change and appropriate medical interventions. With 85% of Australians visiting their general practitioners annually, there is opportunity to have substantial impact on dementia and

other chronic disease prevalence. A priority should be given to create greater awareness about dementia risk reduction among primary health care providers.

Based on the WHO model to combat chronic diseases a proposed National Dementia Preventative Health Strategy framework is provided (Table 2).

Table 2 A National Preventative Health Strategic Framework for Dementia

Policy implementation steps	Population-wide interventions [#] (community, state and national level) and interventions for Individuals ^{##}
1. Recognition of dementia as a chronic disease and affirming the need for preventative strategies	Interventions that are feasible to implement with existing resources in the short term. This would include adding dementia to existing programs to combat heart disease, diabetes and stroke, as well as the national roll out of Alzheimer's Australia's Mind your Mind program.
2. Formulate and adopt a comprehensive and integrated public health action plan	Interventions that are possible to implement with a realistically projected increase of resources in the medium term. This would incorporate further investment in dementia risk reduction programs and research, as well as establishment of a national community awareness program and associated intervention components
3. Identify policy implementation	Provide evidence-based interventions with significant resources to strive for primary, secondary and tertiary prevention of dementia.

- Seek to reduce the risks throughout the entire population

- Seek to focus on those who are at high risk

The first step recognises that dementia is a health issue, specifically it is a chronic disease, and not just an aged care service issue. To address the looming dementia epidemic, preventative strategies must be placed on the national agenda. In the short term, dementia may be added to existing programs that aim to combat heart disease, diabetes and stroke. The national roll out of Alzheimer's Australia's Mind your Mind program, a public health initiative to promote awareness of the potential of dementia risk reduction, would also be a suitable short term strategy. Further details on the roll out of Mind your Mind are provided in the *Mind your Mind* section of this paper.

The second step requires the formulation and adoption of comprehensive and integrated public health action plans. As there are clear linkages with dementia risk reduction and the risk reduction of other chronic diseases such as cardiovascular disease and diabetes, there is no need to "double up" on existing or planned preventative health programs for those chronic diseases. Rather, they simply need to be expanded to ensure overall health and wellbeing for the body as well as the brain. As part of the second step, the allocation of further resources, for the delivery of preventative programs and investment into dementia prevention, cause, and early intervention research, will need to be made.

As previously outlined in this paper, it is proposed that research investment should aim to be 1% of the cost of dementia, about \$50 million per annum.

The third step identifies the best means by which the policy can be applied and implemented in the longer term. A comprehensive approach, utilising a range of interventions and strategies, must be outlined and evaluated to ensure its sustainability. Significant resources must be applied to address primary, secondary and tertiary prevention of dementia. The integration of dementia risk with those for other chronic illnesses will facilitate an integrated multi-disciplinary care system across services, settings and sectors. The sharing of such resources will ensure a cost-effective national preventative health strategy. It may also provide for an increased incentive for individuals to not only look after their physical health but their brain health as well.








All steps must incorporate ongoing monitoring and evaluation to ensure the evidence based interventions and programs remain effective and relevant. This is critical in assisting with decision making, policy and program implementation.

Mind your Mind

The last decade has seen significant advances in understanding the brain, dementia, and the links with risk factors for other chronic illnesses. This has led to the development of Alzheimer's Australia's national dementia risk reduction program, Mind your Mind®.

Mind your Mind aims to create community awareness of the risk factors for dementia and promotes a 'brain healthy' lifestyle.

Seven healthy lifestyle factors, referred to as Mind your Mind signposts dementia risk reduction have been identified:

 Mind your Brain	<i>Keep your brain active</i>
 Mind your Diet	<i>Eat healthily</i>
 Mind your Body	<i>Be physically active</i>
 Mind your Health Checks	<i>Manage blood pressure, blood cholesterol, blood sugar and weight</i>
 Mind your Social Life	<i>Participate in social activities</i>
 Mind your Habits	<i>Avoid tobacco smoke and drink alcohol only in moderation</i>
 Mind your Head	<i>Protect your head from serious injury</i>

The Mind your Mind dementia risk reduction program was launched in 2005. The first phase of the program provided the evidentiary research basis for a dementia risk reduction program. The second phase developed a brand name, marketing program and collateral and commenced program rollout. The program is now positioned for its third phase, which is to roll out across Australia a high profile dementia risk reduction program and introduce Mind your Mind as a nationally recognised public health initiative.

Mind your Mind was initially funded by the ANZ Trustees JO and JR Wicking Trust. Since July 2009, seed funding has been made available through the National Dementia Support Program.

Mind your Mind has laid the foundation for a national effort to reduce the risk of dementia. This needs to be continued as core component of *the National Preventative Health Strategy*. Implementation of an initial three-year plan for the third phase of Mind your Mind is proposed, comprising of the following components:

1. Appointment of a Dementia Risk Reduction Program Manager;
2. Roll out national Mind your Mind community education risk reduction program;
3. National communications campaign for dementia risk reduction; and
4. Roll out health professional dementia preventative health e-learning.

It is proposed that the costs associated with implementing the third phase of Mind your Mind over a three-year period would be \$4.5 million (\$1.25 million in year one, \$1.50 million in year two, and \$1.75 million in year three), as illustrated in the table below.

The proposed funding over the three year period is considered to be a relatively small cost in comparison to the benefits it could reap.

Table 3 National roll out of Mind your Mind 3-year proposal

Resource Allocation	Description	Year 1 (\$000's)	Year 2 (\$000's)	Year 3 (\$000's)	TOTAL (\$000's)
Dementia Risk Reduction Manager	1.0 full time equivalent (FTE) plus overheads	100	105	110	315
National Mind your Mind community education training	4.0 FTE plus overheads	300	350	400	1,050
	Travel & accommodation	10	10	10	30
	Equipment/ teaching materials	30	30	30	90
Health professional e-learning program rollout	1.0 FTE plus overheads	90	95	100	285
	Travel	5	5	10	20
	Web development	20	20	20	60
	Teaching and promotion materials	40	40	40	120
Specific projects by States and Territories	Seminars, partnerships, special groups, CaLD, ATSI	150	200	185	535
Public relations campaign (Media promotion & other)	Radio and television community service advertisements and other	410	500	750	1660
Evaluation	Pre and post impact surveys and other analysis	50	100	50	200
Resource management	Administration, overheads, equipment and related program support costs	45	45	45	135
Total		1250	1500	1750	4500

Conclusion

Prevention currently offers one of the most promising means of reducing future dementia prevalence. Many of the lifestyle and health risk factors for dementia align with those of other major chronic conditions including heart disease, diabetes and stroke.

The evidence behind dementia risk reduction is growing and warrants integration into Australia's existing preventative health program. The principles and framework for a National Dementia Preventative Health Strategy have been provided to assist in a speedy implementation of such a strategy.

Failure to act now could see dementia projections realised, with major consequences for Australian society, our health and economy. The benefits of incorporating dementia prevention into our national preventative health strategy are likely to be far-reaching and support a number of diverse national health goals, including improvements in cardiovascular disease. In an ageing society, dementia prevention strategies need to be part of a national plan to keep us healthy, both in our youth and well into old age, in both mind and in body.

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