Clinical practice guidelines for dementia risk reduction: what products currently exist?

1. Introduction

This project aimed to identify and document any currently available guidelines for general practitioners and other health professionals for dementia risk reduction, as well as other diseases with related risk factors. Very few examples specific to dementia risk reduction were identified. This paper summarises those, as well as other available guidelines and products for health professionals in areas of disease prevention with some relevance to dementia risk reduction.

Clinical practice guidelines endorsed by health professional bodies are based on the available evidence that a particular medical intervention is effective in achieving the desired outcome. While there is evidence that several health and lifestyle factors are associated with dementia risk, with the exception of treatment of high blood pressure, there is little evidence that modification of these factors actually alters dementia risk. Therefore, guidelines providing definitive recommendations for medical intervention specifically to reduce dementia risk have not yet been produced.

There are, however, examples of guidelines for addressing some of the risk factors including physical activity, diet, smoking, hypertension and diabetes, among others. Education of health professionals and subsequent increased intervention among patients presenting with these risk factors is likely to reduce dementia risk in the community along with the risk of cardiovascular disease, cerebrovascular disease and cancer.

1.1 Prevention defined

*Primary prevention:* Prevention of diseases or disorders in the general population by encouraging community wide measures such as good nutritional status, physical fitness, immunisation, and making the environment safe. Primary prevention maintains good health and reduces the likelihood of disease occurring.

*Secondary prevention:* Detection of the early stages of disease before symptoms occur, and the prompt and effective intervention to prevent disease progression.

*Tertiary prevention:* Prevention or minimisation of complications or disability associated with established disease. Preventive measures are part of the treatment or management of the target disease or condition.
2. Relevant Products from Australia

2.1 Guidelines for Preventative Interventions in Primary Health Care – Cardiovascular Disease and Cancer

The National Health and Medical Research Council (NHMRC) published Guidelines for Preventative Interventions in Primary Health Care – Cardiovascular Disease and Cancer in 1997. (Available from http://www.nhmrc.gov.au/guidelines/health_guidelines.htm ) This document was rescinded in 2004. It provides recommendations for screening by GPs for various types of cardiovascular disease and cancer and associated risk factors. Because the guidelines are based on strict criteria for evidence of efficacy of screening measures, few routine screening strategies are actually recommended. The recommendations that are made are mostly for treatment of identified risk factors (e.g. high cholesterol) or symptoms of disease rather than for primary prevention.

2.2 Stroke Prevention – A Guide for General Practitioners


2.3 Dietary Guidelines for Older Australians

Dietary Guidelines for Older Australians was published by the NHMRC in 1999 and rescinded in 2005. (Available from http://www.nhmrc.gov.au/guidelines/health_guidelines.htm ) These guidelines were aimed at healthy adults aged 65 and over. The NHMRC also produced two related publications for other age groups, Dietary Guidelines for Australians and Dietary Guidelines for Children and Adolescents. There are 12 areas of recommendations for older Australians:

1. Enjoy a wide variety of nutritious foods
2. Keep active to maintain muscle strength and a healthy body weight
3. Eat at least 3 meals every day
4. Care for your food: prepare and store it correctly
5. Eat plenty of vegetables (including legumes) and fruit
6. Eat plenty of cereals, breads and pastas
7. Eat a diet low in saturated fat
8. Drink adequate amounts of water and/or other fluids
9. If you drink alcohol, limit your intake
10. Choose foods low in salt and use salt sparingly
11. Include foods high in calcium
12. Use added sugars in moderation

These guidelines are about diet and health in general and not about prevention of any particular disease. The link between low folate intake and increased risk of dementia is mentioned, but otherwise the only reference to dementia is as a factor that may affect diet, nutrition and fluid intake for affected older people.
2.4 General Guidelines for Medical Practitioners on Providing Information to Patients


- the type of information which should be given to patients;
- the particular need to give information about potential risks, as well as benefits, of a proposed medical intervention;
- the manner in which information should be given; and
- circumstances where withholding information may be justified.

2.5 Care of Patients with Dementia in General Practice: Guidelines

The Royal Australian College of General Practitioners (RACGP) in 2003 published *Care of Patients with Dementia in General Practice: Guidelines*. (Available from [http://www.racgp.org.au/guidelines](http://www.racgp.org.au/guidelines)) These guidelines provide information on patient presentation, assessment and management and supporting evidence for the recommendations. They recommend that GPs should be alert to cognitive impairment in older patients during routine appointments and provide information on early signs of dementia, but do not recommend screening for dementia as there is insufficient evidence to support this. Risk factors for dementia are briefly mentioned in the background and supporting evidence section, but are not included in the guidelines for patient care. These Australian guidelines are based on and reference a number of other guidelines from around the world, which are likewise about dementia care and do not include recommendations for risk reduction.

2.6 Putting Prevention into Practice: Guidelines for the implementation of prevention in the general practice setting


According to these guidelines, levels of prevention activities in general practice which are either below a desirable level and/or below national targets include:

- enquiries about alcohol consumption and smoking
- counselling about hazardous drinking, smoking, inactivity and diet
- immunisation in adults (especially pneumococcal vaccination and patients at risk)
- cancer screening (mammography, Pap tests, colorectal cancer screening)
- assessment of other cardiovascular risk factors (including blood pressure and lipids)
- achievement of desirable endpoints for a number of chronic diseases

The publication provides strategies for making prevention part of the service provided to patients by general practice. It includes information about the resources required by a practice, using a team approach to prevention, using a patient-centred approach, using motivational interviewing techniques, and making use of other health care providers and community supports. Apart from offering some examples, the guidelines do not address preventative strategies for specific diseases.
2.7 Guidelines for preventative activities in general practice


Under the heading, “Preventative activities in the elderly” there is a section on dementia and depression. This recommends that doctors look out for symptoms of dementia and depression in patients over 65; advises that those with a family history of AD, repeated history of head trauma or with Down syndrome are at increased risk; and that those presenting with anxiety, memory impairment or depression or with a past history of depression are at high risk. This publication also states that “Patients who complain of memory loss are more likely to have depression than dementia.”

Under the heading, “Prevention of chronic disease” there are guidelines for assessment and treatment strategies for smoking, overweight, nutrition, alcohol and physical activity, but not in relation to specific diseases.

Under the heading, “Prevention of vascular disease” there are guidelines for assessment and treatment strategies for blood pressure, cholesterol, type 2 diabetes, stroke and kidney disease.

The ‘red book’ guidelines are generally related to secondary prevention rather than primary.

2.8 Smoking, Nutrition, Alcohol and Physical Activity (SNAP): A population health guide to behavioural risk factors in general practice


The SNAP guide covers:

- why these risk factors are important and why general practice is the right place to influence SNAP risk factor behaviour in adults
- how to assess if a patient is ready to make lifestyle changes
- a five step model (5As: ask, assess, advise, assist, arrange) for detection, assessment and management of SNAP risk factors
- effective clinical strategies for SNAP risk factors (and overweight and obesity) using the 5As model
- practical business strategies to apply the SNAP approach to general practice (including samples of roles for practice staff)

For each of the risk factors (smoking, overweight, nutrition, alcohol and physical activity) the SNAP guidelines provide evidence-based recommendations for assessing and treating problems. They also provide information about other sources of assistance for patients.

2.9 Lifescripts Assessment Guidelines

page summarise strategies for the 5As in a flow chart and the second page summarises the evidence for benefits that can be achieved by lifestyle change and GP intervention. The components are:

- Helping patients quit smoking
- Helping patients eat well for health
- Helping patients reduce alcohol-related harm
- Helping patients become more active
- Helping patients achieve and maintain a healthy weight

2.10 The NSW Prevention in Practice Project

The Heart Foundation’s Prevention in Practice project commenced in 2007 and is “an integrated approach to implementing lifestyle risk factor interventions within General Practice”. (See [http://www.heartfoundation.org.au/Professional_Information/General_Practice/Pages/GPProjectsinNSW.aspx](http://www.heartfoundation.org.au/Professional_Information/General_Practice/Pages/GPProjectsinNSW.aspx))

This project aims to:

- increase the awareness of the benefits of addressing the lifestyle risk factors of smoking, poor nutrition, excessive alcohol consumption, physical inactivity and unhealthy bodyweight (SNAP) and,
- support effective interventions within General Practice

Key elements of the program include:

- Capacity grants for selected NSW Divisions of General Practice
- Support and training for Divisions of General Practice to assist General Practice to implement lifestyle interventions
- Education and training opportunities for GPs and Practice Nurses
- Synthesis and distribution of key evidence based resources and material for General Practice teams and patients
- Development of supportive information tools for General Practice

A key strategy for the Prevention in Practice project is the development of online learning modules for GPs, practice nurses and other health professionals using the RACGP’s gplearning portal. The Implementing Lifestyle Change (ILC) modules aim to equip GPs and practice nurses with behavioural change strategies which enable them to assist patients to more effectively manage and control the unhealthy behaviours associated with the SNAP risk factors. (See [http://www.gplearning.com.au/other_education/heartfoundation/index.html](http://www.gplearning.com.au/other_education/heartfoundation/index.html))

The modules are being progressively posted on the gplearning portal, with the smoking cessation module and the physical activity module available now. The full series of online modules addressing all risk factor areas will be available in mid 2008.

In addition to the online learning modules, a Facilitators Guide and PowerPoint presentation slides are being developed for each of the modules for circumstances where group based learning is preferred, giving training providers the ability to run workshops on the ILC series. The Smoking Cessation facilitators guide and slide presentation are available now, with others to follow.
2.11 Other Heart Foundation Publications


The Heart Foundation also has guidelines for management of blood pressure (See [http://www.heartfoundation.org.au/Professional_Information/Clinical_Practice/Hypertension/Pages/default.aspx](http://www.heartfoundation.org.au/Professional_Information/Clinical_Practice/Hypertension/Pages/default.aspx)) and cholesterol (See [http://www.heartfoundation.org.au/Professional_Information/Clinical_Practice/Lipid_Management/Pages/default.aspx](http://www.heartfoundation.org.au/Professional_Information/Clinical_Practice/Lipid_Management/Pages/default.aspx)), but these are treatment rather than prevention guidelines. They also provide information for health professionals on nutrition, weight, physical activity and smoking.


2.12 Stroke Foundation Publications

The National Stroke Foundation have produced clinical guidelines for stroke management, care and rehabilitation, but not for risk reduction. They provide consumer information on the risk factors of blood pressure, cholesterol, diet, exercise, smoking and alcohol. (See [http://www.strokefoundation.com.au/](http://www.strokefoundation.com.au/))

2.13 Diabetes Australia Publications

Diabetes Australia has a series of *National Evidence Based Guidelines for the Management of Type 2 Diabetes Mellitus*. Part 2 of this series is titled *Primary Prevention* and outlines recommendations in the areas of physical activity, obesity and diet for which there is evidence that interventions can reduce the risk of type 2 diabetes. (See [http://www.diabetesaustralia.com.au/](http://www.diabetesaustralia.com.au/))

3. Relevant Products from the UK

3.1 Dementia: The NICE-SCIE guideline on supporting people with dementia and their carers in health and social care

The National Collaborating Centre for Mental Health were commissioned by the Social Care Institute for Excellence and the National Institute for Health and Clinical Excellence to produce *Dementia: The NICE-SCIE guideline on supporting people with dementia and their carers in health and social care* (National Clinical Practice Guideline Number 42), published
in 2007. (Available from http://www.nice.org.uk/guidance/CG42) Chapter 6 of this guideline is titled *Prevention, early identification, assessment and diagnosis of dementia*. It begins by stating:

“Prevention of dementia syndromes would have a huge impact on large numbers of individuals and on society as a whole. Primary prevention, to avert early pathological changes, or secondary prevention, to delay pathological processes, are strategies that seem worthwhile pursuing. To do this, we must understand the factors that increase the risk of developing dementia and those that appear to be protective.” (p. 134)

**Prevention**

The section on prevention states that prevention of dementia must remain an ultimate goal and requires consideration of “knowledge about risk factors for dementia and its subtypes, the extent to which such risk factors are modifiable, and evidence that modification of these risk factors does indeed result in subsequent reduction in the incidence of dementia” (p. 134).

**Current practice**

The guideline states that currently “there is no systematic public-health strategy for the prevention of dementia in the UK” (p.135).

**Risk factors**

The guideline reviews the literature on non-modifiable and potentially modifiable risk factors for dementia. The only risk factor for which evidence was identified that modification of that factor is likely to reduce dementia incidence is hypertension.

Hypertension is an established risk factor for dementia and treatment with antihypertensives has been shown to reduce dementia incidence in some randomised controlled trials. The guideline concludes that:

“This suggests that antihypertensive treatment may be a promising avenue for prevention of dementia, including AD and VaD, but that further studies are required. It will also be important for future studies to distinguish between potential specific pharmacological effects of the agent under consideration (for example, an action on calcium channels) and the effects of lowering blood pressure itself. It should also be remembered that there are already many evidence-based reasons for treating hypertension apart from reducing dementia risk, including reducing cardiovascular and cerebrovascular events.” (p. 137)

The guideline’s summary of the risk factor evidence is:

“Established non-modifiable risk factors for dementia in general and AD in particular include advancing age, genotype, female gender and having a learning disability. Established risk factors that are potentially modifiable include hypertension, excessive alcohol consumption, diabetes, depression and head injury. Other potentially modifiable risk factors may include obesity, raised homocysteine levels and raised cholesterol levels. Risk factors for VaD overlap with AD and include age, vascular risk factors (stroke, hypertension, diabetes and smoking) and apoE4 genotype.

Protective factors for dementia may include prior long-term use of NSAIDs, control of vascular risk factors, regular exercise and engagement in leisure and cognitively stimulating activities. However, thus far prospective randomised controlled trials have not clearly
demonstrated that modification of risk factors leads to a reduction in dementia rates. Four RCTs of antihypertensive therapy showed a non-significant trend towards reduced dementia rates in treated subjects, two RCTs of statins found no effect and one study of HRT unexpectedly found increased dementia rates in treated people.” (p. 142-143)

Health economics evidence
The guideline states that “no evidence was identified by the systematic literature search on the cost effectiveness of interventions that can prevent or delay the onset of dementia” (p. 143).

3.2 Good for you – good for your brain

Alzheimer Scotland’s dementia risk reduction community education program is called good for you, good for your brain. They provide a booklet Good for you – good for your brain: the evidence on risk reduction and dementia, as well as a leaflet Dementia – how to reduce your risk. The program concentrates on the benefits of healthy eating, physical activity, mental activity and social activity, but also recommends having regular health checks for vascular risks, maintaining a healthy weight, not smoking and drinking alcohol moderately. The information provided is aimed at the general public rather than health professionals. (See http://www.goodforyourbrain.org/index.html)

3.3 Be head strong

The Alzheimer’s Society of the UK’s dementia risk reduction community education program is called Be head strong. They provide a booklet called Be head strong: A guide to help you reduce your risk of developing dementia. Their program concentrates on the same four factors as Alzheimer Scotland’s, i.e. healthy eating, physical activity, mental activity and social activity. It also recommends not smoking, drinking in moderation and regularly checking blood pressure and cholesterol. The information provided is aimed at the general public rather than health professionals. (See http://www.alzheimers.org.uk/site/scripts/documents.php?categoryID=200172)

4. Relevant Products from the USA

4.1 Genes, lifestyles and crossword puzzles: Can Alzheimer’s disease be prevented?

The National Institutes of Health published Genes, lifestyles and crossword puzzles: Can Alzheimer’s disease be prevented? in 2006. (Available from http://www.nia.nih.gov/Alzheimers/Publications/ADPrevented) This document summarises current knowledge and research evidence for risk factors and potential preventative strategies. It recommends that people control blood pressure, diabetes, cholesterol and homocysteine levels, exercise regularly and engage in social and intellectually stimulating activities to reduce the effects of dementia risk factors. The information provided is aimed at the general public rather than health professionals.

4.2 The Healthy Brain Initiative: A National Public Health Road Map to Maintaining Cognitive Health

The Centers for Disease Control and Prevention and the Alzheimer’s Association published in 2007 The Healthy Brain Initiative: A National Public Health Road Map to Maintaining
**Cognitive Health.** (Available from [http://www.cdc.gov/aging/healthybrain/roadmap.htm](http://www.cdc.gov/aging/healthybrain/roadmap.htm))

The road map proposes a set of 44 actions that are based on scientific rationale, emphasise primary prevention and assume a population approach. Within the full set of actions are 10 priorities noted to be worthy of immediate attention:

- Determine how diverse audiences think about cognitive health and its associations with lifestyle factors.
- Disseminate the latest science to increase public understanding of cognitive health and to dispel common misconceptions.
- Help people understand the connection between risk and protective factors and cognitive health.
- Conduct systematic literature reviews on proposed risk factors (vascular risk and physical inactivity) and related interventions for relationships with cognitive health, harms, gaps and effectiveness.
- Conduct controlled clinical trials to determine the effect of reducing vascular risk factors on lowering the risk of cognitive decline and improving cognitive function.
- Conduct controlled clinical trials to determine the effect of physical activity on reducing the risk of cognitive decline and improving cognitive function.
- Conduct research on other areas potentially affecting cognitive health such as nutrition, mental activity, and social engagement.
- Develop a population-based surveillance system with longitudinal follow-up that is dedicated to measuring the public health burden of cognitive impairment in the United States.
- Initiate policy changes at the federal, state, and local levels to promote cognitive health by engaging public officials.
- Include cognitive health in *Healthy People 2020*, a set of health objectives for the nation that will serve as the foundation for state and community public health plans.

The roadmap and the further work it recommends focuses on vascular risk factors and physical activity because of the weight of research evidence showing their links with cognitive health and their potential for inclusion in intervention strategies.

### 4.3 Maintain your Brain

The US Alzheimer’s Association’s dementia risk reduction community education program is called *Maintain your Brain* and recommends that people stay mentally, socially and physically active, adopt a brain healthy diet, and be heart smart to reduce their risk of dementia. (See [http://www.alz.org/we_can_help_brain_health_maintain_your_brain.asp](http://www.alz.org/we_can_help_brain_health_maintain_your_brain.asp)) The information provided is aimed at the general public rather than health professionals. The Alzheimer’s Association runs maintain your brain community workshops.

### 4.4 Healthy People 2010

*Healthy People 2010* is a US health promotion and disease prevention agenda, “designed to serve as a roadmap for improving the health of all people in the United States during the first decade of the 21st century.” It provides specific objectives to be achieved by 2010 in each of 28 focus areas. Dementia is not one of these, but some focus areas have relevance to dementia risk reduction including educational and community-based programs, heart disease and stroke, mental health and mental disorders, nutrition and overweight, physical activity and fitness, and tobacco use. (See [http://www.healthypeople.gov/](http://www.healthypeople.gov/))
4.5 Moving into Action: Promoting Heart-Healthy and Stroke-Free Communities

In 2005, the Centers for Disease Control and Prevention produced a series of five publications under the banner *Moving into Action: Promoting Heart-Healthy and Stroke-Free Communities*. (Available from [http://www.cdc.gov/DHDSP/library/moving_into_action/](http://www.cdc.gov/DHDSP/library/moving_into_action/)) These provide information for leaders in government, health care and workplaces to encourage them to promote prevention of heart disease and stroke and put in place policies to achieve reduced risk among their communities.

Each publication lists examples of strategies that the particular sector (employers, health care leaders, etc.) could adopt to demonstrate leadership, implement policies and incentives, and promote use of preventative health services. The publications also provide relevant examples of previous or current programs and projects that demonstrate success in changing people’s behaviour and/or health outcomes. They also briefly summarise the scientific evidence on risk factors.

4.6 Community Intervention

The US Alzheimer’s Association and Centers for Disease Control and Prevention recently launched a 5-year community-based demonstration project to promote a brain healthy lifestyle. The community intervention is designed to affect knowledge and attitudes among African American baby boomers related to physical activity and vascular risk factors, and it will be overlaid with other general health behaviours such as diet, social activity, and mental activity. During the first phase of this project, the Alzheimer’s Association is leading a comprehensive intervention planning and development effort, including formative research to assess current needs and obstacles for the target population, eliciting community input and participation, and creating a comprehensive, multilevel community intervention with robust evaluation mechanisms to measure the effectiveness of the public health program in its next phase.

5. Relevant Products from Canada

5.1 Heads Up for Healthier Brains

The Canadian Alzheimer Society provides information on brain health and reducing the risk of dementia. (See [http://www.alzheimer.ca/english/brain/brain_intro.htm](http://www.alzheimer.ca/english/brain/brain_intro.htm)) The messages include challenging the brain, being socially active, eating healthily, being physically active, reducing stress, avoiding smoking and excessive alcohol, managing vascular risk factors and protecting against head injury. References for relevant published research are also provided.

5.2 Risk assessment and primary prevention of Alzheimer’s disease

The Third Canadian Consensus Conference on the Diagnosis and Treatment of Dementia was held in March 2006 and resulted in recommendations and a series of publications, including a paper by Christopher Patterson and colleagues on prevention strategies. (Patterson C, et al. Diagnosis and treatment of dementia: 1. Risk assessment and primary prevention of Alzheimer disease. CMAJ, 2008, 178: 548-556.) The paper reviews the literature on potentially modifiable risk factors for dementia and grades the evidence. It concludes that for primary prevention of Alzheimer’s, there is good evidence for controlling hypertension, but
weak or insufficient evidence for modifying lifestyle factors and for medications. The authors
state that treatment of hypertension offers the best chance of reducing the risk or delaying the
onset of dementia, while it is likely that physical exercise, mental activity, moderate alcohol
intake, avoiding smoking and avoiding head injury may also reduce the risk of dementia.

6. Conclusions

There are few examples of clinical guidelines/recommendations for prevention of dementia.
The NICE (UK) guidelines for dementia have a section on prevention which concludes that
the only risk factor for which evidence exists that modification can reduce dementia risk is
hypertension. The same conclusion is reached by the publication arising from the 2006
Canadian Consensus Conference on Dementia (Patterson et al).

Current Australian clinical guidelines for prevention of cardiovascular disease address
screening for early signs and risk factors and medical treatment of those, i.e. secondary
prevention rather than primary prevention. Guidelines and resources for Australian GPs do
exist for the chronic disease risk factors of smoking, physical activity, nutrition, obesity and
alcohol (Lifescripts). These cover many of the risk factors for dementia, but do not mention
dementia risk reduction as a target of interventions.

Dementia risk reduction information for Australian health professionals is needed to fill this
gap in resources.