Frontline Action on Heart Attack and Stroke

Five cost-effective proposals to save lives, ease pressure on health budgets and reduce avoidable hospital admissions

Submission on the 2014-15 Federal Budget from the Heart Foundation and the National Stroke Foundation
Executive Summary

Despite significant advances over the past few decades, heart, stroke and vascular disease – collectively known as cardiovascular disease – remains the leading killer of Australians. It’s also the most expensive disease group in terms of direct healthcare costs.

Cardiovascular disease, principally heart attack and stroke:

- causes around one-third of all deaths (31%)\(^1\)
- is a leading cause of the total burden of disease (18%)\(^2\)
- imposes a major cost to the healthcare system, comprising 11% of direct healthcare expenditure\(^3\)
- is a major cause of avoidable hospital admissions.

But five highly cost-effective actions can reduce death and suffering from heart attack and stroke, cut avoidable hospital admissions and ease pressure on health budgets.

1. **Invest in targeted, cost-effect prevention measures**
   - Nutrition (working with industry and health groups to drive food reformulation, for example, reducing salt content of processed food)
   - Tobacco control (maintain commitment to tax increases and current investment in education campaigns)
   - Physical activity (encourage walking and cycling safely to schools, participation in sport and recreation, active travel, and support local government to improve infrastructure, eg rail trails in regional areas)

2. **Support early detection** of people at high risk of having a heart attack or stroke, or developing kidney disease and diabetes, through implementation of absolute risk assessment in primary health care.

3. **Improve access to rehabilitation.** Ensure heart attack, heart failure and stroke patients get access to life-saving rehabilitation programs and ongoing care, reducing the chances of further heart attacks and strokes.

4. **Raise awareness** of heart attack and stroke symptoms to increase rapid access to life-saving emergency treatment.

5. **Improve quality of care**
   - Strengthen the hospital system’s ability to deliver fast, high quality care for people who have heart attacks and strokes. High quality care improves outcomes for patients and reduces costs for governments.
   - Strengthen the role of the Australian Commission for Quality and Safety in Health Care and its roll out of landmark clinical standards for heart attack and stroke and support the national cardiac devices register.
### Recommendations

#### Action 1: Stop disease before it starts

Invest in targeted cost effective prevention measures including:

- **Nutrition** – working with industry and health groups to drive food reformulation
- **Tobacco control** – maintain existing commitments to tax increases and funding for education campaigns
- **Physical activity** – encourage walking and cycling safely to schools, participation in sport and recreation, active travel, and support local government to improve infrastructure, eg rail trails in regional areas

<table>
<thead>
<tr>
<th>Investment</th>
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<tbody>
<tr>
<td>$2m a year</td>
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<tr>
<td>No cost</td>
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<td>$10m a year (scalable)</td>
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#### Action 2: Early detection of cardiovascular disease

Identify people at risk of heart attack and stroke:

- Adopt target and indicators
- Pilot program to assess the potential of integrated health checks in general practice

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<thead>
<tr>
<th>Investment</th>
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<tbody>
<tr>
<td>No cost</td>
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<td>$4m a year</td>
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#### Action 3: Faster medical treatment for heart attack and stroke

Raise awareness of heart and stroke symptoms to increase rapid access to life-saving treatment and reduce death, disease and disability:

- Invest in the Heart Foundation’s Warning Signs campaign
- Continued support for the Stroke Foundation’s FAST campaign

<table>
<thead>
<tr>
<th>Investment</th>
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<tbody>
<tr>
<td>Heart Foundation’s Warning Signs campaign: $4m a year</td>
</tr>
<tr>
<td>Stroke Foundation’s FAST campaign: $2m a year</td>
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#### Action 4: Targeted quality improvement to deliver world-best heart and stroke care

Strengthen the role of the Australian Commission for Quality and Safety in Healthcare and its roll out of landmark clinical standards for heart attack and stroke

<table>
<thead>
<tr>
<th>Investment</th>
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<tr>
<td>Low cost</td>
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<tr>
<td>Stroke quality improvement program: $3.4m a year</td>
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#### Action 5: Improve access to life-saving cardiac rehabilitation, heart failure programs and recovery support for stroke survivors

Develop bilateral agreements with states and territories to boost access to cardiac rehabilitation and heart failure programs.

Support stroke survivors by guaranteeing coordinated needs assessment and service referral support following discharge home from hospital.

<table>
<thead>
<tr>
<th>Investment</th>
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<tr>
<td>$10m a year</td>
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<td>$3.5m a year</td>
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The Challenge

Why heart attack and stroke must be high priorities

- Cardiovascular disease (CVD) is the leading killer of Australians
- There were 45,622 CVD deaths (31% of all deaths) in 2011
- CVD is the most costly disease group: 11% of direct healthcare costs a year
- CVD accounts for a large number of avoidable hospital admissions
- Direct health costs of heart attacks is estimated at $1.4bn a year and the health cost of stroke estimated at $900m a year
- There are an estimated 3.4m Australians living with CVD
- 1.4m Australians have a disability associated with CVD
- CVD death rate in rural/remote areas is 1.4 times higher than in major cities
- Many Australians have risk factors for CVD and are unaware of it
- 6.5m Australians have high blood cholesterol, but 90% of them don’t know
- Addressing lifestyle factors can reduce mortality risk by 66%

Cardiovascular disease (CVD) is the leading killer of Australians, a major cause of premature death and the most costly disease group in terms of direct healthcare costs. It is also highly preventable.

CVD became a national health priority area in 1996 and a national service improvement framework for CVD was endorsed by Australia’s health ministers in 2005.

Despite this, Australia still has no funded, national action plan for CVD.

Action is needed to save lives, reduce suffering, cut avoidable hospital admissions and ease pressure on hard-pressed health budgets.

The growing cost of heart attack and stroke

Although death rates for cardiovascular disease have declined in recent years, far too many people die from the condition prematurely. Premature deaths account for 83% of the burden of heart disease and 71% of the stroke burden.

As well as the high burden from premature death, the prevalence of cardiovascular disease is rising. This is because the population is growing and ageing, and some risk factors, such as physical inactivity, poor nutrition and overweight and obesity, become more common or fail to improve.

Already, some 3.4m Australians are living with some form of cardiovascular disease. And Access Economics has projected that prevalence of cardiovascular disease will grow from 16.4% of the population in 2001 to 24.2% in 2051.

This disease burden will have significant social and economic cost.
Mortality rates for selecte
d causes of death by sex, 2009

<table>
<thead>
<tr>
<th>Cause of death</th>
<th>Males</th>
<th>Females</th>
</tr>
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<tbody>
<tr>
<td>Coronary heart disease</td>
<td>98.9</td>
<td>52.3</td>
</tr>
<tr>
<td>Stroke</td>
<td>36.0</td>
<td>33.9</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>39.9</td>
<td>19.5</td>
</tr>
<tr>
<td>Chronic lower respiratory diseases</td>
<td>4.6</td>
<td>3.4</td>
</tr>
<tr>
<td>Diabetes</td>
<td>15.1</td>
<td>10.4</td>
</tr>
<tr>
<td>Colon and rectum cancer</td>
<td>18.1</td>
<td>11.2</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>24.3</td>
<td>..</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>..</td>
<td>18.5</td>
</tr>
<tr>
<td>Suicide</td>
<td>11.9</td>
<td>3.3</td>
</tr>
<tr>
<td>All causes</td>
<td>568.8</td>
<td>368.3</td>
</tr>
</tbody>
</table>

Adapted from: Australian Institute of Health and Welfare, Australia’s Health 2012

There is also growing concern that prevalence and costs of CVD will increase above expectations because of the rise in some risk factors. While smoking rates are falling, overweight and obesity is rising and more people are leading sedentary lifestyles.

- One-in-four adults are obese (28.1%) and nearly two-in-three (63%) are overweight or obese (2010-11). That is a 15% jump since 2007-08.
- One in every three (32.8%) of Australian adults have high cholesterol with 90% of them unaware of their condition.
- More than one in five (21.5%) of adults have high blood pressure and 71.9% are unaware of it.
- Two in three (66.9%) Australians aged 15 and over are sedentary or have low levels of exercise.

Governments should be deeply concerned about these trends.

CVD is not only a major cause of premature death and disease, but treatment is also costly. It is the most expensive disease group in terms of direct healthcare expenditure, accounting for 11% of total costs to the healthcare system, or $7.9bn a year.

Despite knowing what works, there are big gaps in our current approach. These gaps cause needless heart attacks and strokes, needless pain and suffering, and needless costs to the healthcare system.

Fortunately, there are significant, low-cost opportunities to improve prevention, treatment and secondary prevention of cardiovascular disease to keep people well and to ease the pressure on hard-pressed health budgets.
Cost saving programs

Research tells us that investing in initiatives to prevent and manage CVD can be highly cost-effective and even cost-saving.

A recent study published in the respected *British Medical Journal* reached this conclusion, arguing:\textsuperscript{20}

“Any intervention that achieved even a modest population-wide reduction in any major cardiovascular risk factor would produce a net cost saving to the UK’s National Health Service, as well as improving health.”

The study found that a program across the entire population of England and Wales (about 50m people) that reduced heart attacks and strokes by just 1% would prevent around 25,000 cases of cardiovascular disease. This would save the UK’s health service at least A$45m a year compared with no additional intervention.

It also found:

- Reducing average cholesterol concentrations or blood pressure levels in the population by 5% (as already achieved by similar interventions in some other countries) would result in annual savings worth at least A$140m to A$170m.

- Legislation or other measures to reduce dietary salt intake by 3 g/day (current mean intake approximately 8.5 g/day) would prevent approximately 30,000 cardiovascular events, with savings worth at least A$70m a year.

Cardiac rehabilitation can save millions

A UK National Health Service report released in 2013 found that getting more eligible patients into cardiac rehabilitation programs could result in substantial benefits.\textsuperscript{21} The report argued that “achieving an uptake rate for cardiac rehabilitation of 65% in England among all eligible patients could release over £30 million per year in savings”. The same would be true for Australia where uptake rates of this highly cost-effective intervention are disturbingly low.

Opportunities in Australia

In Australia, the *ACE Prevention* study, released in 2010, examined a broad range of health interventions to find out which were most cost-effective.\textsuperscript{22} The study was funded by the National Health and Medical Research Council and has been described as “the most comprehensive evaluation of health prevention measures ever conducted world-wide.”
The ACE study assessed 123 interventions to prevent ill-health “to identify those which will prevent the most illness and premature deaths and those that are value for money”.\(^{23}\)

The study made it clear that governments and decision-makers should give greater attention to evidence-based approaches to fund health interventions. This is because health resources are scarce and costs are rising: together, health and residential aged care expenditure is predicted to grow by 189% increasing from $85bn to $246bn in the period from 2003 to 2033. This would increase health expenditure as a proportion of GDP from 9.3% to 12.4%.\(^{24}\)

The ACE study found that a “large impact” on population health could be achieved in Australia by a limited number of cost-effective interventions. These included measures to prevent CVD, such as:

- Improving the efficiency of blood pressure and cholesterol lowering drugs using an absolute risk approach.
- Taking action to reduce the amount of salt we eat, with limits on salt in basic food categories.
- Taxing tobacco, alcohol and unhealthy foods.
- Early detection of people at high risk of chronic diseases, including heart disease and stroke. The report found that current practice to manage blood pressure and cholesterol was inefficient.

The ACE study also noted the value of cardiac rehabilitation following heart attack, describing cardiac rehabilitation programs as “very cost-effective”.

It also added that “large immediate cost savings” could be made if general practice used absolute risk assessment to screen patients at risk of heart attack and stroke (and other chronic conditions like type 2 diabetes and kidney disease) and routinely prescribed generic drugs when they were available.

**CVD the key to achieving chronic (non-communicable) disease targets**

Australia has joined all other members of the World Health Organisation to endorse a robust set of nine goals and 25 indicators to achieve a 25% reduction in mortality rates from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases by 2025.\(^{25}\)

This follows agreement at the United Nation’s High Level Meeting on Non-Communicable Diseases (NCDs) in September 2011, only the second time that the
UN has convened a summit on a major health issue (the other was HIV/AIDS in 2001).

Proposals in this submission will help Australia achieve key NCD targets, including:

- 10% relative reduction in prevalence of insufficient physical activity
- 30% relative reduction in mean population intake of salt with aim of achieving recommended level of less than 5 grams per day
- 30% reduction in prevalence of current tobacco smoking
- 25% relative reduction in the prevalence of raised blood pressure
- At least 50% of eligible people receive drug therapy and counselling to prevent heart attacks and strokes
- Halt the rise in obesity.

The World Health Organisation says that NCDs are the leading cause of death in the world. The four main non-communicable diseases - cardiovascular disease, cancer, chronic lung diseases and diabetes - kill three in five people worldwide.

Australia should update the ageing National Chronic Disease Strategy so it is a meaningful, action-oriented document to better reflect the global chronic disease strategy and targets adopted by the World Health Assembly in 2013.

**Premature deaths from NCDs can be prevented by changed policies and active engagement not only in health but also in other sectors. Effective action will save millions of lives and avoid suffering.**

*World Health Organisation, Global Monitoring Framework, 2013*
Recommended action

To improve health outcomes, reduce avoidable hospital admissions and relieve pressure on health budgets, Australia needs to:

1. **Invest in targeted, cost-effect prevention measures**
   - Nutrition (working with industry and health groups to drive food reformulation, for example, reducing salt content of processed food)
   - Tobacco control (maintain commitment to tax increases and current investment in education campaigns)
   - Physical activity (encourage walking and cycling safely to schools, participation in sport and recreation, active travel, and support local government to improve infrastructure, e.g., rail trails in regional areas)

2. **Support early detection** of people at high risk of having a heart attack or stroke, or developing kidney disease and diabetes, through implementation of absolute risk assessment in primary health care.

3. **Improve access to rehabilitation.** Ensure heart attack, heart failure and stroke patients get access to life-saving rehabilitation programs and ongoing care, reducing the chances of further heart attacks and strokes.

4. **Raise awareness** of heart attack and stroke symptoms to increase rapid access to life-saving emergency treatment.

5. **Improve quality of care**
   - Strengthen the hospital system’s ability to deliver fast, high quality care for people who have heart attacks and strokes. High quality care improves outcomes for patients and reduces costs for governments.
   - Strengthen the role of the Australian Commission for Quality and Safety in Health Care and its roll out of landmark clinical standards for heart attack and stroke and support the national cardiac devices register.
Reducing avoidable hospital admissions

Key points
- Cardiovascular disease is responsible for a significant number of avoidable hospital admissions.
- Avoidable admissions for cardiovascular disease are likely to be underestimated.
- Evidence shows these add significant costs to the health system.

The cost of avoidable hospital admissions

Cardiovascular disease – including heart attack, stroke, heart failure, angina, vascular disease and hypertension – is a major cause, perhaps the leading cause, of potentially preventable hospitalisations.

The Atlas of Avoidable Hospitalisations in Australia (2007)\textsuperscript{26} examined admissions to hospital in 2001-02 resulting from ambulatory care-sensitive conditions. These are conditions where hospitalisation is considered avoidable if there was better public health and early disease management programs in place.\textsuperscript{27} The study included angina, hypertension and heart failure but excluded heart attack and stroke, even though these are largely avoidable if those at high risk are detected early enough through absolute cardiovascular risk assessment in primary health care.

Even without the inclusion of heart attacks and strokes, the Atlas study found nearly 100,000 hospital admissions for angina, hypertension and heart failure were potentially avoidable. This is the equivalent of 18% of all avoidable hospitalisations.

The table below shows the breakdown of avoidable hospital admissions for chronic conditions. Almost two-thirds of hospital admissions for ambulatory care-sensitive conditions are attributable to chronic conditions, just over one-third to acute conditions, and a small proportion (3.0%) to vaccine-preventable conditions.

<table>
<thead>
<tr>
<th>Admissions for chronic conditions 2001-02 as % of all avoidable hospitalisations</th>
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<tbody>
<tr>
<td>CVD and respiratory conditions</td>
</tr>
<tr>
<td>‘Complications’ of diabetes</td>
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<tr>
<td>Chronic obstructive pulmonary disease</td>
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<tr>
<td>Angina</td>
</tr>
<tr>
<td>Congestive heart failure</td>
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<tr>
<td>Asthma</td>
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If heart attack and stroke were included in the definition of ambulatory care-sensitive conditions the results would show that CVD would undoubtedly be the single largest cause of avoidable hospital admissions.

**Evidence from New Zealand, the US and the UK**

The extent that cardiovascular conditions contribute to avoidable hospital admissions was illustrated by a 2006 study at New Zealand’s Christchurch Hospital. It found that CVD was “by far” the largest category of potentially avoidable hospitalisations, comprising 47% – or nearly half – of avoidable admissions in the study period (2003).  

This is confirmed by a UK study published in 2014 in the *British Medical Journal* that found that chest pain and angina comprised 28% of emergency admissions for conditions identified as “rich in potentially avoidable admissions”.

Heart failure – a common cause of hospitalisation in the elderly - also has a high number of avoidable admissions and is also associated with a very high number of readmissions. One recent US study found that readmission rates for congestive heart failure ranged from 11% to 32%.

An older US study found that re-hospitalisation in elderly patients (70 years and over) with heart failure may be preventable in up to 50% of cases. Factors contributing to preventable readmissions included noncompliance with medications (15%) or diet (18%), inadequate discharge planning (15%) or follow-up (20%), failed social support system (21%), and failure to seek medical attention promptly when symptoms recurred (20%).

Another US study found that, among Medicare fee-for-service beneficiaries hospitalised for heart failure, heart attack, or pneumonia, 30-day readmissions “were frequent” throughout the month after hospitalisation and resulted from a similar spectrum of readmission diagnoses regardless of age, sex, race, or time after discharge.

In summary, cardiovascular disease is a major cause of avoidable hospital admission and readmissions. Much more can be done to improve primary and secondary prevention of cardiovascular disease as well as improve detection of, and early intervention for, those at high risk of heart attacks, strokes and vascular disease.
Action 1: Stop disease before it starts

Key points

- Many highly costly conditions like heart disease and stroke can be avoided through simple and cost effective measures to prevent the onset of disease.
- Improved nutrition can be achieved by strengthening the food reformulation work pioneered under the Howard Government in partnership with health groups and the food industry.
- Australia must keep investing in tobacco control to maintain progress in reducing the number of people who smoke.
- More must be done to address alarmingly low rates of physical activity.

“The first consideration of a minister should be the health of the people.”

Benjamin Disraeli
British Conservative politician and Prime Minister
Manchester address, 1872

An ounce of prevention is worth a pound of cure

The Heart Foundation and the National Stroke Foundation have warmly welcomed the Coalition’s commitment to tackle chronic diseases and prepare the health system for the demographic changes ahead. In particular, we applaud the commitment the Coalition has given to the Heart Foundation, set out in a letter from the Liberal Party in September 2013, stating, among other things, that the Coalition:

- understands the importance of having effective prevention strategies to combat the rates of cardiovascular and other lifestyle related disease.
- will continue to work with health professionals to develop effective strategies to combat the rise of lifestyle-related disease.
- is committed to reducing smoking rates in Australia.

The letter confirms the Coalition’s intention to meet the previous government’s pledge to a 12.5% annual tobacco tax increase over four years as well as the Liberal Party’s commitment to refuse to accept donations from tobacco companies.

The Heart Foundation and National Stroke Foundation look forward to working with the Australian Government cut premature death and suffering caused by cardiovascular disease. Prevention is a critically important part of this challenge as investment in well-targeted, evidence-based prevention will reduce death and disease while easing pressure on health budgets. A range of cost-effective initiatives that should be embraced or strengthened are set out below.
Food reformulation

Food reformulation – working with industry to improve processed food reduce salt, saturated fat and sugar in processed food while boosting good nutrients, such as fibre – is one of the most cost-effective public health measures available to government. It is being increasingly used worldwide to prevent premature death from diseases such as heart disease, stroke, diabetes and some cancers.

This approach was pioneered in Australia by the Howard Government when then Assistant Health Minister, Christopher Pyne, convened a quick service restaurant industry roundtable on trans fats. This was later expanded to also look at saturated fat in food products.

Since then, the roundtables have grown into the Food and Health Dialogue, in which government is working with industry and public health groups (the Heart Foundation, Public Health Association of Australia and the Dietitians Association of Australia) to work towards agreed food reformulation targets.

This voluntary partnership is achieving measureable improvements in the food supply, with 2,200 tonnes of salt being removed per year from the first four food categories alone.

The Dialogue has also been charged with seeking to standardise and establish appropriate portion sizes and undertake consumer awareness activities that promote healthy eating patterns and food choices. It is also charged with closely monitoring the progress of industry towards achieving agreed targets.

The potential health gains from food reformulation are enormous. Reducing intake of sodium from processed food by 15-25% in Australia would avert 5,800-9,700 heart attacks and 4,900-8,200 strokes within ten years.\(^{34}\)

The UK believes that major health gains can be made through food reformulation, including:

- Reducing daily UK salt intake to 6g a day could result in 20,000 fewer premature deaths each year; and
- Cutting saturated fat intake from 13.5% to 11% of daily energy intake could result in 3,500 fewer diet related deaths each year.\(^{35}\)

A 2007 study published in the *British Medical Journal* suggests that a reduction in salt intake of 25% to 30% could lead to a dramatic reduction in heart attacks and strokes by 20% or more.\(^{36}\)

Poor diet is known to influence the risk of cancer, heart disease and other conditions. Around 70,000 fewer people would die prematurely each year in the UK if diets matched the nutritional guidelines on fruit and vegetable consumption, and saturated fat, added sugar and salt intake. There are social inequalities within diet-related ill health that demand attention. And alongside the social impacts, the economic...
burdens of diet-related ill health are huge – perhaps £6 billion in additional NHS costs alone each year.37

A US study published in 2010 suggests that collaboration with industry that decreases mean population salt intake by 9.5% (as achieved in the UK) would avert, over the lifetime of adults aged 40 and over:

- 514,000 strokes.
- 480,000 heart attacks.
- $32 billion in medical costs.38

While regulation would be the most effective means of achieving food reformulation, the voluntary engagement of industry through firm government leadership has proven to be effective in the UK and elsewhere. The Australian initiative is off to a good, though slow start, and now needs to be strengthened and accelerated.

Additional funding is required to provide expert advice and additional support to the Dialogue as well as strengthen the capacity of the initiative to deliver on the stated objectives of promoting consumer awareness and monitoring industry progress.

Improving capacity of the secretariat serving the Dialogue will be increasingly important as the reformulation of future food categories will be complex and require more significant innovations/recipe variations to achieve reformulation targets (eg reducing the saturated fat content of pastry products without reducing ‘flakiness’).

The workload of the Dialogue secretariat has the potential to expand significantly over the coming years as new food categories are added and previous food categories are monitored and then re-visited to negotiate second-round reformulation targets.

**Recommended action**

National food reformulation partnerships between industry, health groups and government, were pioneered by the Howard Government. Food reformulation is now ready to take the next step. This can be achieved by strengthening the work of the Food and Health Dialogue and implementing practical initiatives, including:

- Adding more categories more quickly, and renewing existing categories to ‘raise the bar’.

- Support robust data collection and modelling to build the evidence-base for food reformulation. This will inform the selection of future food categories and help determine the impact of reformulation on population intakes of targeted nutrients.

- Establish a dedicated food reformulation unit.
• Support more comprehensive communications and education activities, including improved web-based resources and electronic newsletters to keep consumers and stakeholders informed about the work of the Food and Health Dialogue.

• Expand the work of the Dialogue to include a focus on portion size as originally envisaged.

Physical inactivity

Physical inactivity is a major health problem in its own right. Disturbingly, two in three (66.9%) Australians aged 15 and over are sedentary or have low levels of exercise.39,40

Physical inactivity:

• Costs the health budget an estimated $1.5 billion a year.41
• Causes 16,000 premature deaths a year.42
• Increases the risk of heart disease, stroke, diabetes, colon and breast cancer
• Is a critical factor in Australia’s obesity epidemic, with more than half of all Australian adults being overweight or obese. 43

Of particular concern is declining levels of physical activity among the young. For example, few children now walk or cycle to school.

As Professor Jan Garrard of Deakin University has pointed out, Australian children are among the most chauffeured young people in the developed world.44 In 1970, nearly all young people in Australia walked, cycled or took public transport to school or university (84%). Few travelled by car (16%). By 2011, most children were driven to school. While national data are no longer available, in Melbourne, nearly four times as many young people are now being driven to school than in 1970.

Out of the total distance 10-14 year olds travel, walking and cycling is used for 33.5% of the distance in the Netherlands, 14.4% in Switzerland and 13.8% in Germany. In Melbourne it is 4.6%.

Helping people (adults and children) to be more physically active is important for population health. Not only does it help people stay healthy, but physical activity aids recovery from heart attack or stroke, and helps to prevent a second event from occurring.

Evidence-based, physical activity programs play a critical role in countering chronic disease and keeping people well and out of hospital. Currently, effective, evidence-based programs are not well integrated into primary health care, with poor linkages and referral pathways resulting in ineffective use of available resources.
These programs need to be supported by government to (1) ensure accessibility to those most at risk, and (2) enable these programs and services to be on the frontline of our response to the growing burden of chronic disease in Australia. Linkages with local government also need to be strengthened to build on the achievements of the Healthy Communities Initiative.

**Walking and cycling**

One of the most effective ways of getting more people more active is to encourage active travel – walking, cycling and the use of public transport. Active travel builds physical activity into everyday lives.

Active travel can be stimulated in a number of ways including creating and retrofitting urban areas by implementing the planning and design principles set out in *Healthy Spaces and Places* as well as investing in active travel infrastructure (including footpaths and connected street networks, cycle paths and lanes and public transport facilities) and through better integration of these strategies.

Public transport is an important contributor to active lifestyles. Public transport use starts and ends with a walk. People who use public transport spend significantly more time walking than those who drive cars to work. One Melbourne study found those who used public transport spent on average 41 minutes walking and/or cycling as part of their journey compared with an average of just eight minutes for those who used their car.

There are welcome signs of progress, with many state and territory governments, as well as local governments, investing more in infrastructure and programs to encourage people to walk, cycle or take public transport.

Importantly, increasing participation in active travel not only improves population health, it also has the potential to make significant inroads and demonstrate cross sector benefits through impacts on carbon emissions, relieving traffic congestion, reducing pollution, improving road and pedestrian safety, increasing retail and property values and upgrading urban amenity.

As well as its health benefits, walking makes good economic sense. An extensive international review of evaluations of walking environments in 2011 by the University of the West of England showed positive cost benefit ratios of up to 37.6.

In comparison with other transport projects, investments in walking were found to be value for money. The highest value-for-money transport projects were smarter choices, cycle and pedestrian schemes, local safety schemes and some bus schemes. This suggests that investment in active travel is likely to be at least, if not better, value for money than other transport projects.
**Recommended action**

- Support walking and cycling safely to school programs that help schools to create safe walking and cycling routes in partnership with local government as well as offer safe riding programs for children.

- Assist local government to create and expand regional rail trails, cycle routes and walking/hiking tracks to promote tourism and recreation.

- Create a walking and cycling infrastructure program to support local government with its active travel infrastructure task, similar to the Roads to Recovery program.

- Develop better pathways to help people at risk of chronic disease to access evidence-based physical activity programs.

- Establish a partnership with the health sector and fitness and sporting industries to encourage physical activity.

- Provide assistance to sport and recreation clubs to engage more people in physical activity, making better use of existing infrastructure and programs.

- Provide financial or tax incentives to encourage employees to walk, cycle or take public transport to work.

**Cutting the carnage caused by smoking**

Australia has been a global leader in tobacco control for the past three decades. This took a major step forward in recent years with the introduction of the world-first plain packaging of cigarette packets, increases in tobacco taxes, and the decision by the Future Fund and a number of superannuation funds to end their investment in tobacco companies. On top this Australia has continued its investment in tobacco control social marketing campaigns.

The combined approach of legislation, education campaigns and taxation works exceptionally well. In 1980, some 35% of Australians were daily smokers. Today this figure is 16.1%. This is a highly significant public health achievement.

Yet more needs to be done if Australia is to reach its target of 10% of the population as daily smokers by 2018.

Smoking remains a leading cause of ill-health, death and disability in Australia. It accounts for some 15,000 deaths a year and is estimated to account for 10% of the total burden of cardiovascular disease.
The risk of heart disease and stroke is two-to-four times higher among smokers than non-smokers and this risk increases with the heaviness of smoking.\textsuperscript{54} Smokers have more heart attacks at a much younger age than non-smokers\textsuperscript{55} and have have up to four times the risk of suffering sudden cardiac death than people who don’t smoke.\textsuperscript{56}

\begin{quote}
We can take pride in the bipartisan approach that has seen support for tobacco control from successive Australian governments. But much remains to be done.

Mike Daube, ‘Fifty Years On’
Medical Journal of Australia, 20 January 2014
\end{quote}

For many years, we knew that cigarettes kill half of all lifetime smokers. But recent Australian research reveals this to be an under-estimate and that smoking will kill two-in-three long-term smokers.\textsuperscript{57}

The research, from the Sax Institute’s 45 and Up Study, supported by the Heart Foundation and NSW Cancer Council, found that two-thirds of deaths in current smokers can be directly attributed to smoking – much higher than international estimates of 50%.

The four-year analysis looked at health records from more than 200,000 people in NSW and found current smokers were cutting at least 10 years off their lifespan.

**Recommended action**

We know what works in tobacco control. We need to continue this approach and implement evidence-based policy by supporting, or continuing to support a range of important measures including:

- Plain packaging of tobacco products
- Funding for smoking education campaigns to continue at 2012-13 levels
- Full implementation of the 12.5% annual tobacco tax increase over four years
- Support international moves to counter illicit trade in tobacco.
Action 2: Early detection of CVD

Key points

- Many heart attacks and strokes can be prevented through early detection and screening in general practice using a vascular risk check. This could start with a simple indicator and target.
- The Australian Government should introduce a pilot program to assess the potential of integrated health checks incorporating vascular risk assessment in general practice.
- Health checks in community pharmacy settings will help raise awareness of risk factors and provide a pathway for at-risk patients to seek advice from their GP.
- The government should also fund a national program of community pharmacy-based health checks to raise awareness and drive at-risk patients to their GP.

Our current approach is costly and inefficient

Cardiovascular disease accounts for 18% of the total burden of disease and injury in Australia. This is even higher when other vascular conditions – chronic kidney disease and type 2 diabetes – are added to the picture.58

These conditions are extremely costly to treat. They also account for a large number of avoidable hospital admissions.

CVD alone accounts for 11% of direct health care costs, the most expensive disease group.3

The good news is that it is easy to identify people at high risk of having a heart attack or stroke, or developing type 2 diabetes and chronic kidney disease. This is done by using an integrated health check (diabetes assessment using AusDrisk +/- BGT, kidney check with serum creatinine and an ‘absolute’ cardiovascular risk assessment) in general practice.

And yet, only between 5% and 10% of eligible patients in Australia have had a vascular health risk assessment or check over the past five years.59 This should change.

Early detection of people at high risk of heart attack and stroke, or developing chronic kidney disease or type 2 diabetes, is critical if we are to save more lives and better manage the future cost of healthcare.

CVD has a strong relationship with other significant chronic diseases, in particular type 2 diabetes and chronic kidney disease.

Because they share risk factors and underlying causes and disease mechanisms, these major chronic diseases often occur together. For example, it is estimated that more than 400,000 Australians have both cardiovascular disease and diabetes.60
Effective prevention and management of one condition can lead to a reduction in the risk of related diseases.\textsuperscript{61}

Unfortunately, too many people are at high risk of developing these diseases and often live unaware of the risk due to the silent nature of many symptoms. They are not empowered to manage their risk due to low community awareness of risk factors and low uptake of GP health checks.

Australians therefore continue to live with, or at risk of vascular disease. This leads to premature death and disease at significant social and economic cost to the nation.

We should – and can – do much better.

**Early detection and management of disease**

Early detection and ongoing management of these conditions is the key to reducing the number of cardiovascular events such as heart attacks and stroke occurring each year. It will also reduce the incidence of diabetes and chronic kidney disease.

But the current suite of government-funded health checks is not effectively identifying those at risk. This is primarily because of low awareness of risk factors, low access rates, non-integrated approaches to chronic disease risk assessment and the absence of a national program to support better management of risks for CVD and related diseases like type 2 diabetes and kidney disease.

In 2009, the Australian Institute of Health and Welfare published a framework for monitoring the prevention of vascular and related disease.\textsuperscript{62} It cited evidence that existing vascular and related disease assessment and management programs had limited uptake and were not well integrated or promoted as part of a national preventative health system.

The framework revealed that less than a quarter of those over 75 years and only 6% of those aged 45-49 were accessing regular health checks.\textsuperscript{63}

These figures are alarming, especially given the high prevalence of a number of significant risk factors in the community, including overweight and obesity, high blood cholesterol and high blood pressure.

Recent data shows that while some risk factors such as tobacco smoking are in decline (though still highly prevalent), other risk factors are becoming increasingly prevalent or remain at very high levels.

The Australian Health Survey (2011-12) revealed that 63% of Australian adults are overweight or obese, up from 56% in 1995. More than 60% of men had a waist circumference that put them at an increased risk of developing chronic disease, while 67% of women had an increased level of risk.\textsuperscript{64}
The survey also shows that just over three million adults had measured high blood pressure.\textsuperscript{65} In addition, 5.6m Australian adults have unmanaged high blood cholesterol, and alarmingly, 90% of them are unaware of this fact.\textsuperscript{66}

A coordinated approach is required to increase awareness of individual vascular and related disease risk, to provide high quality assessment of individual risk and to provide appropriate interventions to support risk management. These actions will empower Australians to take control of their own health and reduce the incidence of disease.

**Raising community awareness**

There is comprehensive evidence that community pharmacy-based early detection of risk factors such as diabetes and high blood pressure can help contain the burden of diabetes, CVD and incidence of stroke through improved assessment and treatment rates.\textsuperscript{67}

Health checks targeting people over 45 in a pharmacy setting have proven to be an effective way to detect people at risk of vascular disease and refer them to a GP for a full risk assessment.\textsuperscript{68,69}

By providing free, opportunistic health checks including blood pressure and type 2 diabetes risk, in a convenient setting, people are able to better understand their own health profile and empowered to act on advice regarding risk.

**Proportion of Australians with key risk factors for vascular disease**

<table>
<thead>
<tr>
<th></th>
<th>High Blood Pressure (&gt;140/90) (age: 18+)</th>
<th>High Cholesterol (&gt;5.5mmol/L) (age: 18+)</th>
<th>Smokers (current) (age: 18+)</th>
<th>Sedentary or Low Level of Exercise (age: 18+)</th>
<th>Overweight or Obese (age: 18+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOUTH AUSTRALIA</td>
<td>23.4%</td>
<td>35.0%</td>
<td>18.2%</td>
<td>67.9%</td>
<td>66.6%</td>
</tr>
<tr>
<td>WESTERN AUSTRALIA</td>
<td>21.0%</td>
<td>34.7%</td>
<td>19.4%</td>
<td>64.7%</td>
<td>65.2%</td>
</tr>
<tr>
<td>QUEENSLAND</td>
<td>18.9%</td>
<td>30.8%</td>
<td>19.4%</td>
<td>69.3%</td>
<td>64.9%</td>
</tr>
<tr>
<td>TASMANIA</td>
<td>30.4%</td>
<td>39.4%</td>
<td>21.7%</td>
<td>69.4%</td>
<td>64.7%</td>
</tr>
<tr>
<td>ACT</td>
<td>20.1%</td>
<td>31.6%</td>
<td>14.2%</td>
<td>59.2%</td>
<td>62.2%</td>
</tr>
<tr>
<td>NORTHERN TERRITORY</td>
<td>15.9%</td>
<td>29.8%</td>
<td>25.1%</td>
<td>66.7%</td>
<td>62.1%</td>
</tr>
<tr>
<td>NEW SOUTH WALES</td>
<td>21.3%</td>
<td>32.3%</td>
<td>16.1%</td>
<td>68.9%</td>
<td>61.1%</td>
</tr>
<tr>
<td>VICTORIA</td>
<td>23.0%</td>
<td>33.2%</td>
<td>18.3%</td>
<td>66.1%</td>
<td>61.0%</td>
</tr>
<tr>
<td>AUSTRALIA</td>
<td>21.5%</td>
<td>32.8%</td>
<td>18.0%</td>
<td>67.5%</td>
<td>62.8%</td>
</tr>
</tbody>
</table>

Source: Australian Health Survey, Australian Bureau of Statistics 2013
Integrated health checks in general practice

The Heart Foundation, Stroke Foundation, Kidney Health Australia and Diabetes Australia have worked together to develop guidelines to help GPs quickly and easily assess the ‘absolute’ risk their patients have of experiencing a heart attack or stroke, and developing other significant health conditions like type 2 diabetes and chronic kidney disease, within the next five years.

The same organisations have also developed treatment and management guidelines for those found to be at high risk.

An integrated health check to assess the risk of patients developing disease or having a heart attack or stroke, diabetes and kidney disease should be conducted every two years for those people at low risk, every 6-12 months for those at moderate risk and as clinically required for those at high risk.

This check involves a high quality assessment of disease risk using the collection of data on major risk factors through simple questions, tests and measurements.

The assessment should include recognised measurers to assess risk, including:

- A CVD risk assessment (an absolute risk assessment where appropriate and consideration as high risk if clinically indicated).
- AusDrisk (+/- blood glucose tests).
- Serum creatinine and urinary albumin.

Patients who are assessed and classified as moderate or high-risk of having a heart attack or stroke should be provided with medical interventions by their GP to reduce their absolute risk.

GPs would prescribe necessary medication and refer people at risk to lifestyle interventions that could be delivered through a range of community settings. Medical interventions could include drug treatments for high blood pressure and high blood cholesterol. Lifestyle interventions could include: smoking cessation services; weight management or exercise and behaviour change programs.

Ready for implementation

Australia already has the necessary clinical guidelines and tools in general practice to identify people at high risk. And we have lifestyle counselling programs to keep people well and out of hospital.

A program of vascular health checks are best implemented together, but could be scalable, starting with the development and implementation of new indicators, which successfully happened in New Zealand:
1. Indicators and targets to measure how many eligible patients are having an integrated health check – and how many people at high risk are being properly managed.

2. A new MBS item to embed an integrated health check (IHC) in general practice.

3. A practice incentive payment to support ongoing management of those at high risk of a heart attack or stroke.

4. Support for opportunistic screening programs with those at risk directed to their GP for an integrated health check.

5. Support for lifestyle programs to keep high-risk patients out of hospital.

**Benefits of vascular health checks**

A program to assess patients risk of conditions like heart attack and stroke will not only improve health but it will lead to fewer hospital admissions and reduce prescribing for those not at high risk. These are described below:

- **Reduce avoidable hospital admissions** – currently, one-third of patients admitted to hospital for vascular conditions will be readmitted within one to two years. And one-third of these are preventable. Many hospital admissions could be avoided if patients were screened and managed in the community.

- **Reduce prescribing for those not at high risk** – the use of a vascular health check will help ensure that only those who need vascular medications, such as statins for lowering high blood cholesterol, will be prescribed them. That’s because the check will identify those at high absolute risk. Some patients may have high blood cholesterol, or high blood pressure, but when these risk factors are assessed collectively, they may not be at high absolute risk, and therefore medication may not be necessary.

**What is happening elsewhere?**

1. **New Zealand: More Heart and Diabetes Checks**

In January 2012 the New Zealand Government introduced a new national target called *More Heart and Diabetes Checks*. The program replaced previous ‘better diabetes and cardiovascular services’ health targets.

The New Zealand Government has set a target for 90% of eligible population to have their cardiovascular risk assessed over a five-year period ending in July 2014.
Milestones were set and reached for 60% of all assessments to be completed by July 2012 and 75% by July 2013. New Zealand is currently on track to achieve its 90% target.

2. **UK: NHS Check**

   The need to develop an integrated health check was recognised in the UK in 2009 when the British Government introduced *Putting Prevention First* – a program of vascular checks for people in their middle age.

   The UK Health Department estimated the program would:⁷¹

   - prevent at least 9,500 heart attacks and strokes a year (2,000 of which would be fatal)
   - prevent at least 4,000 people a year from developing diabetes
   - detect at least 25,000 people a year earlier with diabetes or kidney disease.

**Recommended action**

   The government should invest in a pilot program to assess the potential of vascular risk assessment in general practice. The pilot should be implemented in partnership with a state or territory government or through a number of primary care organisations.

   The pilot should promote vascular absolute risk assessments for eligible patients and include an incentive program for the general practice. The latter could include expanded practice incentive payments and/or a dedicated MBS item.

   A program should include the following elements:

   1. **Assessment:** Assess risk factors using existing guidelines. This includes the calculation of an absolute risk score assessment for heart attack and stroke risk, kidney function, and diabetes status (using AusDrisk or blood glucose testing in high risk individuals).

   2. **Prevention:** Prevent disease for those at high risk of cardiovascular disease, type 2 diabetes, or kidney disease. Those identified at high risk should be referred to appropriate community-based lifestyle modification programs. The program should provide funding to chronic disease care coordinators to assist with care coordination and provide self-management support. There is good evidence that this coordination role has a positive impact on patient outcomes, is best performed by a non-GP care coordinator and leads to a significantly lower use of health services.⁷²

   3. **Management and treatment:** Pharmacotherapy and lifestyle advice are examples of management and treatment tools for those at high risk of developing cardiovascular and related diseases.
Action 3: Faster medical treatment for heart attack and stroke patients

Key points

- People are dying or living with permanent disability because they don’t know the warning signs of heart attack and stroke and take too long to call an ambulance.
- Patients are more likely to call an ambulance quickly when they understand the warning signs of heart attack and stroke.
- Public education will help patients recognise the signs and symptoms of heart attack and stroke.
- Fast medical treatment reduces mortality and ongoing disability.
- Reducing the cost of ambulance care will remove another barrier to accessing emergency medical treatment for heart attack and stroke.

Warning signs of heart attack and stroke

Both the Heart Foundation and the National Stroke Foundation conduct public awareness campaigns to help people recognise the warning signs of heart attack and stroke and the critical need to call an ambulance to get help fast.

Evidence shows that the quicker a heart attack and stroke is treated the better the outcome for patients. Lives are saved and disability is avoided if people get to hospital more quickly.

Rapid treatment relies on several key elements including a well-resourced and highly trained paramedic team, a properly organised hospital emergency department, and highly trained medical specialists who treat patients in a well-equipped cardiac ward or stroke unit. But these cannot be optimised unless people who suffer a heart attack or stroke, or their families, are able to recognise when they occur and act by calling Triple Zero (000) immediately.

Australian ambulance services have been very successful in training paramedics to manage heart and stroke patients quickly but they are limited in their ability to influence patient outcomes if the public are not also informed.

Ignorance of the signs of heart attack and stroke account for the majority of delays to treatment. Currently less than half of stroke patients arrive within three hours of their stroke onset and only 7% of eligible patients receive time critical treatments.73

Around 50,000 Australians will suffer from either a new or recurrent stroke a year costing Australia an estimated $5bn annually.74

There are at least 55,000 heart attacks in Australia each year. Heart attacks claim one Australian life every 51 minutes and one quarter of people who die from a heart attack do so within an hour of their first symptom.75
More than half of all deaths from heart attack occur before the person reaches hospital.  

**Heart Foundation’s ‘Will you recognise your heart attack?’**

The Heart Foundation’s ‘Will you recognise your heart attack?’ campaign aims to reduce heart disease mortality and morbidity by reducing patient delay in responding to the warning signs of heart attack and calling Triple Zero (000).

The campaign, which includes TV, radio and digital advertising, educates Australians about the warning signs and gives them the facts and confidence to call Triple Zero (000) if they think they are having a heart attack.

This is needed because too many heart attack patients delay calling an ambulance. This happens because not enough Australians are armed with the facts about heart attack – they do not understand the warning signs or know what to do if they have a heart attack.

Patient delay is the major contributor to pre-hospital delay and access to definitive treatment. People wait an average of four hours before they act on their warning signs. More than half of all deaths from heart attack occur before patients reach hospital and about 25% of those who have a heart attack die within one hour of their first ever symptom.

Despite the many advances in clinical treatment of heart attack, good outcomes rely on a person receiving prompt medical treatment, preferably within 60 minutes of their first symptom. The longer a patient experiencing a heart attack waits before seeking help, the greater the risk of permanent damage to the heart, ongoing disability and even death. Often this results in longer hospitalisation, ongoing disability, re-hospitalisation, and eventual heart failure.

The Heart Foundation’s ‘Will you recognise your heart attack?’ campaign has reached more than five million Australians from 2009 to 2013. Through the Heart Foundation’s investment it has led to significant increases in public awareness of the warning signs of heart attack and people’s confidence and intention to call Triple Zero (000). Further, it is estimated that one-in-ten, or 500,000 people, who have seen the campaign have made a lifestyle or behaviour change like losing weight, increasing exercise or giving up smoking.

But these and further gains will be lost without government support.

**Warning signs of stroke – FAST**

Failure to act when stroke symptoms arise is the main factor behind stroke treatment delay, accounting for around 68% of the total delay in time to admission for ischaemic stroke.
Many people in Australia are unable to act because they cannot recognise the symptoms. Currently, one in five people cannot recognise any signs of stroke and only a third of people can recognise three or more signs.\textsuperscript{84}

Additionally, many people with transient signs of stroke (transient ischaemic attack or TIA) do not act as symptoms seemingly resolve themselves. And yet up to 20\% of patients having a TIA go on to subsequent stroke within 90 days\textsuperscript{85,86} if early preventative treatment is not instituted.

Half of those who experience stroke symptoms delay calling an ambulance; many individuals hope symptoms will alleviate; or will elect to speak to friends, family or their GP.\textsuperscript{87}

As a result less than half of patients present to hospital in time for potentially life-saving care. Importantly only 7\% of those with ischaemic stroke receive clot-busting treatment.\textsuperscript{88}

Since 2007, the National Stroke Foundation has been successful in raising awareness of the signs of stroke by promoting the FAST test through social marketing campaign activity. Some $2m in Australian Government funding will support national rollout of the campaign in early 2014.

The central feature of the campaign is mass media advertising using a pre-existing ‘Fire in the Brain’ television commercial and associated print, radio and online promotion.

The FAST test is an easy way to remember and recognise the signs of stroke. FAST stands for Face, Arms, Speech and Time to act. Using the FAST test involves asking these simple questions:

- **Face** – Check their face. Has their mouth drooped?
- **Arms** – Can they lift both arms?
- **Speech** – Is their speech slurred? Do they understand you?
- **Time** – Is critical. If you see any of these signs call Triple Zero (000) straight away.

Evaluation of the program demonstrates that FAST increases community awareness of stroke signs in all areas where it is delivered. In Victoria, where state government funding was provided for the program between 2007 and 2012, awareness of the signs of stroke is the highest in the country. Furthermore, independent analysis of Melbourne ambulance data has identified increased dispatches for stroke in the month following each FAST campaign push, demonstrating the ‘call Triple Zero (000)’ message gets through.

Robust evaluation of the federal government funded campaign is planned and results are expected to be available in the latter part of 2014.
There is a social and economic benefit to be derived from increased awareness of stroke signs. Better awareness means more people getting to hospital in time for life saving treatment and ultimately less death and disability from stroke.

An updated systematic review and meta-analysis published in The Lancet has found for every 1000 patients who receive thrombolysis treatment within three hours of stroke, about 100 more will survive, alive and independent, than for 1,000 patients not thrombolysed.89

Even when the effects of tPA are excluded admission to a stroke unit within three hours after symptom onset resulted in better outcomes three months later than those admitted after the first six hours. For every 1,000 people being admitted early 60 people avoid death and dependency.90

There are also cost savings that result from quicker access to stroke treatment.

Previous analysis nationwide has estimated increasing access to tPA from 3% to 20% within 4.5 hours among patients that have had an ischaemic stroke would mean 300 additional patients each year would leave hospital alive and independent.91

It is important to note that Australian Government funding for FAST will deliver better health outcomes for stroke patients and ultimately a reduction in the economic cost of stroke, however it is unlikely to be sustained if funding is limited to one year. Ongoing funding is crucial to ensure that the benefit of this year’s campaign activity is capitalised on.

**Universal ambulance cover**

The quickest and most effective way to commence treatment for heart attack and stroke is by calling Triple Zero (000) and asking for an ambulance. Ambulance paramedics play a life-saving role by providing triage, treatment and early notification to the treating hospital while the patient is being transported.92

However, too many patients delay calling an ambulance because they are worried about the cost of ambulance care.

A national survey of 11,000 people aged 35-65 years living outside Tasmania and Queensland who do not have ambulance cover found 43.5% of respondents said it would be too expensive to call an ambulance even if they thought they were having a heart attack.92 (Queensland and Tasmania are the two jurisdictions in Australia with universal ambulance cover.)

Another study found that 20% of patients who went to hospital because they had heart attack warnings signs, but who did not use an ambulance to get there, said cost of calling an ambulance was a determining factor to their decision to seek other modes of transport.92
These responses are borne out in data showing the mode of arrival to hospital. As the figure below shows, patients living in Tasmania and Queensland are much more likely to use an ambulance for conditions classified as the most serious and life-threatening (ATS category 1 Resuscitation and ATS category 2 Emergency) than patients in other jurisdictions.

![Proportion of patients arriving at the emergency department by ambulance (2006–2010)]

**Recommended action**

An investment by the Australian Government of $4m a year for the Heart Foundation’s Warning Signs campaign will continue to increase awareness of warning signs and early presentation to hospital.

Continued support for the National Stroke Foundation’s FAST campaign by the Australian Government, at $2m for delivery over a year, will build ongoing awareness of the signs of stroke to ensure increased access to time critical treatment in hospital is sustained in the community.

With an investment in these two campaigns, more Australians will be aware of the warning signs of a heart attack and signs of a stroke reducing death, disease and disability.

Policy work should be commissioned, or an inquiry held, to look at options to introduce universal ambulance cover across Australia.
Action 4: Targeted quality improvement to deliver world-best heart and stroke care

Key points
- High quality health care reduces death and disability.
- Adherence to government-approved guidelines is patchy and inconsistent.
- Better monitoring of health care standards with associated support for quality improvement activity will lift standards of care.
- Improved care saves lives and reduces health expenditure.

High quality care for heart and stroke patients is critical to saving lives and ensuring the best possible quality of life after an event. But high quality care also saves money and eases pressure on health budgets.

The Department of Health in the UK has estimated that the cost of longer lengths of stay in hospital arising from various avoidable adverse clinical events is around £2 billion a year.93

 Australians deserve nothing less than world-best standard heart and stroke care but current practice don’t meet that description.

We know what high quality care looks like and current monitoring efforts indicate that we are well short of best practice. The good news is that modest investment in monitoring of standards and targeted quality improvement activity will lift care standards quickly, resulting in improved health outcomes and reduced health expenditure.

Strengthen the work of the Australian Commission for Safety and Quality in Health Care

Heart attack is a major cause of death and long-term disability in Australia. It accounts for more than 55,000 hospitalisations every year and costs the health care system more than $1.4bn annually in direct costs. There is strong evidence to guide appropriate care for people with heart attack, yet national clinical audits continue to demonstrate that many people do not receive evidence-based care.

This results in poor patient outcomes as well as higher costs for the health system.

In 2012, Australian health ministers endorsed the development of new quality and safety goals and priorities for Australian health care, with heart attack and stroke becoming the priorities to ensure people receive appropriate, evidence-based care.

This critical work is being progressed by the Australian Commission for Safety and Quality in Health Care working with key stakeholders. The Commission has
developed action guides for each priority with scoping work to be done over the coming five years across the full spectrum of care. In the case of heart attack, this includes pre-hospital and hospital care as well as secondary prevention. The work underway includes the development of cutting-edge clinical care standards. A draft clinical standard for acute coronary syndromes (heart attack and angina) is now out for consultation.

The standards describe the clinical care that a patient with ACS should be offered. They aim to support the delivery of appropriate care, reduce unwarranted variation in care, and aid share decision making between patients, carers and clinicians. Indicators are also defined to help health organisations to monitor their progress in meeting standards.

It is vital that the Australian Government continues to support and expand the work of the Safety and Quality Commission so it can strengthen its role to implement and monitor standards. This will ensure the best possible outcomes for patients and the most effective use of dollars for taxpayers.

**Support the development of the cardiac devices register**

Another critical element in improving outcomes for heart patients is the development of a national cardiac devices register, a move announced during the 2007 election campaign by the then Prime Minister, John Howard, but only recently implemented.

The register will be a vital quality improvement tool that will also provide a fast recall system when faults are identified with high risk cardiac devices such as defibrillators and pacemakers.

The Australian Government should strongly support the development of the cardiac devices register, which will move to a self-funding model after the register is up and running. Once established, the government should look to expanding the scope and work of the register to cover not only cardiac devices, but also cardiac procedures.

**Strengthen medical research**

Health and medical research is not an expense. It is an investment that reaps enormous social and economic benefits and drives improvement in quality and outcomes.

Many advances in cardiovascular health have had their foundation in discoveries in health and medical research. Recommendations outlined in this submission – including prevention, treatment, quality of care, and rehabilitation and care in the community – benefit from the application of evidence-based research.
Australian Government support is needed to maintain – in real terms – funding for health and medical research in cardiovascular health and the translation of research into practice.

**Best practice stroke care**

Australian government approved stroke clinical guidelines outline a number of interventions that are proven to reduce death and disability after stroke. These include:

- Stroke unit care
- Thrombolysis
- Antiplatelet therapy
- Blood pressure-lowering medications
- Rehabilitation in the community.

**Current picture in stroke**

National stroke audit data shows that care being provided to Australian patients does not meet Australian government approved guidelines.

For example:

- 42% of patients are being treated outside a stroke unit leading to 700 cases of unnecessary death and disability each year – despite 90% attending a hospital with a stroke unit.
- 31% of stroke unit beds are occupied by non-stroke patients, denying care to stroke patients and leading to inefficiencies in hospital resource use.
- Only 7% of patients receive potentially life-saving thrombolysis treatment.
- 1/3 of hospitals are not providing routine assessments for the need for further rehabilitation.
- 40% of hospitals are not routinely providing discharge care plans.
- 70% of hospitals don’t have protocols to review stroke patients after discharge.

The above gaps in care are resulting in increased costs, reduced efficiency and greater burden of death and disability associated with stroke.

Providing better access to evidence-based stroke care would result in improved health outcomes for individuals, carers and society as well as delivering large potential cost offsets by reducing the resources required to provide stroke care.

**What to do**

Delivery of best-practice stroke care requires a robust framework of data collection to identify where gaps exist and quality improvement activity to close those gaps.
The fundamentals are in place to improve Australian stroke care quality quickly and efficiently. All that is required is national leadership and modest targeted investment.

If Australian hospitals are resourced and organised to deliver care according to Australian Government approved stroke clinical guidelines then significant improvements to stroke patient outcomes will follow.

Robust data collection and quality improvement

There are three key elements to underpin a robust stroke data collection and quality improvement framework. Implementing all three would provide the best chance for system wide improvement to stroke care in Australian hospitals. However, it is possible to develop a model that utilises elements of the three and still achieve improvements.

Element 1: National Stroke Foundation Audit

The National Stroke Foundation conducts an audit of stroke care in Australian hospitals annually, alternating each year between acute care and rehabilitation services. The audit provides valuable data on the quality of care in individual hospitals as they measure up against Australian Government approved clinical guidelines. The data shows change in quality over time and can be used by individual hospitals to identify gaps in care and pursue quality improvement activities to close those gaps.

Element 2: Australian Stroke Clinical Registry (AuSCR)

The Australian Stroke Clinical Registry (AuSCR) is a joint initiative by a consortium of four groups (the National Stroke Foundation, the Stroke Society of Australasia, and the Florey and George research institutes). The focus of AuSCR is to ensure a minimum dataset that includes four performance indicators obtained on all patients admitted to participating hospitals in a prospective manner and has the ability to review quality of care in the context of longer term outcomes of survivors at 90+ days. The AuSCR includes information on all admitted case of stroke and transient ischaemic attack.

Element 3: Evidence-based quality improvement programs

Structured quality improvement programs use data to identify gaps in stroke care and then work closely with health professionals and administrators to improve systems of care and resource allocation at the local hospital level. Ongoing data collection measures improvement of care against baseline data allowing for a continuous cycle of quality improvement and development of a culture of excellence.

While various programs exist one such example is the Stroke Foundation’s StrokeLink program.

StrokeLink is a team-based quality improvement program, designed by the NSF to help reduce the gap between evidence (as outlined in the Australian Government
approved Clinical Guidelines for Stroke Management) and practice, (as identified in the National Stroke Audit). StrokeLink is designed to help health professionals maintain or improve stroke care by identifying:

- Local gaps in practice
- Priorities, barriers and enablers for improvement
- Agreed action

The main component of StrokeLink is face-to-face workshops at the local, regional and state level. These workshops help stroke teams develop action plans to address prioritized gaps in care. Other elements of StrokeLink include access to stroke education and examples of protocols and resources to improve care.

Targeted, evidence-based quality improvement activity will result in delivery of more efficient and effective stroke care leading to better health outcomes and reduced economic cost from stroke.

Deloitte Access Economics analysis of the StrokeLink program estimates that if implemented nationally the program could prevent over 2000 cases of stroke-induced disability annually contributing to over $56 million per year in economic savings.

**Recommended action**

The Australian Government should invest $3.4m a year to establish and implement a framework to monitor and improve the quality of stroke care delivered in Australian hospitals. Framework elements already exist and are ready for immediate implementation.
Action 5: Improve access to life-saving cardiac rehabilitation, heart failure programs and recovery support for stroke survivors

Key points
- Too many patients with heart disease are suffering repeat events and are being readmitted to hospital because they are not referred to appropriate rehabilitation programs.
- Stroke survivors experience disability and depression due to a lack of community support to meet needs relating to their stroke.
- Cardiac rehabilitation, heart failure and stroke support programs are highly cost-effective.
- These programs are ready for reform through a partnership approach between the Federal Government and States and Territories.

Cardiac rehabilitation, heart failure, and stroke support programs

People who have had a heart attack or who have heart failure should be referred to and complete a cardiac rehabilitation or heart failure program. Similarly, stroke survivors need ongoing care and support to adjust to life after they leave hospital and maximise their recovery prospects.

Unfortunately, this does not happen often enough, despite strong evidence showing these programs work.

Cardiac rehabilitation and heart failure programs are an essential but underutilised part of recovery from heart attack and/ or management of heart disease. It is estimated that attendance rates for cardiac rehabilitation are as low as 11-31%.

Patients with heart disease benefit enormously from participation in these programs and without them they face a substantially higher risk of another heart attack and readmission to hospital.

For stroke survivors the biggest issues relate to a lack of access to ongoing community support following discharge home from hospital. Survivors are often ill-equipped to adjust to the serious life-changing event they have experienced and as a result there are significant levels of unmet need.

A survey of stroke survivors shows that 96% (403,000 people) had a need following their stroke. Of those that reported a need, 84% had needs that weren’t fully met. This equates to 339,000 stroke survivors living with unmet needs in the community.

As stroke is a brain injury the impact is profound and needs vary widely in scope and in severity.
Survivors report difficulties that affect many facets of their lives ranging from physical to emotional problems and they impact on their ability to participate in society be it through work, family, social or other community activities.

**Cardiac rehabilitation**

Cardiac rehabilitation programs guide and support patients to help them recover from heart attack. They encourage lifestyle modification such as quitting smoking, address psychosocial risk factors including depression, and improve medication management and compliance.

Cardiac rehabilitation programs are traditionally centre-based and patients attend them six weeks after they are discharged from hospital. Programs run once a week for six weeks and are typically delivered in outpatient settings in hospitals or community health centres.

Flexible models of cardiac rehabilitation are less commonly offered, yet there is a strong body of evidence supporting them. These programs are more patient-centred and can be delivered in settings that best meet patient needs – such as in the home, or through one-on-one telephone coaching. Flexible models of cardiac rehabilitation can suit younger people or those who prefer not to attend traditional centre-based programs.

Lack of referral to cardiac rehabilitation programs means not enough people receive the support and care they need to return to full health. This means they are at a much greater risk of being readmitted to hospital for further medical treatment.

Data from the Australian Institute of Health and Welfare shows 55,000 Australians were admitted to hospital in 2009-10 because they had a heart attack. Hospital admissions for heart attack have grown by 64% since 1998-99.

Each hospital admission for heart attack costs $25,000 per patient in direct hospital costs. The total cost to the hospital system in Australia is $1.4 billion per year.
A substantial part of this cost can be avoided through better access to – and completion – of cardiac rehabilitation. This is because more than one-third (34%) of hospital admissions for heart attack are repeat events.102 Many patients are readmitted to hospital because they do not attend or complete cardiac rehabilitation. It means they miss out on the care they need after their heart attack to get back to full health.

Disturbingly, studies show the biggest barrier to patients not attending or completing cardiac rehabilitation is lack of referral to a cardiac program.103

<table>
<thead>
<tr>
<th>Cardiac rehabilitation in Australia</th>
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<tr>
<td>VIC</td>
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<tr>
<td>A study in 1998-99 showed that only 25% of patients who suffered a heart attack participated in cardiac rehabilitation.</td>
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<tr>
<td>WA</td>
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<td>An audit in 2000 by the state health department found less than 20% of patients received cardiac rehabilitation.</td>
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<td>NSW</td>
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<td>In the Hunter region, a 1998 study showed 28% attended with only 19% completing the rehabilitation program.</td>
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<td>QLD</td>
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<td>A study commissioned by Queensland Health in the early 2000s showed referrals were also low.</td>
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<td>SA</td>
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<td>An audit in 2011 by the South Australian Health State-wide Cardiac Clinical Network found only 13% of eligible patients completed cardiac rehabilitation.</td>
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<td>INDIGENOUS</td>
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<td>While there are few studies on participation in cardiac rehabilitation programs for Indigenous patients, two studies suggest single digit rates. A study in Mt Isa showed Indigenous participation was 5%, compared to 31% for non-Indigenous patients.</td>
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<tr>
<td>AUSTRALIA</td>
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<td>Nationwide, studies suggest 20% to 25% attendance.</td>
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Cardiac rehabilitation is cost-effective

Cardiac rehabilitation is highly cost-effective and this can be measured in terms of better health and cost savings to the health system.

One Victorian study showed a 35% increase in five-year survival rates among patients who attended cardiac rehabilitation.104 Other studies have shown better outcomes for physical activity, blood lipid levels, medication adherence, health care utilisation, social adjustment, smoking reduction and reduced risk of a cardiac event reoccurring.105

A 2013 report by the UK’s National Health Service Improvement agency found that reaching a 65% uptake target of cardiac rehabilitation by eligible patients would result in a 30% reduction in unplanned cardiac readmissions equating to savings of £30.6 million a year (A$5m).106
A study by Philip Ades and colleagues published in 1997 found cardiac rehabilitation is highly cost-effective. At US$4,950 per year of life saved, the study found that cardiac rehabilitation compares favourably with the cost-effectiveness of other preventive measures in cardiology.  

A Swedish study in the early 1990s found that cardiac rehabilitation costs were offset by lower rates of hospitalisation and increased work productivity. At five years this resulted in a cost saving to the Swedish health system of $US12,000 per patient to the Swedish health care system.

In Australia, a cost-effectiveness study of cardiac rehabilitation that used conservative modelling estimated the incremental cost of cardiac rehabilitation per quality-adjusted life year (QALY) saved was $42,535. The study authors argued that the result was “derived under conservative assumptions” and is “consistent with decision-making authorities … such as the Pharmaceutical Benefits Advisory Committee.”

Whether the measure is health or economics, evidence clearly shows cardiac rehabilitation is essential for better outcomes for patients and taxpayers.

**Heart failure**

Heart failure is a condition where the heart is unable to adequately circulate blood around the body. It is a highly symptomatic syndrome and a major health issue.

Despite advances in our understanding of the burden of heart failure, clinical outcomes are poor and associated healthcare costs are high.

An estimated 350,000 Australians are living with the condition and every year an extra 30,000 people are diagnosed with heart failure. Hospital admissions grew by 20% from 1999-2000 to 2007-08 (40,000 to 49,000).

Heart failure:

- affects 2-3% of the population in industrialised countries and rates rise steeply to over 23% in those aged over 65 years. Between 20-30% of patients with mild to moderate heart failure will die within one year and 50% of patients with severe heart failure will die within 12 months.

- affects Aboriginal and Torres Strait Islander people at a younger age and they are more likely to die from the condition than non-Indigenous Australians.

- costs the Australian health system $1bn a year.

- is responsible for a high number of readmissions to hospital. Studies suggest readmission rates are between 29-49% within three to six months of discharge.
Coordinated follow up of stroke survivors

Evidence shows that survivors of stroke are more likely to have profound limitations relating to self-care, movement and communication than other people with disability. Health related quality of life (HRQoL) for the majority of stroke survivors up to two years after their stroke has been rated as very poor and depression is seen in approximately one-third of survivors.

The often profound and prolonged brain injury that results from stroke can severely impact a survivor’s ability to navigate an often complex health and welfare system in order to access the support and services they need to aid their recovery.

This is made worse by inconsistent delivery of support from the hospital system prior to discharge.

Regular audits of Australian hospital care show that stroke patients commonly miss out on interventions that are proven to assist with their recovery. This includes assessment for ongoing rehabilitation, proper discharge planning and provision of valuable information about available community care and support groups.

There is no comprehensive program in Australia to ensure that survivors of stroke are followed up by Stroke Liaison Workers or a similarly structured model of care. This means that those who live in need and are unable to actively seek support are often left to suffer in silence. They are not supported to recover quickly from their stroke and instead live with disability and other needs that impact on their ability to actively participate in society.

Stroke survivor need is widespread with 96% of recently surveyed survivors reporting a need and 84% of those reporting needs going unmet. This includes physical health needs relating to mobility and falls as well as more ‘hidden’ needs such as those relating to emotional issues, cognition and fatigue. It also includes significant needs relating to home help such as adaptations, support for return to work and financial problems.

The common thread is the significant impact upon community participation and productivity. Without support, stroke survivors are limited in their ability to recover more quickly from their stroke and to benefit from being able to actively participate and contribute in the way that they wish.

Deloitte Access Economics has estimated productivity costs resulting from stroke to be around $3b per year. This includes an estimated $838 million per year cost to the federal government and an astonishing $1.7b cost to individuals. Individual costs including nearly $1b in lost earnings from employment can be offset to some extent if survivors are supported to recover more quickly.

Models of care to achieve this outcome have been developed, tested and proven to deliver positive outcomes. By routinely following up survivors and providing ongoing
support for service navigation and recovery advice significant reduction in death and
dependence can be achieved.

For example a Cochrane review of the Stroke Liaison Worker model found that for
every 100 survivors with mild to moderate disability who were seen by a stroke
liaison worker, 11 fewer patients were dead or dependent.¹¹⁸

Deloitte Access Economics estimates that this would result in nearly 1300 survivors
regaining their functional independence each year contributing to cost savings of
over $30 million per year.

**Recommended action**

Cardiac rehabilitation and heart failure programs are ripe for reform. This can be
achieved by the Australian Government working with states and territories to boost
access to appropriate programs by setting indicators and targets for service delivery
and establishing bilateral agreements to drive change.

- **Indicators and targets** – all Australian governments should work together,
  and with the Heart Foundation, to develop a set of national indicators and
targets for cardiac rehabilitation and heart failure. This would include
developing a minimum data set for data collection that is consistent across
jurisdictions.

  Indicators and targets are needed to gain an understanding of the existing
  profile of cardiac rehabilitation and heart failure programs and to monitor the
  number and type of eligible patients referred to and completing these
  programs.

- **Bilateral agreements with states and territories** – Federal funding should
  be provided to develop partnerships with states and territories to drive
  improvement and reform for cardiac rehabilitation and heart failure programs.

  National Partnership Agreements are common in the health portfolio, with
  existing agreements covering waiting times for emergency departments and
  elective surgery, national bowel cancer screening and sub-acute care. They
  provide federal funding to drive agreed areas of reform, often featuring initial
  ‘facilitation’ payments but also ‘reward’ payments against agreed milestones
  or targets.

  Rather than adopt a ‘one size fits all’ approach, improvements to cardiac
  rehabilitation and heart failure could be achieved through bilateral
  agreements.

  Bilateral agreements should focus on driving up access, participation and
  completion rates. As well as setting milestones and targets for the general
population, specific targets should be set for Aboriginal and Torres Strait Islander people and people living in rural/remote areas.

Agreements should also include clear goals and targets and include appropriate facilitation and reward payments for achieving mutually agreed objectives.

**StrokeConnect: Comprehensive and coordinated follow up for all survivors and their carers**

The Australian Government should invest $3.5m per year in the StrokeConnect program to guarantee a phone call follow up of every stroke survivor in the period following discharge from hospital to home.

The follow up of every survivor and their carer (usually a family member/spouse) will result in needs assessment and program and service referral.

For the approximately 30% of survivors who are under 65 this program would neatly dovetail with the new National Disability Insurance Scheme by ensuring that they are supported to understand and access available services and support in a timely manner.

The National Stroke Foundation has been piloting and developing the StrokeConnect model of care in response to survivor needs since 2008. It has been operating in Queensland with state government support since 2011.

Evaluation of the pilot program and the Queensland model has demonstrated improved coordination of care, increased participation in relevant programs and improved health related quality of life, mood and participation in community activities.

Deloitte Access Economics estimates that StrokeConnect would result in nearly 1300 survivors regaining their functional independence each year contributing to cost savings of over $30 million per year.\textsuperscript{119}
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