Secondary cardiovascular disease prevention and control
A World Heart Federation report
Introduction

Secondary cardiovascular disease prevention and control

A World Heart Federation report

Worldwide, there are about 17 million deaths due to cardiovascular disease (CVD) each year and in the region of two or three times as many non-fatal events. The World Heart Federation has identified secondary CVD prevention as a public health priority, and as a significant part of a comprehensive strategy to reduce premature mortality, as individuals with established atherosclerotic vascular disease are at very high risk of suffering a new cardiovascular event, which could prove fatal.

The successful implementation of secondary prevention of CVD is key to achieving the World Health Organization’s target of a 25 percent reduction in premature mortality from Non-communicable diseases by 2025. Successfully addressing secondary CVD prevention will have a major impact on health outcomes and reduce the associated economic burden. Although effective secondary prevention treatments have been available for over two decades and are recommended by the WHO and other professional organisations, there is still a significant gap between evidence and practice.

This report examines the gap at both a policy and healthcare professional level. It provides a comprehensive mapping of the cardiovascular secondary prevention national policy landscape in selected countries, focusing on relevant issues such as governance, financing, access and quality coverage. In doing so, it identifies bottlenecks at the policy level, which are preventing the successful implementation of guidelines for secondary prevention.

The report also reveals barriers at the healthcare provider level and summarises proven implementation strategies that could increase the uptake of evidence-based recommendations.

The report focuses on eight countries (Australia, Brazil, China, France, Germany, Italy, Spain, and the USA) and provides useful tools and lessons for policymakers and healthcare professionals that can support the implementation of cost effective cardiovascular secondary prevention worldwide.

A better understanding of the reasons for the existing evidence-practice gap is crucial for the design of effective implementation strategies to address those most at risk and to reduce the disproportionate economic burden. The WHO target of 25 percent reduction in premature mortality from Non-communicable diseases by 2025 cannot be reached unless effective measures are put in place to address those most at risk of premature CVD death.

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The World Heart Federation regards secondary prevention of cardiovascular disease (CVD) as a public health priority, and a significant component of a comprehensive strategy to reduce premature mortality. Unless prevention strategies targeting individuals with the highest risk of dying in the next 10 years – i.e. those with underlying cardiovascular disease – are successfully implemented, the World Health Organization’s target of 25 percent reduction in premature mortality from Non-communicable Diseases (NCDs) by 2025 is unlikely to be achieved. This could have an unprecedented negative human and economic impact in terms of the number of lives lost and the cumulative strain on shrinking health service budgets.

This report provides an overview of the global policy framework around NCDs and CVD prevention, and specifically around the prevention of secondary CVD. It maps policy efforts from eight countries against a global framework, and it identifies gaps between the publication of guidelines and their adoption and implementation at both the national policy and healthcare provider levels.

Cardiovascular disease has been afforded unprecedented global political momentum as part of the worldwide effort to fight NCDs. Never before has the community been better placed to act globally in a coordinated way to overcome this challenge. This report seeks to capitalise on that momentum and provides detailed recommendations to all health stakeholders on how the prevention of secondary cardiovascular disease can be improved.

The burden of cardiovascular disease

Worldwide, about 17 million people die from cardiovascular disease (CVD) each year and two or three times as many experience non-fatal events. By 2030, it is estimated that CVD will remain the leading cause of death worldwide, with more than 23 million people dying from CVD each year. CVD is also the biggest driver of deaths for all non-communicable diseases (NCDs), which also include cancer, diabetes and chronic respiratory diseases.

Data from select countries in the Global Burden of Disease Study reveal a heavy CVD burden. Data from Australia, Brazil, China, France, Germany, Italy, Spain, and the USA show that CVD ranks among the most significant causes of premature mortality, accounting for between 19.6% and 31.3% of premature deaths in 2010. While the high-income countries examined experienced a slight decrease in the role of CVD in premature deaths in two decades – from 1990 to 2010 – middle income economies such as Brazil and China experienced an increase in the same period. CVD risk factors are listed among the top 10 risk factors that account for disease burden in these countries, including diet, high blood pressure, smoking, high body-mass index, physical inactivity, high fasting plasma glucose, high total cholesterol and the harmful use of alcohol.

The global policy landscape

In September 2011, the United Nations (UN) held a High-Level Meeting of the General Assembly on the Prevention and Control of NCDs. The meeting, attended by heads of state from across the world, led to the adoption of the Political Declaration on NCDs, which outlines commitments and priorities to strengthen the prevention and control of these collective diseases. As a result of this declaration, the World Health Organization developed an NCDs Global Monitoring Framework in consultation with governmental and non-governmental stakeholders to enable global tracking of progress in preventing and controlling NCDs and their key risk factors. The framework aims to provide a foundation for action on the global commitments and drive progress in the prevention and control of NCDs.
The NCD Global Monitoring Framework includes targets with clear implications for secondary CVD prevention, specifically:

- An overall target on the 25% relative reduction in risk of premature mortality caused by the main NCDs, including cardiovascular disease
- A target to ensure at least 50% of eligible people receive drug therapy and counseling to prevent heart attacks and strokes
- A target of 80% availability of the affordable basic technologies and essential medicines, including generics, required to treat major NCDs in both public and private facilities.

The NCDs Global Monitoring Framework allows for global monitoring on progress against NCDs – and consequently CVD – with WHO Member States expected to report back at regular intervals. Member States are also encouraged to develop national targets and indicators building on the global framework. Actions on secondary CVD prevention will be key in achieving the targets outlined above.

Key findings around gaps and barriers in the successful implementation of secondary prevention guidelines

The report identifies barriers and/or gaps preventing the successful implementation of secondary prevention guidelines at two levels: at the national policy level and at the healthcare provider level.

### Gaps and barriers at the national level

A number of countries do not have a formal comprehensive national CVD plan, which enables them to target their efforts appropriately. Where national plans do exist, they do not always include time-bound concrete targets for CVD mortality reduction, nor are they always accompanied by the appropriate financial commitment, limiting their ability to drive successful health outcomes.

In addition, countries are experiencing inequities in health access by region, or among population groups, especially in those countries with a federalised government system. The lack of monitoring systems with data linkages to track patients is also negatively impacting outcomes. Enhanced administrative data sources that facilitate the linking of patient records would be a great step forward in the ability to monitor patients appropriately. There is also a need to increase the capacity for gathering insights into managing patients with co-existing chronic conditions.

Finally, external factors such as the recent economic crisis, especially in Europe, and national health system reforms, such as in China, are perceived to negatively affect people’s health. Policies responding to the economic crisis have resulted in reductions in health expenditures, as well as in an increase of requests for co-payments or for patients to bear the full cost of treatment.

The table below brings together the findings from the country policy mapping to show the commonalities in the challenges faced for secondary cardiovascular disease prevention. This provides a clear indication of the barriers to address in order to achieve the ‘25 by 25’ target.

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Country (France)</th>
<th>Spain</th>
<th>Italy</th>
<th>Germany</th>
<th>China</th>
<th>Australia</th>
<th>Brazil</th>
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<td>Lack of long-term national comprehensive CVD strategy</td>
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<tr>
<td>Lack of national secondary CVD prevention targets</td>
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<td>Financial constraints (e.g. budget cuts)</td>
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<td>Lack of stated national policy</td>
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<tr>
<td>Lack of consistency and adherence to national policy</td>
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Barriers to healthcare provider uptake of guidelines

Even where secondary CVD prevention policies are in place, there is often a substantial gap between the standards set in policy and clinical practice, leading to poor implementation and utilisation of effective preventive drug treatments and cardiac rehabilitation. Data on drug adherence, smoking cessation, weight control and physical inactivity suggest that secondary CVD services are being under-utilised.

Research among healthcare professionals revealed that doctors report feeling overwhelmed by the number of guidelines available. They often perceive guidelines as lengthy, complex, too prescriptive, and too frequently updated, making it difficult for them to keep up-to-date with the latest recommendations.

Although physicians in general recognised the importance of clinical guidelines, they felt their usefulness is limited, as they can’t always be applied to all patients or easily adapted to specific settings. Some doctors also expressed concerns about the involvement of the pharmaceutical industry in the development of guidelines, perceiving the industry as having undue influence. The research also revealed that younger healthcare providers were reported as more likely to implement guidelines.

Improving the uptake of clinical guidelines

Among the possible strategies to improve the uptake of clinical guidelines, physicians participating in this research suggested simplifying and unifying existing guidelines, and using technology to make them more easily available. The report also summarises a number of strategies that have been proven to facilitate the uptake of secondary CVD guidelines. These include influence by local opinion leaders; auditing and providing feedback on individual healthcare professionals’ practice or performance; the use of computerised clinical decision support systems for the management of chronic conditions; financial incentives; continuing medical education and educational outreach. The report provides information about the level of effectiveness of each of these strategies, based on existing literature.

Recommendations

There is a clear need for a comprehensive approach to improve the prevention of secondary cardiovascular disease (CVD) in order to achieve the ’25 by 25’ mortality reduction target. The time for the cardiovascular community to act globally in a coordinated way is now. The World Heart Federation is leading the development of a practical and comprehensive roadmap, addressing policy and health system barriers and proposing implementation strategies that could be adapted accordingly to the setting.

Further to this research, the World Heart Federation proposes the following recommendations to make sure countries adopt the global framework and improve adherence to guidelines.
The World Heart Federation calls on national policymakers to:

- Ensure their countries have a formal comprehensive national CVD plan, appropriately prioritising secondary prevention, and that the plan includes concrete time-bound targets, accompanied by adequate funding
- Monitor the uptake of guidelines to ensure effective preventive drug treatments and cardiac rehabilitation are being offered
- Identify, highlight and address any financial constraints preventing the implementation of guidelines that impact on patient health outcomes
- Ensure equitable access to healthcare and to CVD-specific services across a country’s entire population.

The World Heart Federation calls on professional organisations and societies responsible for the development of guidelines in secondary prevention to:

- Prepare guidelines that are concise, clear and tailored to the context of the country they are addressing; where a number of relevant guidelines already exist, unify them to ensure clarity
- Provide healthcare professionals at the primary and secondary care levels with effective training packages on how to implement guidelines, and with support on how best to coordinate communication between them for the care of patients with cardiovascular disease, and/or with other co-existing conditions
- Consider the potentially helpful role of technology in training or in supporting clinical decision-making (e.g. via computerised, shareable patient records)
- Identify, highlight and address any financial constraints preventing the implementation of guidelines at both primary and secondary care levels
- Explore and promote the most suitable evidence-based strategies to promote healthcare professional uptake of guidelines.

The World Heart Federation calls on individual healthcare professionals to:

- Improve coordination between primary and secondary care, to ensure healthcare professionals at both levels can have a holistic view of a patient, and to ensure secondary care prevention is appropriately coordinated throughout the healthcare system
- Institute individual case management for patients, to ensure the appropriate utilisation of secondary CVD services.

The World Heart Federation calls on patient advocacy groups to:

- Elevate the issue of secondary prevention of cardiovascular disease, equitable access to treatments and service, and implementation of guideline adherence on relevant public health agendas
- Identify, highlight and address any financial constraints preventing the implementation of guidelines that impact on patient health outcomes
- Provide patient-friendly materials on relevant aspects of national guidelines.
World Heart Federation...
at the heart of health
The global CVD burden

The number of people dying from Non-communicable diseases (NCDs) – cardiovascular disease, cancer, diabetes, and chronic respiratory diseases – worldwide has grown 30% from 1990 to 2010, due to several factors including ageing populations and changing patterns of risk factor exposure (see Figure 1). About two thirds of global deaths are due to NCDs, while one third of global deaths are attributed to cardiovascular disease. In most countries outside of sub-Saharan Africa, 50% or more of the health burden (as measured by death and disability) is attributed to NCDs. Cardiovascular disease (CVD), including heart disease and stroke, is the world’s largest killer and the main driver of NCDs deaths. In 2008 there were 17 million CVD deaths, and by 2030 it is estimated that more than 23 million people will die from CVD each year. CVD places a significant burden not only on the individual, but also on healthcare systems and economies. In 2010, CVD cost $863 billion globally and by 2030, CVD costs are projected to rise by 22%, to $1,044 billion.

Figure 1 Shift of cause of death in the last 20 years

According to the results of the Global Burden of Disease Study 2010 (GBD 2010) – the largest systemic study of global patterns and trends of health loss due to diseases, injuries, and risk factors – heart disease ranks among the most significant global causes of death, premature death, and disability. According to the GBD study, ischemic heart disease and cerebrovascular diseases were the top two causes of global mortality in 2010. Ischemic heart disease was also found to be the most important cause of premature death globally. Ischemic heart disease was the leading contributor to the global disease burden (as measured by death and disability) in 2010, while cerebrovascular diseases ranked third. There has been an increase of at least 20% in the disease burden for ischemic heart disease and cerebrovascular diseases from 1990 to 2010. High blood pressure and smoking were the most important risk factors contributing to the global disease burden in 2010. Other risk factors for cardiovascular diseases are also among the top 10 global health burden risk factors including diet low in fruit, harmful use of alcohol, high body mass index, and physical inactivity.

2 GBD 2010.
In September 2011, the United Nations (UN) held a High-Level Meeting of the General Assembly on the Prevention and Control of Non-communicable diseases (NCDs). The meeting, attended by heads of state from across the world, led to the adoption of the Political Declaration on NCDs which outlines commitments and priorities to strengthen the prevention and control of NCDs.

As a result of this declaration, the World Health Organization has developed an NCDs Global Monitoring Framework\(^5\) in consultation with governmental and non-governmental stakeholders to enable global tracking of progress in preventing and controlling NCDs and their key risk factors. The framework aims to provide a foundation for action on the global commitments and drive progress in the prevention and control of NCDs.

The Framework includes nine global targets and 25 indicators. The nine voluntary global targets aim to combat global mortality from the four main NCDs, accelerating action against the leading risk factors for NCDs and strengthening national health system responses.

The Global Monitoring Framework was adopted by UN Member States during the 66th Session of the World Health Assembly, which took place in May 2013 in Geneva. Member States reaffirmed their commitment to address NCDs by putting in place the strong foundations of the global NCDs architecture. In addition to adopting the Global Monitoring Framework, Member States endorsed the WHO Global Action Plan on NCDs 2013–2020\(^6\) and agreed to establish a global coordination mechanism to coordinate activities and promote engagement of all actors in the global NCDs response.

The overarching target of the Global Monitoring Framework is a 25 percent reduction in premature mortality from cardiovascular disease, cancer, diabetes, or chronic respiratory diseases by 2025. Other targets are as follows (see Figure 2).\(^5\)

Each target is accompanied by relevant indicators that help in assessing challenges and priorities, and monitor progress of national NCDs efforts. The NCDs Global Action Plan includes a total of 25 indicators, including those linked to the nine targets (see Figure 3). For example, the target on drug therapy to prevent heart attacks and strokes includes the following indicator:

> ‘Proportion of eligible persons (defined as aged 40 years and older with a 10-year cardiovascular risk ≥30%, including those with existing cardiovascular disease) receiving drug therapy and counselling (including glycaemia control) to prevent heart attacks and strokes.’

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5 World Health Organization (WHO). Global Monitoring Framework for NCDs (GMF for NCDs).

The Global Monitoring Framework and Global Action Plan establish an unprecedented foundation for driving policy change and resource mobilisation to address the major health, social, and economic burden that cardiovascular diseases and other NCDs are placing on the globe.

Now that the Global Monitoring Framework has been adopted, Member States are encouraged to develop national NCDs targets and indicators that are aligned with and build upon the global framework. The NCD Alliance has developed a checklist of priority areas to ensure the successful implementation of the approved NCDs resolutions.7

Among the priority areas is the need to ‘urgently strengthen national efforts to address the burden of NCDs, while respecting, promoting, and protecting human rights and equity as integral parts of NCDs prevention and control’. Specifically the NCD Alliance calls for developing and strengthening multi-sectoral national policies and plans by 2013, including developing national targets and indicators, taking measures to implement these plans, and establishing high-level multisectoral national coordination mechanisms.8

**Figure 2 Global NCDs Targets**

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<th>Target</th>
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<td>Unconditional probability of dying between ages 30 and 70 years from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases</td>
<td>Cervical cancer screening, drug therapy and counselling, essential NCDs medicines and technologies, hepatitis B vaccine, human papilloma virus vaccine, marketing to children, access to palliative care, policies to limit saturated fats and virtually eliminate trans fats</td>
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<tr>
<td>Harmful use of alcohol (3)</td>
<td>10% reduction</td>
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<tr>
<td>Low fruit and vegetable intake</td>
<td>10% reduction</td>
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<td>Physical inactivity (2)</td>
<td>30% reduction</td>
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<tr>
<td>Salt intake</td>
<td>30% reduction</td>
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<tr>
<td>Saturated fat intake</td>
<td>25% reduction</td>
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<td>Tobacco use (2)</td>
<td>0% increase</td>
</tr>
<tr>
<td>Raised blood pressure</td>
<td>50% of eligible people receiving drug therapy and counselling to prevent heart attack and stroke</td>
</tr>
<tr>
<td>Overweight and obesity (2)</td>
<td>80% availability of essential medicines and basic technologies to treat CVD and other NCDs</td>
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<tr>
<td>Raised total cholesterol</td>
<td>25 by 25 Global Target</td>
</tr>
</tbody>
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**Figure 3 Global NCDs Indicators**

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7 NCD Alliance. NCD Alliance Briefing on the WHA NCDs Omnibus Resolution (NCDA May 2013).
8 NCDA May 2013.
Global Congresses...
Supporting and contributing to the scientific debate
Worldwide, there are about 17 million deaths due to cardiovascular disease each year.\(^1\) Approximately two to three times as many people experience non-fatal cardiovascular events. Half of these events occur in people with pre-existing cardiovascular disease.\(^2\) There is strong evidence that some treatments such as β blockers, angiotensin-converting-enzyme (ACE) inhibitors, statins, and antiplatelet drugs reduce fatal and non-fatal events in patients with coronary heart disease of stroke and therefore are recommended by the World Health Organization.\(^3\)

Unfortunately there is a gap between the evidence of effective treatment for secondary prevention and practice. Although this gap has narrowed in some regions in recent years, it is still higher than desirable. In high income countries only half of patients with coronary heart disease, and a third of patients who have experienced a stroke are using three or more of the recommended treatment five years after a cardiovascular event. In low and middle income countries the gap is even larger and up to 75% of patients with known cardiovascular disease are not using even one recommended medication.\(^4\)

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1. Lozano 2010.
Emerging Leaders
Think Tank seminar
Section 3.2

Framework for action on secondary prevention

The prevention of secondary cardiovascular disease (CVD) is a public health priority and a significant part of a comprehensive strategy to reduce premature mortality. Unless prevention strategies targeting individuals with the highest risk of dying in the next ten years – i.e. those with underlying cardiovascular disease - are successfully implemented, the World Health Organization's target of 25 percent reduction in premature mortality from Non-communicable diseases (NCDs) by 2025 is unlikely to be achieved. This could have an unprecedented impact in terms of number of lives lost and economic implications.

Although effective secondary prevention treatments have been available for over two decades and are recommended by the WHO and other professional organisations, there is still a significant gap between evidence and practice. Systematic approaches are needed to improve the implementation of cost effective interventions and their long-term use. Tailored implementation strategies are also needed, addressing constraints and barriers at the local level.

Actions to improve secondary cardiovascular disease prevention must focus on healthcare systems, the community in which a health system is embedded in, and the policy environment that surrounds it. A framework for action for secondary cardiovascular disease is illustrated in Figure 4. This draws from the WHO's 2003 Innovative Care for Chronic Conditions Framework and from Fretheim's health policy implementation model (Fretheim et al, 2009).1


Action on secondary CVD prevention requires a positive policy environment with top-level leadership and government support. Legislative frameworks, regulations, integrated policies, consistent financing, allocation of human resources, leadership and advocacy, all allow for more effective patient services. A positive policy environment provides the basis upon which secondary CVD prevention initiatives can be effectively implemented and scaled up.

Section 3.2

Framework for action

Healthcare systems encompass organisations and providers with a focus on the system user – patients. Healthcare organisations ensure there is continuity and coordination across levels of care and across providers, encourage quality care through leadership and incentives, organise and equip healthcare teams, and use information systems (WHO, 2003) to organise data on CVD epidemiology, secondary CVD treatment and healthcare outcomes. There are different domains relating to key health system level inputs that are required for an effective cardiovascular secondary prevention care: namely, physical resources (e.g. medicines, health facilities and diagnostic equipment), human resources (e.g. trained healthcare workers and managers), intellectual resources (e.g. treatment guidelines), and social resources. However, the existence of inputs is insufficient in itself, and other health system arrangements should also be considered when evaluating factors that hinder or facilitate an effective cardiovascular secondary prevention care, namely: governance arrangements (political, economic, and administrative authority in the management of health systems), financial arrangements (funding and incentive systems, as well as financing), and delivery arrangements. Failure to implement evidence could also be influenced by factors at the healthcare provider and/or healthcare recipient/patient level.

Healthcare providers are key stakeholders in the implementation of evidence-based guidelines. Their awareness and familiarity of clinical guidelines in addition to motivation, high levels of self-efficacy and positive attitudes and behaviors are all necessary elements in the implementation of clinical guidelines on secondary CVD prevention.

Patients and their families play an active role as both systems users and citizens. Empowered patients with access to quality information and with strong self-management skills are key for effective secondary CVD prevention where access and adherence to treatment regimes is necessary as well as personal lifestyle modifications. Understanding the social, financial and logistical barriers faced by patients in accessing medical services and in adhering to care is an important step in the implementation of secondary CVD interventions.

The community in which patients and their families are embedded in also plays a key role in secondary CVD prevention. Awareness levels and reduced stigma towards CVD are key factors in dictating patient’s access to the health system. Community organisations, including patient organisations, can help mobilise and coordinate resources in patient care, help provide education and skills-building programs geared towards patients and families. In addition they play a key role in advocacy, from promoting patient empowerment to monitoring progress on secondary CVD prevention and holding decision makers accountable.

This brief focuses mainly on the positive policy environment in existence for secondary CVD prevention as well as the role of healthcare providers in secondary prevention guidelines implementation.
Key global policy elements for the prevention of secondary cardiovascular disease

Cardiovascular disease has been afforded global political momentum as part of the worldwide effort on Non-communicable diseases (NCDs). The ground-breaking 2011 UN High Level Meeting on the Prevention and Control of NCDs resulted in a political declaration,1 committing world governments to action and charging the WHO with producing global policy on NCDs as well as a global monitoring framework.

In the World Health Assembly in May 2013, governments worldwide adopted the NCDs Global Monitoring Framework, a set of targets2 and indicators on NCDs (see Figure 2), which includes targets with clear implications for secondary CVD prevention, specifically:

- An overall target on the 25% relative reduction in risk of premature mortality caused by the main NCDs, including cardiovascular disease
- A target to ensure at least 50% of eligible people receive drug therapy and counseling to prevent heart attacks and strokes
- A target on 80% availability of the affordable basic technologies and essential medicines, including generics, required to treat major NCDs in both public and private facilities.

The NCDs Global Monitoring Framework allows for global monitoring on progress against NCDs – and CVD by consequence – with WHO Member States expected to report back at regular intervals. Member States are also encouraged to develop national targets and indicators building on the global framework. Actions on secondary CVD prevention will be key in achieving the targets outlined above.

Global Policy Timeline

Figure 5 The NCDs global targets as set out in the WHO Global Monitoring Framework on NCDs and WHF’s specific goal on CVD.

In May 2013, WHO Member States also adopted the WHO 2013-2020 Global Action Plan on NCDs, a roadmap of policy options to contribute towards reaching the 2025 NCDs global targets. The Global Action Plan is divided along 6 priority objectives as illustrated in Figure 6 (overleaf).

Source: WHO Global NCDs Monitoring Framework

1 Political Declaration of the High level Meeting of the General Assembly on the Prevention and Control of Non-communicable diseases, UN document (A/RES/66/2).
2 To be reached by 2025.
Section 4.1 Key global policy elements for the prevention of secondary cardiovascular disease

The WHO Global Action Plan on NCDs provides crucial global policy for CVD, including secondary CVD prevention, and reflects both the latest technical expertise and evidence base for cost effective interventions against which countries will be reporting their progress at the global stage. It also highlights the existing political commitment of WHO Member States who were actively consulted and involved in the Plan preparation and who endorsed the Plan’s adoption.

Policy options relevant to secondary CVD prevention (see Table 1) can be found in the WHO Global Action Plan on NCDs under:

- **Objective 2: Strengthen national capacity**
- **Objective 4: Strengthen and orient health systems to address the prevention and control of NCDs.** This objective subdivides into five areas (see Figure 7) with clear overlap with the six building blocks of the WHO Health Systems Framework (leadership/governance, financing, health workforce, medical products/technologies, information and research, system delivery).

**Figure 6** The six main objectives of the WHO 2013-2020 Global Action Plan on NCDs.

**Figure 7** Policy option areas for strengthening health systems for NCDs (WHO NCDs 2013-2020 Global Action Plan).
To address secondary CVD prevention, it is clear that there needs to be an overall government strategy on CVD (stand alone or as part of broader NCDs planning efforts) where clear targets are set out that are in alignment with the global targets (specifically regarding premature mortality reduction and regarding drug therapy and counseling for individuals who had a heart attack or stroke). Any government plan, programme or strategy on CVD prevention (and secondary CVD prevention) must be adequately resourced. Access to care for secondary CVD prevention will depend on the affordability and availability of cost-effective drugs and the financial protection offered by the health system to the population.

Table 1 The WHO 2013-2020 Global Action Plan and policy options relevant to secondary CVD prevention.

### Objectives

**WHO 2013-2020 Global NCDs Action Plan**

**Objective 2:** To strengthen national capacity, leadership, governance, multisectoral action and partnerships to accelerate country response for the prevention and control of NCDs.

**Objective 4:** To strengthen and orient health systems to address the prevention and control of NCDs and the underlying social determinants through people-centred primary healthcare and universal health coverage.

### Policy options

**WHO 2013-2020 Global NCDs Action Plan**

Selected policy options relevant to secondary CVD prevention

**Leadership**
- Strengthen programmes for the prevention and control of NCDs
- Develop National NCDs Plan and allocate budget.

**Financing**
- Progress towards universal health coverage through financing of cost effective interventions at different levels of care
- Shift from reliance on user fees levied on ill people.

**Expanded Quality Services Coverage**
- Improve the efficiency of service delivery and set national targets consistent with voluntary global targets for increasing the coverage of cost-effective, high-impact interventions to address CVD and other NCDs, including drug therapy and counselling to individuals who have had a heart attack or stroke.

**Access**
- Access to comprehensive and cost-effective prevention, treatment and care for the integrated management of NCDs including, increased access to affordable, safe, effective and quality medicines and diagnostics and other technologies
- Relevant medicines included in country’s essential medicines list.
Discovering what is really happening in practice

Guidelines and policy
National CVD burden and policy

The Global Burden of Disease Study 2010 (GBD 2010), the largest systemic study of global patterns and trends of health loss due to diseases, injuries and risk factors, shows a heavy cardiovascular disease (CVD) burden.

This section examines data from select countries (Australia, Brazil, China, France, Germany, Italy, Spain, and the USA) and shows that CVD ranks among the most significant causes of premature mortality, accounting for between 19.6% and 31.3% of premature deaths in 2010. While the high-income countries examined experienced a slight decrease in the role of CVD in premature deaths in two decades - from 1990 to 2010, middle income economies such as Brazil and China experienced an increase in the same period. CVD risk factors are listed among the top ten risk factors that account for disease burden in these countries. They include diet, high blood pressure, smoking, high body mass index, physical inactivity, high fasting plasma glucose, high total cholesterol and the harmful use of alcohol.

As secondary prevention of CVD is a critical area that needs to be addressed in order for the World Health Organization’s target of 25 percent reduction in premature mortality from Non-communicable Diseases (NCDs) by 2025 to be achieved, the World Heart Federation examined these countries’ policies to address the issue. More specifically, the organisation mapped government policies and action in the key areas relevant to secondary CVD prevention recommended by the WHO 2013-2020 Global Action Plan on NCDs. The areas examined cover:

- National capacity (acceleration of country response for the prevention and control of NCDs, as evidenced by national CVD plans, national NCDs plans, legislation)
- Financing (progress towards universal health coverage through financing of cost effective interventions at different levels of care; decrease reliance on user fees)
- Expanded quality services coverage (improved efficiency of service delivery and coverage of cost effective high-impact interventions - such as drug therapy and counseling for those who have had a heart attack or stroke; set national targets consistent with global targets)
- Access (to affordable, safe and effective and quality medicines, relevant medicines included in country’s essential medicines list).

The policy options set out by the WHO in consultation with member states and agreed at the World Health Assembly provide a roadmap for government policy and action on secondary CVD prevention. The mappings in this report provide a snapshot of how different countries are addressing the WHO recommendations. They also outline examples of national policies and actions adopted in high-income and upper-middle income countries.
National CVD burden and policy

Australia

Section 4.2

CVD burden

Mortality and morbidity

According to the results of the Global Burden of Disease Study 2010, heart disease ranks among the most significant causes of premature mortality in Australia. CVD accounted for about 22.1% of premature death in Australia in 2010 (measured in terms of years of life lost, YLLs).1

Ischemic heart disease and stroke were, respectively, the first and third most common causes of premature death in Australia in 2010 - with lung cancer being the second highest ranked cause of premature death in the country. Ischemic heart disease accounted for 15% of premature mortality, while stroke accounted for 5.6% of premature mortality.1

Between 1990 and 2010 the role of cardiovascular diseases in premature death in Australia has diminished. While in 2010 CVD remained among the most important causes of premature death in Australia, its relative contribution to premature death has diminished from 1990, when it accounted for approximately 30% of premature death.1

For both ischemic heart disease and stroke, there was a drop in their role in premature death in Australia from 1990 to 2010, in terms of absolute numbers of premature deaths and their relative contribution to overall premature death in Australia. Ischemic heart disease showed the largest decrease, falling by 28% from 1990 to 2010. In 2010, ischemic heart disease accounted for the largest burden of disease among all diseases in Australia, as measured by death and disability (disability-adjusted life years or DALYs). From 1990 to 2010, the burden of disease attributed to ischemic heart disease diminished by about 30%. Stroke was the fifth largest contributor to the disease burden in Australia in 2010.1

Risk factors

According to the GBD 2010, the leading risk factor in Australia was dietary risks, accounting for over 10% of total disease burden. In addition, a variety of other risk factors linked to CVD were ranked in the top eight leading risk factors for the overall disease burden: high body-mass index, smoking, high blood pressure, physical inactivity, high fasting plasma glucose, high total cholesterol, and harmful use of alcohol. Of these risk factors, high body-mass index, smoking, and high blood pressure are of particular significance because they each accounted for over 5% of the total disease burden and have strong links to CVD. The burden of disease and CVD linked to physical inactivity is also of note, with over 4% of the total disease burden in the country attributed to this risk factor. High total cholesterol, which is strongly linked to CVD, accounted for over 3% of the disease burden in 2010.1

Please Note: All references to $ in the Australia report refer to AUS$.

1 GBD 2010 Profile Australia.
National policy

National Capacity (National CVD Plans, National NCDs Plans, Legislation)

Although CVD is still the most common cause of death in Australia, CVD death rates dropped by an estimated 76% between 1968 and 2007. Much of this decline has been attributed to improvements in detection, prevention and management. Australia still however, lacks a national action plan for CVDs such as those addressing other major diseases (e.g. The Cancer Australia Strategic Plan 2011–2014 and Australia’s sixth National HIV/AIDS Strategy 2010–2014).

Despite the absence of a comprehensive national CVD plan, the government of Australia has demonstrated a long-term commitment to addressing CVD prevention and control, including secondary prevention. In 1996, CVD was endorsed as a National Health Priority Area (NHPA) at the Australian Health Ministers Conference. The government has currently identified 9 NPHAs, including CVD and the early selection of CVD as an NPHA. This has demonstrated the Health Ministers’ recognition of the adverse impact of CVD on morbidity and mortality and the potential for health improvements through prevention and treatment programmes.

In 2005, the Australian Health Ministers Conference endorsed the National Chronic Disease Strategy (NCDS) to provide a national framework for improving chronic disease prevention and care. The relevant NHPAs now sit within the framework of the NCDS.

The National Service Improvement Framework for Heart, Stroke and Vascular Disease (2006) constitutes a key part of the national approach to improve health services for NCDs under the NCDS.

Some of the critical intervention points relating to secondary prevention of CVD outlined in the Framework include:

- Establish systems of care to reinforce the importance of risk reduction in people with established heart, stroke and vascular disease
- Develop systems to improve the coordinated, multidisciplinary care for people with heart, stroke and vascular disease
- People attending hospital with suspected or confirmed CHD will receive appropriate treatment to reduce their risk of subsequent coronary events
- Develop approaches to monitoring all aspects of heart, stroke and vascular disease control and ensure that the agreed indicators are aligned with disease plans at national, state/territory, and local levels
- Implement policies to encourage the safe and quality use of medicines
- Access to rehabilitation services for people with heart, stroke and vascular disease
- Ensure that psychosocial needs of people with heart, stroke and vascular disease are met across the patient journey.

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Some of the relevant priority actions identified in the Framework include:

- Ensure people with heart, stroke and vascular disease receive coordinated, multidisciplinary care that is guided by an agreed care plan and provides continuity across all levels of service.
- Strengthen support for primary healthcare and general practitioners to provide high quality and appropriate coordination of treatment and supportive care, and rehabilitation from diagnosis to palliative care.

While the CVD Framework sets out these critical intervention points and priority areas, it does not provide an implementation plan or ensure funding, leaving implementation to state and territory governments. In contrast, other NHPAs have received greater attention by the federal government. Compared to funding for cancer, mental health and diabetes programmes, federal funding for CVD programmes (excluding pharmaceutical benefits, hospital payments and research) remains low.

In December 2011, the National Secondary Prevention of Coronary Disease Summit was held to address difficulties in: “translating clinical trial research into effective policy and practice.” Researchers summarised the recommendations emerging from the Summit as:

- Develop and implement a national approach that is adaptable to available resources and individual patient needs and values.
- Bridge the gap between hospital and primary healthcare and provide connected care by using a case-management approach, improved communication, and greater provider education relating to secondary prevention.
- Increase patient utilisation of existing services through creation of a national inventory or ‘map’ of secondary prevention initiatives.
- Develop a system for monitoring and maintaining performance in secondary prevention.
- Implement a communications strategy that links state and federal government, Medicare Locals, consumers and private health funders; and
- Establish a national secondary prevention task force to implement the recommendations.
 Financing

According to the OECD, in 2010-11, Australia spent 8.9% of its GDP on healthcare. For the financial year 2010–11, government funding amounted to 69.1% of total health expenditure—42.7% by the federal government and 26.4% by the states/territories. In 2010-11, non-government sources provided 30.9% of health expenditure, including out-of-pocket spending (18.3%). In 2010-11, private health insurance accounted for 7.6 percent of total health expenditure, and in 2013, 47% of the population had private hospital insurance and 54.9% had general treatment coverage. In terms of CVD expenditures, the Australian Institute of Health and Welfare reports that CVD has the highest level of healthcare expenditure of any disease group, ranking it ahead of oral health, mental disorders and musculoskeletal conditions. In 2008-09 the estimated expenditure for CVD was $7,605 million (12% of all allocated healthcare expenditure). Hospital admitted patient services accounted for most CVD expenditure, followed by prescription pharmaceuticals and out-of-hospital medical expenses, in 2008-09.

The federal government funds and oversees both Medicare (the national health insurance scheme) and pharmaceutical benefits. Medicare provides universal health coverage, including free or subsidised access to most services and prescription pharmaceuticals, for citizens and permanent residents. The Extended Medical Safety Net provides additional coverage for patients faced with high healthcare costs. Voluntary private health insurance complements and supplements the public scheme. Under the National Health Act of 1953, in-patient care in public hospitals is free. However, people may choose to pay for private care in public or private hospitals. For NCDs management, Medicare rebates exist for General Practitioners coordinating the care of patients with NCDs. The Australian Government subsidises CVD medicines through the Pharmaceutical Benefits Scheme (PBS) and rebates GP and allied health services through the Medicare Benefits Schedule (MBS).

For health promotion programming, the government committed $872.1 million over six years (from 2009-10) under the National Partnership Agreement on Preventive Health (NPAPH), the largest single commitment to health promotion by an Australian government to date. It also made an $805.5 million commitment over four years to 2012-13 for an Indigenous Chronic Disease Package as its contribution to the National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes.

Expanded quality services coverage

The increase in use of ‘best practice’ guidelines has influenced steady rises between 2000 and 2006 of prescriptions for statins, blood-pressure lowering medicines, clot-preventing medicines and beta-blockers (AIHW). However, while those in rural or remote areas have higher death rates from CVD than those in urban areas, they are dispensed medicines at half the rate in rural areas and nearly one-thirtieth the rate in remote areas. Such disparities in supply of medicines may be due to problems accessing medical services and medicines in rural and remote areas. The data does not indicate whether the medicines dispensed are for primary or secondary CVD prevention.

In terms of access to stroke units and discharge planning, a 2013 AIHW update reported the following:

- Between 2007 and 2011, the number of stroke units in public hospitals increased from 54 to 74, with the proportion of patients receiving stroke unit care increasing from 50% to 60%.
- Thirty-nine per cent of hospitals required to admit people with acute stroke reported having a stroke unit. Although this has improved since 2004 (19%), it is still low compared with several other countries with similar-sized economies.
- From 2007 to 2010, the number of patients admitted for ischemic stroke receiving thrombolysis increased from 461 to 1,170, which could be related to an increase in the number of stroke units offering the service (from 24% in 2007 to 36% in 2011).
- Although discharge planning is recommended for all stroke survivors, only 50% of stroke patients received such a plan in 2011.

Despite strong evidence that secondary prevention reduces hospital readmission rates and death rates, researchers have identified the poor utilisation of effective preventive drug treatments, cardiac rehabilitation and adherence to lifestyle recommendations as a major challenge to the provision of secondary prevention within the country.

A survey of over 5,000 Australian patients found that 1,548 had clinically expressed cardiovascular disease (CVD) and only half were following recommended treatments (Heeley et al 2010). In particular, the underutilisation of cardiac rehabilitation services has been documented, with low referral rates, attendance rates, program completion rates and with people at highest risk of recurrent disease least likely to participate (particularly indigenous Australians). While there are no national figures available, a Queensland study showed that 70% of acute coronary syndromes (ACS) patients did not have access to cardiac rehabilitation programs. Many researchers and policymakers note that addressing the inequities in health access and status for disadvantaged Australians, particularly among the indigenous, is a key priority.

Clinical guidelines for Australia

Australia has developed specific national guidelines for cardiovascular secondary prevention.


Access

Australia began developing policies in the 1950s to ensure that essential medicines were available. A comprehensive policy was in place by the 1990s, and a formal policy document entitled Australia’s National Medicines Policy launched in 1999. In 2002, the Government put in place the National Strategy for Quality Use of Medicines as part of the National Medicines Policy, with provisions for performance indicators to monitor implementation. The NCDA calls for the regular review of medicine use and effective sharing of information between specialists and primary healthcare providers, including pharmacists. In recent reviews the National Institute of Clinical Studies (2003, 2005), the Australian Council for Safety and Quality in Health Care and National Institute of Clinical Studies (2004) identified the underuse of the following medicines in prevention and treatment of CVD:

- Antithrombotic (clot-preventing) agents, such as Warfarin, to prevent stroke in patients with atrial fibrillation
- Angiotensin-converting-enzyme (ACE) inhibitors and beta-blocking agents in patients with heart failure
- ACE inhibitors and beta-blocking agents in patients with acute coronary syndromes
- Clot-busting medicines (thrombolysis) in eligible patients with stroke.

In 2005, Government expenditure on medicines commonly used to prevent or treat CVD amounted to $2 billion, representing 35% of the total spend on all subsidised medicines. According to AIHW statistics, in 2003, there were 178.1 million subsidised prescriptions overall, of which 55.6 million (31.2%) were for ‘cardiovascular system’ medicines and 6.1 million (3.4%) were for ‘blood and blood-forming organs’ medicines (DoHA 2005). There were also an estimated 42 million non-subsidised prescriptions, with ‘cardiovascular system’ medicines accounting for 3.5 million (8.4%) and ‘blood and blood forming organs’ medicines 0.6 million (1.3%). Seven ‘cardiovascular system’ medicines were on the top ten list of most commonly used medicines, including Atorvastatin and Simvastatin. It is not known whether these medicines were indicated for primary or secondary CVD prevention, or for other uses. The AIHW reports that in 2004–05, GPs prescribed CVD medicines at a rate of 14.7 per 100 encounters, accounting for 17.7% of all general practice prescriptions (AIHW: Britt et al. 2005).

The most commonly prescribed CVD medicines were blood lipid lowering medicines (3.0 per 100 encounters), followed by plain ACE-inhibitors (2.4 per 100 encounters) and beta-blocking agents (1.7 per 100 encounters).

16 Ernst & Young, Review of Cardiovascular Disease Programs, Final Report, Department of Health and Ageing, 30 March 2009.
Mortality and morbidity

According to the Ministry of Health’s NCDs Action Plan (Plano de Ações Estratégicas para o Enfrentamento das Doenças Crônicas Não Transmissíveis (DCNT) no Brasil 2011-2022), NCDs account for 72% of mortality in Brazil, with 31.3% of all deaths attributable to cardiovascular diseases. An estimated 300,000 Brazilians die annually due to cardiovascular diseases, such as myocardial infarction, stroke, heart and kidney failure, and sudden death, which translates to 820 deaths a day, 30 deaths per hour, or one death every two minutes.1

According to the Brazilian National Action Plan, 40% of cardiovascular disease-related deaths in Latin America occur during an individual’s most productive years.1

There is a high number of deaths due to heart disease among those under 60 years of age in Brazil. According to the results of the Global Burden of Disease Study 2010, heart disease ranks among the most significant causes of premature mortality in the country (measured in terms of years of life lost, YLLs). Ischemic heart disease and stroke were, respectively, the second and third most common causes of premature death in Brazil in 2010. Ischemic heart disease accounted for 9.1% of premature mortality, while stroke accounted for 7.3% of premature mortality. Interpersonal violence was the only cause of premature mortality found to be more prevalent (accounting for 9.9% of total premature mortality).1

Between 1990 and 2010 the role of cardiovascular diseases in premature death in Brazil rose from 15.4% to 20.9% of total causes of premature death. This included increases in premature death attributable to hypertensive heart disease, ischemic heart disease, cardiomyopathy, and stroke. Among cardiovascular diseases, hypertensive heart disease has seen the most significant percent increase, rising by 53%. During the 20-year time span, premature death attributed to ischemic heart disease also rose, increasing by 27%.1

In 2010, ischemic heart disease accounted for the largest burden of disease among all diseases, as measured by death and disability (disability-adjusted life years or DALYs). From 1990 to 2010, the burden of disease attributed to ischemic heart disease rose about 30%. Stroke was the fourth largest contributor to the disease burden in 2010.1

In 2010, hypertension and diabetes are the main causes of hospitalisation in the Brazilian public health system, and are linked with chronic renal disease, other chronic diseases, maternal health, and other health issues. A 2011 national telephone survey (VIGITEL survey) on health risks found that 23.3% of the adult population had received a previous clinical diagnosis of hypertension.2

Risk factors

According to the GBD 2010, the leading risk factor in Brazil was dietary risks, accounting for over 11% of total disease burden. In addition, a variety of other risk factors linked to CVD were ranked in the top nine leading risk factors for the overall disease burden: high blood pressure, harmful use of alcohol, high body-mass index, smoking, high fasting plasma glucose, physical inactivity, and high total cholesterol. Of these risk factors, high blood pressure, high body-mass index, and smoking are of particular significance because they each accounted for over 6% of the total disease burden and have strong links to CVD. The burden of disease and CVD linked to physical inactivity is also of note, with over 3% of the total disease burden in the country attributed to this risk factor. High total cholesterol, which is strongly linked to CVD, accounted for over 2% of the disease burden in 2010.1

According to a 2011 national telephone survey among adults (VIGITEL survey), only 15% engage in leisure time physical activity, only 18.2% eat fruit and vegetables five or more days a week, 34% eat food high in fat, and 28% have soft drinks five or more days a week. These risk factors are linked with the high prevalence of overweight and obesity, which reaches 48% and 14% of adults, respectively.2

1 GBD 2010 Profile Brazil.
National policy

National Capacity (National CVD Plans, National NCDs Plans, Legislation)

Cardiovascular disease is addressed in Brazil through specific ministerial ordinances (portarias) and systems of care (linhas de cuidado) as well as through the Brazilian National NCDs Plan and broader health promotion policy such as the Brazilian National Policy on Health Promotion. In 2004, the Minister of Health issued ordinance no 1169 that outlined the National policy for high complexity CVD care through the national organisation and implementation of state and/or regional CVD high complexity care networks in high complexity CVD care units and high complexity CVD reference centers.

Systems of care (Linhas de Cuidado), clinical protocols and care manuals

This approved the ‘System of Care for Acute Myocardial Infarction’ (AMI) and ‘Clinical Protocol for Acute Coronary Syndromes’. It also institutes and finances Units for Intensive Coronary Therapy and includes certain medications in the public health system (SUS) national reference table for in-patient care. This ordinance was produced in response to ‘the need for integrated action to reduce CVD incidence as well as the need to standardise the treatise of complex coronary syndromes (ACS) in the SUS’ as well as to ‘improve regulation, control and evaluation mechanisms for CVD patients’. The System of Care Ordinance reflects the political will to allocate funding for the increase of secondary care services whilst aligning and facilitating patient flow through the system and setting out objectives and indicators. It aims to specifically reduce premature mortality and complications of acute myocardial infarction, however this goal is not time bound or quantified. Interestingly, the System of Care references an initiative of the Pan-American Health Organization (PAHO) that proposes the global goal of reducing CVD mortality rate up to 20% between 2011-2020. Secondary CVD prevention is afforded its own specific objective in the System of Care for AMI of ‘Promoting secondary prevention of acute myocardial infarction’ against a target of ‘avoiding new episodes of acute myocardial infarction and acute coronary syndrome’ and an indicator of ‘1 year mortality following acute myocardial infarction’.

The Clinical Protocol for Acute Coronary Syndromes (ACS) accompanied the System of Care for AMI and was developed based on national guidelines of the Brazilian Society of Cardiology, international guidelines and, state based ACS efforts. It sets out as a primary objective to reduce national morbidity and mortality of patients with acute coronary syndromes. Secondary prevention is prominently featured as a secondary objective to ‘Prevent new coronary events, guaranteeing the continued care and rehabilitation of the patient’. The Clinical Protocol sets out medical treatment post discharge specifying the indications for use of: aspirin, clopidogrel, beta-blockers, ACE (angiotensin converting enzyme) inhibitors, ARB (angiotensin receptor blockers), statins, and others. Follow up in primary care is specified including cardiac rehabilitation, tobacco cessation, care for hypertensives and diabetics. Furthermore, specific indicators are provided for healthcare managers to use, including prescription of aspirin, statins, beta-blockers, ACE inhibitors or ARBs upon discharge.

In April 2012, the Health Minister issued ordinance no 665 approving the System of Care for Stroke and setting criteria for hospital emergency stroke centers with associated incentive funding. The ordinance responded to the need for structuring the health system for integrated action to reduce the stroke burden. The System of Care for Stroke sets out to reduce stroke morbidity and mortality in Brazil. This overall goal however is not time bound or quantified. Secondary prevention is addressed in a specific objective to ‘institute outpatient follow up after hospital discharge, with rehabilitation, home care, specialised services and social reintegration’. The System of Care for Stroke also sets out indicators that must be used by the hospital stroke urgency centres. These include: prophylactic and rehabilitation plan upon discharge; prescription of drugs according to specified circumstances upon discharge (these drugs include statins, antiplatelet agents and anticoagulation agents).

As a result of ordinance no 665, the Ministry of Health in partnership with professional medical societies and others produced the Manual of Stroke Care in 2013. This manual presents protocols, care algorithms and recommendations for healthcare professionals in the clinical management of stroke patients. A section is dedicated to the secondary prevention of stroke with specific recommendations made on the use of antiplatelet agents, ACE inhibitors, diuretics, statins and others. Specific therapeutic targets are offered for patient’s lipid levels and blood pressure.

5 INTEGRALIDADE NA ASSISTÊNCIA À SAÚDE: A ORGANIZAÇÃO DAS LINHAS DO CUIDADO, Batista Franco, T, Magalhaes Junior, HM. O Trabalho em Saúde: achando e experienciando o SUS no cotidiano; HUCITEC, 2004-3a. edição; São Paulo, SP.
Section 4.2 National CVD burden and policy

Brazil

Other CVD related legislation and policy

There have been considerable policy efforts concentrated on hypertension and diabetes as major risk factors for CVD morbidity and mortality in Brazil. The 2001 Plan for the Reorganization of Care for Arterial Hypertension and Diabetes aimed for a reduction of CVD morbidity and mortality with a focus on the primary care network.\textsuperscript{11} The plan also oriented the free distribution of hypertensive medication and led to the creation of a registry for hypertensive and diabetic patients (SIS–Hiperdia).\textsuperscript{12} Patients with existing CVD are mentioned in the plan under the area for medical treatment. The plan forms the basis of the national programme for hypertension and diabetes and the area is overseen by the Coordination for Hypertension and Diabetes in the Ministry of Health. In 2013, the Ministry of Health issued a Basic Care Handbook with hypertension guidelines for primary care, recommending risk assessments and offering specific treatment recommendations.\textsuperscript{13}

In 2013, ordinance no 200 approved the clinical protocol and therapeutic guidelines for dyslipidemia which included risk stratification (with those with prior CVD considered high risk) and the recommendation of specific statins.\textsuperscript{14}

The Brazilian National NCDs Action Plan

Brazil’s National NCDs Action Plan 2011-2022 was developed in the lead up to the United Nations High-level Meeting on the Prevention and Control of NCDs\textsuperscript{15} predating the WHO NCDs Global Monitoring Framework. The NCDs Action Plan contains a set of goals and actions that build upon the improvements in Brazilian NCDs prevention and control of the last decade.

The NCDs Action Plan includes an overarching target of reducing premature mortality from NCDs by 2% a year.\textsuperscript{16} It also includes some non-quantified national targets such as reducing obesity prevalence and increasing the consumption of fruit and vegetables. The plan does include a number of measurable national targets such as to increase coverage of cervical cancer screening to 80%, however no targets are made for CVD specifically nor for CVD secondary prevention. Whilst the NCDs Action Plan is comprehensive in scope, many goals lack specific targets particularly in the areas of health promotion and comprehensive care.

The measures in the NCDs Action Plan call for the importance of involvement of different government ministries (e.g. Finance, Education, Cities, Sports, Agrarian Development, Social Development, Environment, Agriculture/Embrapa, and Labor and Planning), the Human Rights Special Secretariat, Public Security Secretariat, road traffic organizations, corporations, NGOs, and other civil society organisations.\textsuperscript{17}

The NCDs Action Plan addresses the four main groups of NCDs and their shared modifiable risk factors (smoking, alcohol abuse, physical inactivity, unhealthy diet, and obesity). It also underscores the importance of targeting underprivileged and vulnerable groups, including low income populations with low schooling and ethnic minorities.\textsuperscript{18} The plan highlights cardiovascular disease, cerebrovascular accidents, coronary diseases, and systemic high blood pressure as the major cause of death and disability in Brazil. It highlights hypertension as the priority element to be tackled in the plan through strengthening of hypertension surveillance and that of its co-morbidities and their determinants; as well as ensuring comprehensive care; health promotion, investments in education and social mobilisation.\textsuperscript{19}

The plan acknowledges that aspirin, statins and anti-hypertensives are ‘best-buys’ to reduce CVD events in people at high risk.

The NCDs Action Plan is focused on strengthening three main axes: 1) surveillance, information, evaluation, and monitoring, 2) health promotion, and 3) comprehensive care. Some of the measures for these may have implications for improved therapy for secondary CVD prevention include:

Surveillance, information, evaluation, and monitoring:

- Conducting the National Health Survey, encompassing important metrics such as access to and use of services; morbidity; and risk and protective factors for chronic diseases
- Conducting studies on NCDs, including analysing and conducting surveys on morbidity-mortality focusing on health-related risk factors, health interventions and NCDs costs.

Health promotion:

- Implementation of a model of Comprehensive Care for active ageing, strengthening activities for health promotion, prevention, and Comprehensive Care
- Training primary care professional teams and caretakers to strengthen the provision of care for the elderly and people with chronic conditions
- Promoting autonomy and strengthening independence for self-care and the use of medicines.

Comprehensive care:

- Defining and implementing clinical protocols and guidelines for NCDs, based on cost-effectiveness analyses. This resulted in an NCDs clinical guideline document published in 2012 by the Ministry of Health, which includes recommendations on patient risk stratification.

- Strengthening integration of care and hospital networks to ensure follow up and efficiency.

- Capacity-building and training of primary care teams to strengthen quality of care, including expanding tele-medicine resources and distance learning courses. Expanding access to free medicines and other technologies (following the Clinical Protocols And Therapeutic Guidelines for NCDs and smoking).

- Expanding home care programmes for people with limited mobility or who need regular care, but no hospitalisation, as well as increasing integration of home care programs with Health Care Systems to ensure continuity and quality of care.

- Qualification and integration of all health units belonging to the Urgency Care System to provide treatment for patients with AMI and Cerebrovascular Accident (CA), increasing access to the therapies established in the Clinical Protocols and Therapeutic Guidelines, and ensuring timely access to treatment. The goal/indicator for this strategic line is ‘to create stroke units’. Actions under this strategic line and its goal/indicator, include:
  - Promote secondary prevention of AMI and stroke.
  - Guarantee access to rehabilitation for stroke patients.
  - Create registries for AMI and stroke.

Financing

The Brazilian health system has three subsystems that interact and overlap: 1) the public system, the Brazilian Unified Health System (Sistema Único de Saúde - SUS), coordinated at the federal government level but administered through overlapping municipal, state, and federal government authorities; 2) the private sector subsystem (both for profit and nonprofit financed through a diverse set of private and public resources; and 3) private health insurance plans that link and coordinate between healthcare and medical services providers and clients/patients. Close to 48 million Brazilians are enrolled in some sort of private health insurance, which means that they can seek assistance in either public or private healthcare units. The remaining 150 million people are limited to public health providers.

According to OECD’s Health Data 2013, total health spending accounted for 8.9% of GDP in 2011, slightly below the average of 9.3% in OECD countries. In Brazil, 45.7% of health spending was funded by public sources in 2011, which is much lower than the OECD average of 72.2%. There is ongoing debate on reforms to the country’s financing of SUS which would likely raise national healthcare spending as a proportion of the GDP in coming years.

SUS is intended to provide healthcare free of charge to the Brazilian population, financed through direct and indirect sources such as tax revenues, social contributions, out-of-pocket spending, and employers’ healthcare spending. It is estimated that the proportion of out-of-pocket expenses on healthcare corresponded to 19% in 2008. According to a 2007 study, the loss of productivity and decrease in family income due to diabetes, heart disease, and strokes in Brazil should lead to estimated losses of $4.18 billion for Brazilian economy from 2006-2015.

In 2008, CVD were responsible for approximately 20% of overall spending of SUS’s hospital admissions and are the main causes for hospital admissions for both sexes. Direct costs for CVD patients corresponded to 8% of the country’s overall health spending. It is estimated that the public sector expenditure on statins in 2009 was of approximately R$ 92 million. It is not known what percentage of this was for secondary CVD prevention.

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A study conducted in 2005 estimated the annual cost of coronary artery disease (CAD) management in Brazil’s SUS and private insurance.\textsuperscript{26} It found that the average estimated annual cost per patient was R$ 2,733.00, for the public sector, and R$ 6,788.00, for private and fee-for-service plans. Expenses with medications (R$ 1,154.00) represented 80% and 55% of outpatient costs, and 41% and 17% of total expenses, in public and non-public sectors, respectively.

**Expanded Quality Services Coverage**

SUS was created in 1988 following the 1988 Federal Constitution’s recognised right to healthcare. The system is based on three overarching principles: (1) universal access to health services, with health defined as a citizen’s right and an obligation of the state; (2) equality of access to healthcare; and (3) integrality (comprehensiveness) and continuity of care. Other guiding principles include decentralisation, increased participation, and evidence-based prioritisation.

Primary Healthcare has been significantly expanded in recent years, with about 60% of the Brazilian population covered. The Primary Health Care programme has been actively engaged in health promotion efforts for CVD with the production of the 2006 Basic Care Handbook for the Clinical Prevention of Cardiovascular, Cerebrovascular and Chronic Renal Disease.\textsuperscript{27,15} The Basic Care Handbook produced by the Ministry of Health represented the first Brazilian initiative for large-scale primary and secondary prevention of CVD. The Handbook is targeted at primary care providers with its implementation required by Brazil’s 25,000 family health teams. These are multiprofessional teams based in basic health units responsible for the systematic follow up of a number of families in communities.\textsuperscript{28} The Handbook offers recommendations on pharmacological prevention with indications on anti-hypertensives, aspirin and statins.

A 6 year cohort study showed that the Family Health Program (FHP) care was more effective than other non Family Health programme care in preventing death from secondary stroke and Myocardial Infarction.\textsuperscript{29} The study found that integrated and comprehensive healthcare in the FHP model was effective with members regularly trained on chronic disease management guidelines. The close bonds between patients and team members created an environment of shared responsibility in secondary CVD prevention and patients were asked if they were running out of medication in monthly home visits.

**Clinical guidelines for Brazil**

At the time of writing this report, Brazil has not developed a specific national guideline for cardiovascular secondary prevention. According to a leading national cardiologist, both the American and European guidelines for cardiovascular secondary prevention are followed in Brazil.


Access

A variety of policies and programmes have been introduced in Brazil that have increasingly expanded access to pharmaceuticals for cardiovascular diseases and other NCDs.

Since 1999, the financing of medicines has been shared between Federal, State, and Municipal governments, with states and municipalities having autonomy over scheduling, purchase, and supply. The Ministry of Health transfers resources for the purchase of medicines based on the municipalities’ number of inhabitants/year, which are supplemented by state and municipal financing; however the Ministry has also provided free medicines to selected treatments for some of the most prevalent NCDs, such as hypertension. The 2001 Plan for the Reorganisation of Care for Arterial Hypertension and Diabetes oriented the free distribution of essential hypertension and diabetes medication.

In 2004, the National Pharmaceutical Assistance Policy (Política Nacional de Assistência Farmacêutica) was approved by the National Health Council in resolution no 338. One component of this policy is the National List of Essential Medicines (Relação Nacional de Medicamentos Essenciais, RENAME) which is updated on a regular basis according to the protocols issued by the Ministry of Health and includes a variety of drugs for a wide range of cardiovascular conditions.

In 2004, a collaborative initiative called the ‘Farmácia Popular do Brasil’ (Brazil’s Popular Drugstore) was established between the three spheres of government to further expand access to essential medicines. In 2006, the programme was expanded to private pharmacies and came to be named ‘Aqui tem Farmácia Popular’ (Here there is a Popular Drugstore). The Ministry of Health started subsidising 90% of the reference value for essential medicines, including those for hypertension. By July 2011, the Aqui tem Farmácia Popular program was present in over 2.8 thousand municipalities, and served 3.1 million Brazilians in the 17,500 pharmacies registered with the programme.

A 2010 study found low free access for all cardiovascular and metabolism-related pharmacologic groups, and for medicines belonging to the Hypertension and Diabetes Program and to the RENAME. Reasons for this included lack of medicine availability because of budget and medicine acquisition sources belonging to various programmes using different financial policies and the responsibility for medicines purchase being unclear. In an attempt to solve these problems, the national-level medicine supply system decentralised to make the process of medicine acquisition more suitable for local needs.

In February 2011, the Farmácia Popular/ Saúde Não Tem Preço (Popular Drugstore/Health is Priceless) campaign started offering free medicines for hypertension and diabetes. Through these programmes people have been able to access more than 15 drugs for hypertension and diabetes (including anti-hypertensive medications, insulin, hypoglycemic agents, and statins). Hypertension drugs include Captopril, Enalapril Maleate, Propranolol Hydrochloride, Atenolol, Hydrochlorothiazide, and Losartan. By July 2011, 2.1 million individuals with hypertension and 788,000 with diabetes have benefited from the programme, which indicated a 194% increase in access compared to January 2011.

One 2012 study analysed specialised health services in the different Brazilian regions for their use of recommended drugs in the treatment of patients with acute coronary syndromes (namely, Aspirin, Clopidogrel, beta blocker and statin). Specific results are shown in relation to drug administration upon hospital discharge. The study concludes that there are important regional differences in drug usage with patients in the South and Southeast regions receiving medication with a higher frequency in comparison to patients in the North and Northeast regions.

CVD burden

Mortality and morbidity

According to the results of the Global Burden of Disease Study 2010, heart disease ranks among the most significant causes of premature mortality in China. CVD accounted for about 26% of premature death in China in 2010 (measured in terms of years of life lost, YLLs).1

Stroke and ischemic heart disease were, respectively, the first and second most common causes of premature death in China in 2010. Stroke accounted for 15.2% of premature mortality, while Ischemic heart disease accounted for 8.4% of premature mortality.1

Between 1990 and 2010 the role of cardiovascular diseases in premature death in China has seen a rapid increase from 15.1% to 26.1% of all causes of premature death, including increases in the burden of stroke, ischemic heart disease, hypertensive heart disease, and other cardio and circulatory diseases.1

Among cardiovascular diseases, ischemic heart disease saw the most significant increase: premature deaths in China attributed to ischemic heart disease have increased by approximately 86% in this 20-year period. During this 20-year time span, premature deaths attributed to stroke rose by 28%, while those attributed to hypertensive heart disease rose by 23%.1

In 2010, ischemic heart disease accounted for the largest burden of disease among all diseases in China, as measured by death and disability. From 1990 to 2010 in China, the burden of disease attributed to stroke rose by about 30%. Ischemic heart disease was the second largest contributor to the disease burden in China in 2010, rising by over 80% in the same 20-year time span.1

Risk factors

According to the GBD 2010, the leading risk factor in China was dietary risks, accounting for over 16% of total disease burden. In addition, a variety of other risk factors linked to CVD were ranked in the top ten leading risk factors for the overall disease burden in China: high blood pressure, smoking, high fasting plasma glucose, harmful use of alcohol, high body-mass index, and physical inactivity. Of these risk factors, high blood pressure and smoking are of particular significance, because they each accounted for over 8% of the total disease burden and have strong links to CVD. High blood pressure ranked second among risk factors in its contribution to the overall disease burden, accounting for over 11% of the burden. The burden of disease and CVD linked to physical inactivity is also of note, with over 3% of the total disease burden in the country attributed to this risk factor.1

1 GBD 2010 Profile China.
Section 4.2

National policy

National Capacity (National CVD plans, National NCDs plans, Legislation)

‘Healthy China by 2020’ is a national health development reform plan to improve the health of the nation, to reduce regional inequalities and achieve universal health coverage. Launched in 2008, key policies include: the strengthening of primary care and development of community centres; improving accessibility and service standards for basic healthcare facilities; improving the rural health insurance scheme; reducing patient costs of medical services and drugs, addressing chronic disease prevention and promoting better lifestyles.\(^2\)\(^3\) The ‘Health China 2020 Strategy Research Report’ produced in 2012, presents a comprehensive target system, including 10 targets and 95 sub-targets.\(^4\)\(^5\) The 10 main targets include: life expectancy to reach 77 by 2020; reducing system inequities between different regions; improving medical insurance system and controlling or reducing chronic disease. It was not possible to ascertain whether the sub-targets address CVD or secondary prevention of CVD.

To respond to its significant Non-Communicable Diseases (NCDs) burden, in May 2012, the Chinese Ministry of Health co-signed with 15 other government ministries, the ‘China National Plan for NCDs Prevention and Treatment (2012-2015)’.\(^6\) The Plan has eight overall objectives, including to reduce premature death and disability due to NCDs and to improve the service network for NCDs prevention and treatment. The Plan includes specific CVD related policy objectives, namely:

- To increase the standard management rate of hypertension and diabetes to 40%.
- To increase the blood pressure and blood glucose control rate in a managed population (under regular monitoring) to 60%.
- To limit the growth rate of stroke incidence to under 5%.
- To decrease stroke-related mortality by 5%.

The Plan assigns the National Center of Cardiovascular Diseases to develop special action plans to guide local areas to promote the implementation of the Plan. The Plan demonstrates an increase in political will to support NCDs and a positive strategic direction for the Chinese government. It also shows that NCDs represent an area of political opportunity for CVD issues. The Chinese National NCDs Plan is limited however to a three year action plan with no other goals in place towards the WHO 25% reduction in premature NCDs deaths by 2025.\(^7\) There are also no objectives on interventions specifically targeted towards drug therapy for secondary CVD prevention.

The National NCDs Plan is not accompanied by a specific financial commitment. It does guarantee measures to ‘increase public investment, and broaden the financing channels, establish multichannel social funding mechanism for NCDs prevention and treatment, give full play to the basic role of public financing for NCDs prevention and treatment, and according to the level of economic and social development and NCDs prevalence, continuously increase public financial investment, gradually expand the scope of services, improve service standards, and provide more support for NCDs prevention and control in west China and poverty-stricken areas’.\(^8\)

In 2004, the Ministry of Health founded the National Center for Cardiovascular Disease Control and Research, charged with responsibility for cardiovascular disease (CVD) research, prevention and control. Specific functions of the Center included:

- Research, development, constitution and standardization of effective policies, information, methods, technology and professional guidelines in the field of CVD prevention and control in China, under the tutelage of the Ministry of Health.
- Setting up a nationwide network for CVD prevention and control providing training and disseminating technologies, organising and implementing national programs in CVD prevention and control, and promoting nationwide CVD prevention and control.

Since its set up, the National Center for Cardiovascular Disease established a sub-committee on hypertension prevention and control and a sub-committee on dyslipidemia prevention and control. These are responsible for policy consultation, academic conformity, technology support, project leadership and guideline development.\(^9\)

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3 Opinions of the CPC Central Committee and the State Council on Deepening the Health care System Reform, National Development and Reform Commission, April 2009.
Since 2005, guided by the Bureau of Disease Prevention of the Ministry of Health and the National Center for Cardiovascular Diseases, nationwide experts complete a Report on Cardiovascular Diseases annually. The 2010 report includes trends in CVD, morbidity and mortality of major CVD, up-to-date assessment of risk factors as well as health resources for CVD and a profile of medical expenditure, with the aim of providing evidence for decision-making in CVD prevention and control programs in China.

Despite the formation of the National Center for CVD, in the 2011 WHO NCDs country profiles, China is listed as not having a national cardiovascular plan/programme. According to information from the WHO western pacific, the Chinese Ministry of Health is in the process of writing a specific action plan for cardiovascular disease, along with COPD, cancer, diabetes, and behavioural risk factors.10

It is important to note that there are ongoing structural changes to health decision making in China as well as extensive system reform. In 2013, as called for in ‘Healthy China by 2020’, the Ministry of Health was dissolved and its functions integrated into a new agency called the National Family and Planning Commission, responsible for among other things: drafting laws, regulations, plans and policies related to public health.

Financing

Total health in 2011 accounted for 5.2% of GDP, a figure well below the OECD average of 9.3%.11 In China, 56% of health spending was funded by public sources, a figure also well below the average of 72% across OECD countries. A significant portion of the financial burden is incurred directly by the population, particularly the rural poor, with out-of-pocket payments accounting for 37% of healthcare expenditures.12 In 2012, the Government of China committed to support the reduction of out-of-pocket payments for healthcare from 37% of total health expenditure to 30% by 2015.13 According to the ‘Health China 2020 Strategy Research Report’ produced in 2012, healthcare expenditure in China will reach 6.5%-7% of GDP in order to realise the targets set in the ‘Healthy China 2020’ strategy.4

Although there has been a significant increase in regular funds from the central government for sustained prevention and control on a regular basis, investment in NCDs has traditionally been inadequate, especially from local governments.14 Funds for NCDs prevention and control as part of the county level CDCs (Centres for Disease Control) have been limited.15

Healthcare reform and government investments have included: the establishment and expansion of health insurance schemes for rural residents, the New Cooperative Medical Scheme (NCMS); the unemployed or informally employed urban residents, the Urban Resident Basic Health Insurance (URBHI); and the Urban Employee Basic Health Insurance (UEBHI).16 However, the service benefit packages offered by NCMS and URBHI are still very limited and focus on paying for in-patient care. In most rural areas the average reimbursement rate for out-patient care under the New Rural Cooperative Health Scheme (NCRMS) is only about 10%.17 CVD and other NCDs often require long periods of out-patient management. This is particularly true for secondary prevention of CVD where out-patient management occurs after an acute disease episode requiring in-patient treatment (such as for a stroke or myocardial infarction). Even for in-patient care, patients still have to pay for over half of their total treatment expenses. NCDs are the biggest contributor to escalating individual and household expenditures on healthcare. Between 1985 and 2005, health expenditures associated with CVD alone increased by 17.3% annually, while the total health expenditure increased by 11.8% per annum.18

The World Bank estimated that reducing CVD mortality in China by 1% per year over a 30-year period (2010–2040) could generate an economic value equivalent to 68% of China’s real GDP in 2010, more than PPP US$ 10.7 trillion.19

13 The World Bank: Toward a healthy and harmonious life in China: stemmin the rising tide of Non-communicable diseases, East Asia and Pacific Region: The World Bank; 2011
Expanding service coverage

In light of China managing major health system reform against a background of rapid economic and institutional change, the Institute of Development Studies has stipulated that the largest barrier to improvement in healthcare is a lack of unity in policies affecting each county.19

The National NCDs Plan does not include objectives or targets focusing on drug therapy as part of CVD secondary prevention. Furthermore, a Chinese National CVD Plan does not exist, although it is considered to be under development. It is unknown whether the National Center for Cardiovascular Disease Control and Research may have set any secondary CVD prevention policy objectives and whether these may exist albeit independently from the broader National Plans and strategies.

According to the WHO Western Pacific region, China has a registry in place for acute myocardial infarction.10 With improved surveillance, interventions for secondary CVD prevention can be appropriately targeted.

The World Bank projected the four interventions estimated to give the greatest value for investment regarding NCDs in China. They included spending US$ 220 per high-risk individual cardiovascular risk assessment and management and preventive treatment with multidrug regimes (statin, aspirin and two or three blood pressure-lowering drugs). The total cost would be over US$ 26.5 billion (less than 10% of the total health expenditure in 2010), and the total annual DALYs lost averted would be around an additional US$ 500 million.13

Clinical guidelines for China

In China, the professional societies publish guidelines and expert consensus periodically, often when American and European updates are published. The most recent guideline for secondary prevention was published in 2011 and was based on the American guidelines.18

Access

Only one in three individuals with prior CVD was routinely treated with any proven secondary preventive drugs according to the largest community-based study carried out in China on the use of drug therapy for secondary prevention in people with prior ischemic heart disease and stroke.20 All drugs for secondary prevention of CVD events selected in the study were all recommended by Chinese guidelines. The study results show that two thirds of individuals with prior ischemic heart disease and/or stroke are not being routinely treated with any proven secondary prevention drug. The study concludes that as secondary treatments are mostly prescribed in the out-patient clinic, their use is more likely to be affected by the price of the drugs and the poor reimbursement policy.

This is echoed in CVD risk reduction trials, namely the trial in Zhejiang looking at CVD risk reduction in a rural population, which reveals that although the trial drugs (antihypertensives, aspirin and statin) are commonly available in primary healthcare practice in China, patients need to co-pay 70% of the cost of these drugs.21

The Chinese Government launched the 2012 Essential Medicines List in April 2013, replacing the previous list released in 2009.22 All government run primary healthcare institutions are required to stock and use these medicines, with strict controls on their pricing. Encouragingly for secondary CVD prevention, the list includes antihypertensives (Amlodipine, Bisoprolol), anti-diuretics (Hydrochlorothiazide), calcium channel blocker (Verapamil), statins (Simvastatin), and anti-platelet medicine (Aspirin).

16 Tang et al, Infectious diseases of poverty, 2013, 2:7, Biomed Central, Opinion piece, China’s biggest, most neglected health challenge: Non-communicable diseases
18 Guidelines and Expert Consensus for the Prevention and Control of Coronary Heart Disease, by the Chinese Cardiology Society.
19 IDS Policy Brief, Issue 08, China and development: lessons for and from the world , June 2009.
20 Use of drug treatment for secondary prevention of cardiovascular disease in urban and rural communities of China: China Kadoorie Biobank Study of 0.5 million people, Y. Chen et al., International Journal of Cardiology 172 (2014) 88–95
21 Cardiovascular disease risk reduction in rural China: a clustered randomized controlled trial in Zhejiang, Wei et al, Trials, 2013, 14:354
Mortality and morbidity

According to the results of the Global Burden of Disease Study 2010, heart disease ranks among the most significant causes of premature mortality in France. CVD accounted for about 19.6% of premature deaths in France in 2010 (measured in terms of years of life lost, YLLs). The study found that ischemic heart disease and stroke were, respectively, the first and third most common causes of premature death in France in 2010 (with lung cancer being the 2nd highest ranked cause of premature death in the country). Ischemic heart disease accounted for 10.1% of premature mortality, while stroke accounted for 5.6% of premature mortality.

Between 1990 and 2010 the role of cardiovascular diseases in premature death in France declined. While in 2010 CVD remained among the most important causes of premature death in France, its relative contribution to premature death has diminished somewhat from 1990, when it accounted for approximately 22.2% of premature death.

The role of ischemic heart disease and stroke in premature death in France from 1990 to 2010 declined, in terms of absolute numbers of premature deaths and their relative contribution to overall premature death in France. During this period there was a relative decrease in premature death from heart attack and stroke.

In 2010, ischemic heart disease accounted for the second largest burden of disease among all diseases in France, as measured by death and disability. From 1990 to 2010 in France, the burden of disease attributed to ischemic heart disease declined by about 20%. Stroke was the sixth largest contributor to the disease burden in France in 2010, experiencing a similar decline of about 20% in the same 20-year time span.

Risk factors

According to the GBD 2010, the leading risk factor in France was dietary risks, accounting for over 10% of total disease burden. In addition, a variety of other risk factors linked to CVD were ranked in the top eight leading risk factors for the overall disease burden: smoking, high blood pressure, high body-mass index, harmful use of alcohol, physical inactivity, high fasting plasma glucose, and high total cholesterol. Of these risk factors, smoking, high blood pressure, and high body-mass index are of particular significance because they each accounted for over 7% of the total disease burden and have strong links to CVD. The burden of disease and CVD linked to physical inactivity is also of note, with over 3% of the total disease burden in the country attributed to this risk factor. High total cholesterol, which is strongly linked to CVD, accounted for over 2% of the disease burden in 2010.
National policy

National capacity (national CVD plans, national NCDs plans, legislation)

Despite the existence of National plans for specific conditions (e.g. cancer (2009-2013)2, HIV/AIDS (2010-2014)3), there is currently no formal comprehensive National CVD Plan in France.4 France does have a National Plan of Action on Stroke (2010-2014)5 although secondary prevention of the disease is not a focus. The National Plan of Action refers to the need for actions to address hypertension in high-risk individuals (sub-action 1.1), however, no specific mention is made of drug therapy for those who have suffered from a stroke.

France did have a National CVD Plan in 2002-2005, the National Program to reduce Cardiovascular Risks6, costed at 30 million Euros. The plan included 5 objectives:

- Strengthening of epidemiological research and surveillance
- Strengthening preventive actions to lower smoking, obesity and salt consumption
- Promoting patient education and improving access to and quality of treatment
- Widespread first aid training
- Better organisation of care and treatment of stroke patients
- Dissemination of good practice and experiences in clinical therapy.

The National Program to reduce Cardiovascular Risks did not set any objectives or action areas regarding therapy to reduce recurrent cardiovascular events in patients with established atherosclerotic vascular disease. The Program was never reinstated and the actions concerning modifiable risk factors were included elsewhere (such as in the French National Plan on Nutrition and Health (PNNS)).

With a tradition of working in individual fields of disease, the term ‘Non-communicable diseases’ (NCDs) is not commonly used in France.7 The broader term ‘chronic disease’ is often used instead and is defined as the long-term conditions associated with the threat of serious complications.

CVD is included under this definition. France’s landmark Public Health Act of 20048 served as a legal framework for public health policy reinforcing the implementation of existing NCDs programs. Although the Act set out measurable targets for performance and outcomes for the French health system regarding NCDs, the plan has been described more as a ‘framework of existing activities’ instead of a ‘centrally driven strategic process’. The Act sets out 100 objectives over a 5 year period (2004-2008) covering a wide range of subjects, including CVD. CVD specific objectives were:

- To reduce CVD mortality by 13%
- To reduce arterial pressure by 5 mmHg among people suffering from hypertension
- To reduce cholesterol levels by 5% in the adult population
- To decrease the mortality and the frequency of acute decompensations in people with cardiac insufficiency
- To reduce the frequency and severity of functional sequelae related to stroke.

The Act did not specifically address secondary prevention of CVD, nor were there any specific targets associated with CVD. It did, however, lay the foundation for the creation of the 2007-2011 Plan for the improvement of quality of life for patients with chronic disease,9 investing heavily in patient information, therapeutic education, and improved epidemiological data collection, costed at 726,7 million Euros. The Public Health Act of 2004 led to the development of the French High Council for Public Health (HCSP). HCSP’s aims included helping define public health objectives over several years, evaluating how well the national public health objectives were achieved, and contributing to their monitoring.

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7 Gaining Health: Analysis of Policy Development in European Countries for Tackling NCDs, Anne Wood-Ritsatkis, Peter Makara, WHO Regional Office Europe, 2009.
In April 2010, HCSP produced a report that evaluated progress on objectives defined in the 2004 Public Health Act and set out future objectives to improve the health of the French population.\textsuperscript{10} The main objectives concerning cardiovascular disease are:

- Within 5 years, reduce by at least 10% the mortality due to ischaemic cardiopathy
- Within 5 years, reduce by 5% average cholesterol levels (LDL-cholesterol) among the adult population
- Within 5 years, increase the proportion of patients with high blood pressure who are treated and stabilised
- Within 5 years, increase the proportion of hypercholesterolemia sufferers who are treated and stabilised
- Within 5 years, increase the proportion of hypertension sufferers who are treated and stabilised

No specific reference is made on the secondary prevention of CVD except as part of the baseline for the objective on increasing the proportion of treated hypercholesterolemia sufferers. One baseline provided is a 2009 figure of 55% of controlled hypercholesterolemia in the high CVD risk category (which is specified to include those with established coronary or vascular disease).

Although there is a National Plan of Action on Stroke and several objectives concerning CVD in France’s key national public health policy, there are no specific policy targets regarding drug therapy for individuals who have had a heart attack or stroke. It is however possible that there is regional policy on the matter. Since the passage of the 2009 Hospital, Patients, Health and Territories Act, regional health agencies have been charged with identifying health needs in light of the care capacity of the region and defining strategic priorities.\textsuperscript{11}

Financing

According to the OECD, France spent 11.6% of its GDP on health in 2011.\textsuperscript{12} The French health system consists of a national statutory social insurance system managed by the state and publicly financed through employee and employer earnings, and earmarked taxes. The system has been praised for its universal health coverage (based on residency status) with high levels of access and service utilisation.\textsuperscript{13}

Healthcare costs are reimbursed by the statutory insurance system and complementary voluntary health insurance schemes can be subscribed to cover the discrepancy between amounts paid out by the patients and amounts reimbursed by the statutory system. French health benefits are considered generous, although health goods and procedures are not 100% covered. Certain chronic conditions however are eligible for 100% coverage by the statutory insurance system pursuant to the ALD scheme (long term conditions or affections de longue durée). Several subtypes of CVD (such as myocardial infarction, stroke, among others) are classed as ALD and by consequence all associated expenses are 100% reimbursed (see art. L-322-3\textsuperscript{14} for the full list of the 30 eligible chronic conditions).

Expanded quality services coverage

The French National Health Authority (Haute Autorité de Santé or HAS) is a consultative body providing independent scientific advice to the French public authorities. It was formed by the merger of ANAES (French National Agency for Accreditation and Evaluation in Health), the Transparency Committee, and the Committee for the assessment of devices and health technologies (CEPP). Its mandate is to improve the quality of care delivered to patients through measures such as the production of good practice guidelines, the development of disease management programmes for chronic conditions, continuing professional development (CPD), and accreditation of healthcare organisations. HAS also assesses the expected and actual clinical benefit of drugs, medical devices, and diagnostic and therapeutic procedures and advises the authorities on their reimbursement.
Clinical guidelines for France

The French Society of Cardiology has endorsed the European Guidelines on cardiovascular disease prevention. In addition, there are national clinical recommendations developed by the government.

Myocardial Infarction Task Force

HAS established a national Myocardial Infarction Task Force and launched a pilot program to improve myocardial infarction from the first signs to one year of follow up. It aimed to: reduce the overall mortality and complications of MI, to improve the 3 phases of MI care pathways, before, during and after hospitalisation and to improve patient experience and outcomes. As a result of this work, it produced pathways, before, during and after hospitalisation and to improve mortality and complications of MI, to improve the 3 phases of MI care from first signs to one year of follow up. It aimed to:

- Reduce the overall mortality and complications of MI
- Improve the 3 phases of MI care pathways, before, during and after hospitalisation
- Improve patient experience and outcomes

HAS is currently producing recommendations that will have further implications for secondary CVD prevention. They will include:

- Best practices on risk factor (including hypertension and dyslipidemia) control after stroke, to reduce recurrence
- A medical-technological evaluation of different anti-hypertensives and their role in an essential hypertension therapeutic strategy, including in patients who have suffered from a stroke

Access

A 2013 study based on a population of almost 58 million national health insurance general scheme beneficiaries (90% of the population) living in France, revealed that 80% of patients with CVD received an antihypertensive and 71% received a lipid lowering agent. According to a study analysing statin treatment in participants with prior Myocardial Infarction, Rosuvastatin and Atorvastatin were the most commonly used statins, followed by Simvastatin, Pravastatin, Exetimibe and Fluvastatin. The HAS and the National Agency for Drug and Health Product Safety produced a best practice recommendation in June 2012 on the optimal use of antiplatelet therapy defining the situations and conditions for prescription of the drugs (aspirin, clopidogrel, prasugrel and ticagrelor) for primary and secondary CVD prevention.

See Appendix 5 (page 107)
Section 4.2
National CVD burden and policy
Germany

CVD burden

Mortality and morbidity

According to the results of the Global Burden of Disease Study 2010, heart disease ranks among the most significant causes of premature mortality in Germany. CVD accounted for about 30.6% of premature death in Germany in 2010 (measured in terms of years of life lost, YLLs).\(^1\)

Ischemic heart disease and stroke were, respectively, the first and third most common causes of premature death in Germany in 2010 (with lung cancer being the second highest ranked cause of premature death in the country). Ischemic heart disease accounted for 18.4% of overall premature mortality, while stroke accounted for 6.4% of premature mortality.\(^2\)

Between 1990 and 2010 the role of CVD in premature death in Germany declined. While in 2010 CVD remained among the most important causes of premature death, its relative contribution to premature death has diminished somewhat from 1990, when it accounted for approximately 37% of premature deaths.\(^3\)

For ischemic heart disease and stroke, there was a drop in their role in premature deaths from 1990 to 2010, in terms of absolute numbers of premature deaths and their relative contribution to overall premature deaths. During this period, premature deaths attributed to ischemic heart disease dropped by 35% while those attributed to stroke dropped by 41%.\(^4\)

In 2010, ischemic heart disease accounted for the largest burden of disease among all diseases in Germany, as measured by death and disability. Between 1990 and 2010, the burden of disease attributed to ischemic heart disease declined by over 30%. Stroke was the third largest contributor to the disease burden in Germany in 2010. The disease burden attributed to stroke also experienced a decline of over 30% from 1990 to 2010.\(^5\)

Risk factors

According to the GBD 2010, the leading risk factor in Germany, was dietary risks, accounting for over 14% of the total disease burden. In addition, a variety of other risk factors linked to CVD were ranked in the top eight leading risk factors for the overall disease burden: high body-mass index, high blood pressure, smoking, physical inactivity, high fasting plasma glucose, high total cholesterol, and harmful use of alcohol. Of these risk factors, high body-mass index, high blood pressure, and smoking are of particular significance, because they each accounted for over 10% of the total disease burden and have strong links to CVD. The burden of disease and CVD linked to physical inactivity is also of note, with over 8% of the total disease burden in the country attributed to this risk factor. High total cholesterol, which is strongly linked to CVD, accounted for over 4% of the disease burden in 2010.\(^6\)

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1 GBD 2010 Profile Germany.
National policy

National Capacity (National CVD Plans, National NCDs Plans, Legislation)

The OECD reports that in 2011, life expectancy at birth in Germany stood at 80.8 years, slightly above the OECD average of 80.1 years. In Germany, CVD is the main cause of death for both men and women. According to data from the European Heart Network, Germany’s mortality rate from coronary heart disease (CHD) for men and women is slightly below the EU average. For stroke mortality, Germany has the fifth lowest rate among 16 countries in Europe for both men and women. According to OECD estimates, the ischemic heart disease mortality in 2009 was 110/100,000 population (OECD average: 117), and the stroke mortality rate was 39/100,000 population (OECD average: 53).

According to a report on Germany prepared for the European Association for Cardiovascular Prevention and Rehabilitation (EACPR), there is ‘no detectable governmental strategy for CVD prevention,’ and a ‘law regulating prevention has been delayed between the political parties for many years for unclear but largely tactical reasons.’

Competence for public health strategies, including those related to CVD, lies primarily in the federal states rather than at the national level. Decisions in public health are largely left to the individual federal states, with limited priority-setting at the national level. A European Heart Network survey of 16 countries in Europe revealed that Germany was the only country without a national public health policy due to the delegation of public health strategies to the federal state level. Accordingly, it was the only country without any national policies in relation to cardiovascular health promotion or CVD prevention (including secondary prevention), coronary heart disease, hypertension, stroke and hyperlipidaemia. Germany however, reported regional level policy activity related to stroke, in addition to existing or planned national strategies on risk factors related to alcohol, tobacco, physical activity and nutrition. It also reported existing and planned national guidelines or standards for CVD, hypertension, stroke, obesity, diabetes and hyperlipidaemia.

In terms of national public health-related targets, starting in 2001, priority areas were selected, including: diabetes; breast cancer; depression; tobacco consumption; nutrition; physical activity; and stress. Although there are no current national level targets for CVD, according to the European Heart Network, targets related to myocardial infarction are being developed. While the German Ministry of Health has political responsibility for federal health reporting, the Federal Institute for Infectious and Non-Communicable Diseases (the Robert Koch Institute), in conjunction with the Federal Statistics Office, is responsible for the surveillance, detection, prevention, and control of diseases.

The Robert Koch Institute publishes various national-level systematic reports which concern CVD, including:

- Health in Germany (2006)
- Coronary heart disease and acute myocardial infarction (2006).

At the federal level, various states have published health and prevention targets. Since public health priorities are determined locally, they can vary considerably between and within states. As such, the federal states vary in their level of public health programming and reporting. For example, according to WHO data, the federal state of North Rhine-Westphalia (NRW) has one of the most developed systems of public health reporting in Germany. Systematic health reporting (begun in 1998) is believed to be an effective health policy instrument in NRW for collecting and analysing relevant information, defining health targets, developing measures to achieve targets and evaluating implementation. NRW was one of the first federal states to set health targets, and the first state to be involved in comprehensive health targeting. As far back as 1995, NRW outlined ten major health targets, based on WHO Health Targets, including reducing CVD and controlling cancer, among others.

Another example of state-level CHD prevention activities comes from the federal state of Schleswig-Holstein. The federal state government supported the Working Committee Heart and Circulation (LAG) of Schleswig-Holstein to create a regionwide network of 250 coronary support groups to rehabilitate patients with CVD.

According to the European Heart Network, all requirements and financing of benefits for disease prevention are regulated by law in the social code books: III (employment promotion); V (health insurance funds); VI (statutory pension fund); VII (statutory accident assurance); IX (rehabilitation and involvement of handicapped persons); and XI (statutory long term care insurance). Social Code Book V (health insurance funds) and § 25 SGB V (health checks) include early diagnosis of CVD. In 2000, the Associations of Health Insurance Funds developed guidelines to document and assure quality management of health promotion activities. As such, the Associations of Health and Insurance Funds publish the results of their prevention-related activities on a yearly basis. For example, they produce reports on ‘health service cardiology and cardiac surgery in Germany’ and on health checks financed by health insurance funds (§ 25 Social Code Book V).

In 2007, a draft federal law to strengthen health promotion and cardiovascular disease prevention in Europe – the unfinished agenda. September 2009.

Since 2009, the German government has mandated universal health insurance coverage for all citizens and permanent residents provided by competing, not-for-profit, nongovernmental health insurance funds called ‘sickness funds’, in the statutory health insurance scheme (SHI), or by voluntary private health insurance (PHI). The German government has an extremely limited role in the direct delivery of healthcare, delegating regulation to the self-governing associations of the sickness funds. The most important body is the Federal Joint Committee, created in 2004, which defines the specific provisions included in the benefits package and sets quality measures for providers. The 16 state governments determine hospital capacity, while the Federal Joint Committee sets ambulatory care capacity. The Institute for Quality and Efficiency (IQWiG), charged with evaluating the cost-effectiveness of drugs with added therapeutic benefits, and the Institute for Applied Quality Improvement and Research in Health Care (the AQUA Institute) both support the Federal Joint Committee. Sickness funds can offer bonus programmes to actively promote health. Those insured have the chance to collect bonus points from medical check-ups, health courses and other activities that promote health. Each sickness fund decides on the arrangement of the bonus programs individually.

In 2002, the German government enacted a law to reorganise the reinsurance pool of the health insurance system (the risk compensation scheme), by introducing disease management programs (DMPs) for patients with specific chronic illnesses such as CVD. As a strategy to strengthen the role of primary care, the goal of the DMPs is to improve the provision of care and the coordination between providers. The Federal Ministry of Health leads the DMPs with funding from the sickness funds. As of January 2012, 10,618 registered regional DMPs had enrolled almost 6 million patients (about 8% of all SHI-insured).

DMPs for CHD (begun in 2005), diabetes (begun in 2003), breast cancer, asthma, and chronic obstructive pulmonary disease are modeled on evidence-based treatment recommendations, with mandatory documentation and quality assurance. The DMPs on CHD and diabetes are designed to improve: cardiovascular risk; life style factors; quality of care; patient experiences; and promote cost-containment. They provide treatment standards, guidelines, documentation standards, regular examination appointments, referral regulations, and physician feedback reports. There is no specific continuing education for healthcare providers or practice support to enhance the uptake of DMPs in primary care. In terms of national secondary prevention programming, legislation also supports the participation of CVD patients in ‘heart groups’ rehabilitation programs known as AHGs. These include physical activity and educational elements to stabilise secondary prevention.

Financing
According to OECD estimates (2011), Germany ranks 9th among OECD countries in health spending per capita, with spending of $4,495 USD per person (the OECD average was $3,339 USD per capita). Health spending in Germany grew, in real terms, around 2% per year on average between 2000 and 2009. In contrast to other countries in Europe where health spending has been cut in recent years due to the financial crisis, health spending in Germany continued to grow at a rate of over 2% (in real terms) in 2010, but slowed down to 1.1% in 2011. In 2011, 76.5% of health spending in Germany was funded by public sources, above the OECD average of 72.2%, and roughly equivalent to that of France. According to 2009 EU data, Germany spent an estimated 11% of total healthcare expenditure on CVD, with an estimated €5,950,067 spent on CVD medications. In terms of disease groups, CVD are the most costly diagnostic group. No data was found on the estimated costs of secondary CVD prevention.

Since 2009, SHI covers a range of services including preventive services, in-patient and out-patient hospital care, physical therapy, prescription drugs, rehabilitation, hospice and palliative care, among others. SHI preventive services include check-ups for chronic diseases and cancer screening. All prescription drugs are covered unless explicitly excluded by law or pending evaluation. About 86% of the German population receives their primary coverage through SHI and 11% through PHI, with the remainder covered under special programs. In 2011, SHI spending accounted for 57.3% of total health expenditure (total public spending on health constituted 72.6%); all forms of PHI accounted for 9.4% of total health expenditure; and out-of-pocket (OOP) spending accounted for 13.2% of total health spending, primarily on pharmaceuticals, nursing homes, and medical aids (OECD 2013).

Expanded Quality Services Coverage
In 1974, legislation guaranteed access to phase II cardiac rehabilitation after MI. Cardiac rehabilitation (CR) has typically occurred in a residential setting with emphasis on exercise training, dietary instruction and counseling on risk factors and secondary prevention. In recent years, ambulatory CR is becoming increasingly available. According to the EACPR, there are 165 institutions that offer CR treatment for CVD with a total capacity for approximately 12,000 cardiac patients at any given time: i.e. for 208,000 patients per year with a 3 week CR course (190,000 for inpatient and 18,000 for outpatient CR). According to data from the EACPR, however, in Germany insurance companies do not typically reimburse physicians’ CVD primary care preventive services.

activities (e.g. counseling related to reduction of risk factors) because the law (§34 SGB V) specifies that lifestyle is ‘everybody’s personal responsibility and not a target of intervention by a physician or allied health professional.’

Passed in December 2011, the SHI Care Structure Act consists of a number of measures with the common objective of improving provision of services nationwide. The ‘General Law on Patients’ Rights’ came into force into 2013. It includes several measures designed to strengthen patients’ rights that are applicable to the rights of those with CVD. In recent years, non-governmental organisations (NGOs) have stepped in to bolster secondary CVD prevention efforts in Germany. For example, the German Heart Foundation (GHF) (with more than 80,000 members, usually patients with CVD), publishes brochures on the preventive recommendations regarding nutrition, cholesterol, exercise, and optimal pharmacological secondary prevention.

Clinical guidelines for Germany

The German Society of Cardiology has endorsed the European Guidelines on cardiovascular disease prevention.

Access

In Since 2004, all drugs (both branded and generic) have been subject to reference prices, unless they can demonstrate added medical benefit. The IQWiG has been legally charged since 2008, with evaluating the cost-effectiveness of drugs with added therapeutic benefits, leading to either inclusion in the reference group in the case of no added benefit, or price negotiations between the manufacturer and the Federal Association of Sickness Funds. Since 2011, drug companies have been required to produce a scientific dossier demonstrating a drug’s added medical benefit, to be evaluated by the Federal Joint Committee and IQWiG within a three-month period. In addition, rebates by sickness funds to pharmaceutical manufacturers have been negotiated as incentives to lower prices below the reference price.

The 2011 healthcare reform resulted in changes for the pharmaceutical sector. The SHI Reform Act of 2010 and the Pharmaceuticals Market Reform Act of 2011 both provided structural changes and anticipated savings over a defined period of time. The SHI Reform Act obligated pharmaceutical manufacturers to give a discount of 16% (previously 6%) on all drugs that are not subject to a reference price; prices were frozen at the August 2009 level until the end of 2013. According to 2006-2007 data from the EUROASPIRE III survey, the use of drugs for secondary prevention in CHD patients varies considerably across survey populations. Anti-platelet drugs (including aspirin) were the most widely used by the patients in the countries studied (between 88-99%). In terms of reported use of medication upon discharge of hospital patients with established CHD, the EUROASPIRE data shows an increase over three time periods (1995-96, 1999-2000 and 2006-07) as follows in Germany: anti-platelet therapy (from 83-92% over the time period); beta-blockers (from 44-85%); ACE-inhibitors and AT2-antagonists (from 31-73%); lipid-lowering drugs (from 35-87 percent); and statins (from 31-85%).

Differences in reimbursement systems can affect the use of drugs involved in secondary CVD prevention. For example, an 11 country study (Dyslipidemia International Study) to assess LDL-C target achievement for secondary prevention of CVD, found that, compared to patients in the UK, patients in Germany were less likely to receive potent statins (e.g. atorvastatin or rosuvastatin). Independent of the statin used, daily dosages were significantly lower in Germany than in the UK. As a result, significantly fewer patients in Germany reached the recommended treatment goal of LDL-C <100mg/dl as compared to the UK (42.0% in Germany vs. 79.8% in the UK). Outpatient chronic medical treatment in Germany is restricted by budget constraints (restrictive system) whereas in the UK reimbursement is linked to treatment goal achievements (incentive system). The researchers attributed the discrepancy in attaining treatment goals to differences in reimbursement systems.

See Appendix 5 (page 107)

CVD burden

Mortality and morbidity

According to the results of the Global Burden of Disease Study 2010, heart disease ranks among the most significant causes of premature mortality in Italy. CVD accounted for about 29.5% of premature death in Italy in 2010 (measured in terms of years of life lost, YLLs).\(^1\)

Ischemic heart disease and stroke were, respectively, the first and second most common causes of premature death in Italy in 2010. Ischemic heart disease accounted for 14.8% of premature mortality, while stroke accounted for 9% of premature mortality. Hypertensive heart disease was ranked the tenth leading cause of premature mortality, accounting for 2.7% of total premature mortality in Italy.\(^1\)

Between 1990 and 2010 the role of CVD in premature deaths in Italy diminished, from 32.1% to 19.5%. For ischemic heart disease and stroke, there was a drop in their role in premature death from 1990 to 2010, in terms of absolute numbers of premature deaths and their relative contribution to overall premature death in Italy.\(^1\)

During this period, premature death attributed to ischemic heart disease dropped by 26%, while that attributed to stroke dropped by 32%. In 2010, ischemic heart disease accounted for the largest burden of disease among all diseases in Italy, as measured by death and disability.\(^1\)

From 1990 to 2010 in Italy, the burden of disease attributed to ischemic heart disease declined by about 20%. Stroke was the third largest contributor to the disease burden in Italy in 2010. The disease burden attributed to stroke experienced a decline of over 20% from 1990 to 2010. Hypertensive heart disease ranked 19th in contribution to overall disease burden in 2010, reflecting an over 20% increase in the diseases burden attributable to hypertensive heart disease from 1990 to 2010.\(^1\)

Risk factors

According to the GBD 2010, the leading risk factor in Italy was dietary risks, accounting for over 13% of total disease burden. In addition, a variety of other risk factors linked to CVD were ranked in the top nine leading risk factors for the overall disease burden: high blood pressure, smoking, high body-mass index, physical inactivity, high fasting plasma glucose, high total cholesterol, and harmful use of alcohol. Of these risk factors, high blood pressure and smoking are of particular significance because they each accounted for over 10% of the total disease burden and have strong links to CVD. Other important disease risk factors linked to CVD include high body-mass index and physical inactivity, which were found to contribute to over 8% and 5% of the total disease burden in the country. High total cholesterol, which is strongly linked to CVD, accounted for over 3% of the disease burden in 2010.\(^1\)

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\(^1\) GBD 2010 Profile Italy.
Section 4.2

National policy

National Capacity (National CVD Plans, National NCDs Plans, Legislation)

According to data from the European Heart Network, Italy’s mortality rate from coronary heart disease (CHD) and stroke are among the lowest in Europe for both men and women.2 The OECD reports that in 2011, life expectancy at birth in Italy was 82.7 years, more than two years greater than the OECD average (80.1 years), with only Switzerland registering a higher life expectancy.3 Nonetheless, CVD is the main cause of death and hospitalisation in Italy and, as such, has been identified as a priority health concern by the government. Among the adult population (35-74 years) 12% of all deaths are due to ischaemic heart disease, and 8% to acute myocardial infarction, although starting in the mid-1970s, the mortality rate due to CVD has been declining.4

The most recent National Health and Prevention Plan includes multiple interventions for tackling the most important risk factors for NCDs, in accordance with the integrated approach proposed by the World Health Organization. Together with other European countries, Italy follows a common strategy for NCDs control and in 2007 adopted a programme called Guadagnare Salute (Gaining Health).5 The National Prevention Plan (2005-2007)6 identifies four main areas of action: prevention of CVD (including prevention of complications of diabetes and obesity); cancer screening; immunisation; and prevention of accidents. For CVD, the Plan specifies prevention activities related to reducing CVD risk and events. In the first phase of implementation, each region committed to organising a ‘CVD Commission’ to guide prevention programming and was given autonomy to develop its own prevention plans. As a result, the activities endorsed by the Commission varied significantly and lacked central coordination and oversight. The second phase of implementation called for the further involvement of the healthcare sector beyond the regional level.7

The Centre for Disease Prevention and Control

In 2004, the Ministry of Health (MoH) established the Centro nazionale per la prevenzione e il controllo delle malattie (CCM) (Centre for Disease Prevention and Control),8 with the objective of active prevention through the promotion of healthy lifestyles and screening.8 The CCM acts as a coordinating centre to build collaborative networks, to conduct special projects and to develop public health monitoring and surveillance systems. The goal of the CCM is to create synergies through the identification and dissemination of best practices, and to promote cross-regional sharing of objectives and tools.9

Both the MoH and the CCM play critical roles in facilitating and monitoring the roll out of the National Prevention Plan at the regional level (e.g. through hosting training courses, maintaining a website for project management). A special Agreement between the National and the Regional Government (Intesa Stato-Regioni 23 Marzo 2005) designated the CCM directly accountable for monitoring and evaluating the results of the Plan. According to the Italian Ministry of Labour, Health and Social Policy, the cooperation between the CCM and Regions in the implementation of the Plan was ‘a milestone in National planning that has involved for the first time Regions and Autonomous Provinces, through the exact definition and monitoring of their programmes, in the evaluation of the subsequent activity carried out in the field of prevention’.10 The year 2008 was designated a transition period to review both the objectives and management procedures of the Plan.11 As a part of this process, the CCM developed a tool, (the ‘Project Advancement Index’ (IAP)), to measure the progress of each project in the Plan. An IAP defined as ‘CVD relapse’ was developed under the area of ‘CVD risk prevention’ to measure the progress of secondary prevention.9

A European Heart Network survey of 16 countries in Europe indicated that Italy was one of 7 countries reporting 5 or more national policies in relation to cardiovascular health promotion and/or cardiovascular disease prevention, coronary heart disease, hypertension, stroke and hyperlipidaemia.12 According to the 2008 Euro Consumer Heart Index, which measures the performance of European countries on differing aspects of delivery of cardiovascular care,13 the Italian healthcare system was deemed ‘competent’ in terms of its CVD-related policies and programs, along with Austria (769 points), Netherlands (761), and Sweden, Slovenia, U.K., Finland, Denmark (all above 700 points).14

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There are currently no national plans for secondary prevention of CVD in Italy. Secondary prevention is often integrated into routine care at the discretion of the GP, with only a minority of post-myocardial infarction and post-revascularisation patients receiving cardiac rehabilitation services.25 While there are no significant reimbursement problems for rehabilitation after an acute or chronic cardiac event, there is a disparity between the potential number of participating patients and the availability of cardiac rehabilitation units. A 2008 survey13 by the Italian Association for Cardiovascular Prevention, Rehabilitation and Epidemiology (IACPR-GICR) described compromised access to cardiac rehabilitation units.

The National Plan for Clinical Guidelines

The National Plan for Clinical Guidelines (2008) has been implemented in recent years and has produced guidelines on topics such as cardiology and cancer prevention,3 including a specific Guideline for Secondary Prevention and Cardiac Rehabilitation (Linee guida nazionali su cardiologia riabilitativa e prevenzione secondaria delle malattie cardiovascolari).14 While these national guidelines on secondary prevention were strongly endorsed by the Italian Servizio Sanitario Nazionale (SSN) within the context of the National Plan for Clinical Guidelines, they have not been fully adopted by the medical community. The European Society of Cardiology (ESC) Guidelines on cardiovascular disease prevention in clinical practice (version 2012)13 are used as the basis for reimbursement policies and have been widely adopted by physicians who utilise electronic or web-based tools in clinical practice. Italian cardiologists, however, have not officially endorsed the ESC guidelines, perhaps due to the fact that there are several competing cardiology societies (e.g. Italian Association of Hospital Cardiologists (ANMCO), Italian Society of Cardiologists (SIC), Regional Association for Ambulatory Cardiologists (ARCA), and Italian Society of Cardiologists of Accredited Hospitals (SICOA)), potentially limiting their uniform adoption.16

In October 2013, a consensus conference on clinical management after acute coronary syndrome (ACS)25 was held in Naples, under the auspices of two Italian scientific societies, the Italian Association for Cardiac Prevention and Rehabilitation (GICR-IACPR) and the Italian Association of Hospital Cardiologists (ANMCO), to propose a network dedicated to the management of secondary prevention. This ambitious programme for pharmacological implementation and long-term maintenance of recommended therapies is still under construction. The network will feature drug therapy targets and strategies to improve adherence and promote lifestyle changes.3

Launched in 1998, the Progetto Cuore (epidemiology and prevention of ischaemic heart diseases), is financed by 1% of the national health fund and is coordinated by the Istituto Superiore di Sanità (National Institute of Health), with a mandate to: estimate the impact of CVD through indicators (prevalence, incidence and mortality rates); and evaluate the distribution of CVD risk factors and CVD risk in representative samples of the population by collecting data on the distribution of risk factors and the frequency of CVD in middle-aged men and women. Progetto Cuore has developed and implemented a National Registry of CVD events,4 which is a surveillance system designed to monitor both fatal and non-fatal CVD events in the general population ages 35-74 years, in eight geographically strategic and representative areas of the country: Brianza, Caltanissetta, Florence, Friuli-Venezia Giulia, Modena, Naples, Rome and Veneto. The project is built on the WHO-MONICA Project (Friuli, Brianza, Latina), the Osservatorio Epidemiologico Cardiovascolare and the Brisighella Heart Study (started in 1972 as a longitudinal study on atherosclerosis risk factors).17 The Registry provides reliable estimates of the incidence, attack and fatality rates of coronary and cerebrovascular events; moreover, it shows how often diagnostic and therapeutic procedures are used in the acute and postacute phases in the North, Centre, South and Islands. Methodologically, data collection is achieved using two sources of information; death certificates (ISTAT) and hospital discharge records (HDR).4

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Financing

According to OECD estimates (2011), total health spending accounted for 9.2% of GDP, slightly below the OECD average (9.3%). In terms of health spending per capita, Italy ranks below the OECD average, with spending of $3,012 USD in 2011, compared to the OECD average of $3,339 USD. Between 2000 and 2009, in real terms, health spending grew by an average of 2.2% per year; in 2010, this growth rate slowed down slightly to 1.8% and dropped by -1.6% in 2011. In 2011, 77.8% of national health spending was funded by public sources (above the average of 72.2% in OECD countries). In 2011, approximately 18% of total health spending was paid out of pocket, mainly for drugs not covered by the public system (over-the-counter drugs) and for dental care.

The coverage of CVD-related costs falls under the jurisdiction of each Regional Administration. Hospital admissions (including device implantation and surgery), drugs, follow-up visits and follow-up examinations are free of charge for all patients under the SSN. There are no specific mechanisms for the financing of secondary CVD prevention within Italy and there is no available data on the actual costs of secondary prevention. However, it is estimated over a ten year horizon, a total cost related to diagnosed and treated hypertensive patients would be €6.4 billion (CI 95%: €5.5–7.2 billion).

In August 2012, the national parliament passed a law aimed at cost containment. The law promoted the prescription of generic drugs, cuts to the hospital bed ratio and reduced the public financing of the SSN by €900 million in 2012, €1.8 billion in 2013, €2 billion in 2014, and €2.1 billion in 2015. Under the new health contract cost containment reforms for 2014-2018, the availability of in-hospital beds will be reduced to 0.5 per 1,000 population for rehabilitation. This reduction is slightly offset by the fact that nearly 180 cardiac rehabilitation centers already exist within the country and are covered by the SSN. The 2012 reforms also reorganised healthcare at the regional level by: introducing primary health teams; updating healthcare tariffs; restructuring governance of hospitals and LHUs; revising the list of reimbursable pharmaceuticals; and renegotiating the price of less effective medicines.

The government has long been concerned about inter-regional inequity in public healthcare provision and variations in fiscal capacity. The National Health Plan for 2006–2008 named overcoming large regional discrepancies in access and quality as a key objective. In terms of capacity for secondary prevention of CVD, the less affluent southern regions lag behind the northern regions in the number of beds and availability of advanced medical equipment, and have less-developed community care services. There are also considerable interregional variables in the prospective payment system for hospitals, such as how the fees are set, which services are excluded, and coding and classification systems. The Ministry of Health and the Ministry of Economics and Finance signed an agreement in April 2007 to direct EU resources toward health services in eight regions in the south, as a first step in addressing the variation. Regions receive a proportion of funding from an equalisation fund (the National Solidarity Fund), which seeks to reduce inequalities between regions.

16 Personal communication with Dr. Pomplio Faggiano [ADD TITLE].
17 EuroHeart work package No 5: National plans, policies and measures impacting on cardiovascular health promotion and cardiovascular disease prevention. Country Summary: Italy.
Section 4.2

National CVD burden and policy

Italy

Expanded Quality Services Coverage

As the result of modifications to the National Constitution in the late 1990s, the regions maintain responsibility for developing their own local health policies, including those related to secondary prevention of CVD. At the same time, nearly all preventive, diagnostic and rehabilitative interventions are covered by the SSN and out-of-pocket costs for patients are generally limited to cost contributions for middle and high-income individuals. However, not all aspects of secondary prevention of CVD are covered as LEAs under the SSN (e.g. preventive physical activity). Researchers highlight the benefits of a comprehensive approach to reducing total cardiovascular risk through smoking cessation, diet, and physical activity, and supplemented with control of blood pressure, lipids and glucose, and the use of cardioprotective drug therapies. Despite strong evidence that secondary prevention reduces hospital re-admission rates and death rates, researchers have underscored the poor utilisation of effective preventive drug treatments, cardiac rehabilitation and adherence to lifestyle recommendations as a major challenge to the provision of secondary prevention within the country.

A five-country study found Italy, along with France and Spain, to have low levels of adherence to anti-hypertensive treatment. Secondary prevention drugs are generally prescribed by physicians at hospital discharge or by general practitioners (GPs) at follow-up visits, but long-term adherence to therapy and follow-up tends to be poor and can include a variety of factors (such as socio-economic status, patient beliefs and lifestyle, health-literacy) and their interaction with the healthcare system.

Data from the EUROASPIRE surveys demonstrates a substantial gap between the standards set in the CVD prevention guidelines and clinical practice. These surveys show that lifestyle trends in patients with CVD in Europe are a growing cause for concern. In Italy, the GOSPEL Study, a randomised trial performed in 78 Italian cardiac rehabilitation centers testing the efficacy of educational and behavioral intervention verses. usual care after MI, demonstrated that a multifactorial, continued reinforced intervention up to 3 years after rehabilitation following MI is effective in decreasing the risk of several important CVD outcomes.

Within the context of secondary prevention of CVD, the Guideline for Secondary Prevention and Cardiac Rehabilitation (Linee guida nazionali su cardiologia riabilitativa e prevenzione secondaria delle malattie cardiovascolari) recommends the implementation of cardiac rehabilitation units to address the high rates of CVD-related disability. At the same time, the European Society of Cardiology Guidelines recommend that CVD prevention be considered as a continuum, with less of a differentiation between ‘primary’ and ‘secondary’ prevention.

Clinical guidelines for Italy

The Italian Society of Cardiology has endorsed the European Guidelines on cardiovascular disease prevention.

Access

According to 2009 EU data, Italy spent an estimated 10% of total healthcare expenditure on CVD, with an estimated €5,148,000 spent on CVD medications. Over time, the use of secondary CVD prevention medications, including lipid-lowering drugs and statins, have increased significantly. In terms of reported use of medication upon discharge of hospital patients with established CHD, data from the EUROASPIRE surveys shows an increase over three time periods (1995-96, 1999-2000 and 2006-07) as follows in Italy: anti-platelet therapy (from 86-98%); beta-blockers (from 49-88%); ACE-inhibitors and AT2-antagonists (from 32-71%); lipid-lowering drugs (from 25-91%); and statins (from 7-90%). In terms of national targets and monitoring for secondary prevention, the prescription of drugs affecting lipid metabolism is linked to the individual risk, measured by a national score (Progetto Cuore).26

For some classes of drugs, therapeutic plans are mandated, and prescriptions must follow clinical guidelines. Differing reimbursement policies (those applying to both GPs and cardiologists and those applying to cardiologists only) may affect the availability of certain secondary CVD prevention drugs, limiting their prescription to specific conditions (e.g. an Italian Drug Agency Therapeutic Plan, which applies to cardiologists only, sets the reimbursement policy for statins for patients with hypercholesterolemia after ACS) According to the National Drug Agency classifications, which are derived largely from European Society of Cardiology (ESC) Guidelines, cardio-protective drugs in primary prevention are reimbursable, with no significant barriers to access of secondary prevention drugs.27

Drugs used for secondary CVD prevention are identified on the basis of scientific evidence and based on international and national guidelines recommendations. Most drugs approved are available both as generic and as branded. Health authorities at regional and local level recommend the use of less costly drugs when similar efficacy and safety have been demonstrated. To date, there are several drugs of potential interest for secondary prevention (e.g., ranolazine, eplerenone, and ticagrelor) that have been approved by the Italian Drug Agency and covered by the SSN, but they are subject to stricter controls via a web-based monitoring system to monitor indications, efficacy and safety (i.e. they generally can only be prescribed by a cardiologist). A similar approach is used for certain drugs approved for pulmonary hypertension (e.g. Bosentan, Sildenafil, Epoprosentol).27

See Appendix 5 (page 107)
Section 4.2

National CVD burden and policy

Spain

CVD burden

Mortality and morbidity

According to the results of the Global Burden of Disease Study 2010, heart disease ranks among the most significant causes of premature mortality in Spain. CVD accounted for about 25.1% of premature death in Spain in 2010 (measured in terms of years of life lost, YLLs).1

This study found that ischemic heart disease and stroke were, respectively, the first and second most common causes of premature death in Spain in 2010. Ischemic heart disease accounted for 13% of premature mortality, while stroke accounted for 7.5% of premature mortality.1

Between 1990 and 2010 the role of cardiovascular diseases in premature death in Spain diminished slightly, from 27.7% to 25.1%. For ischemic heart disease and stroke, there was a drop in their role in premature death from 1990 to 2010, in terms of absolute numbers of premature deaths and their relative contribution to overall premature death in Spain.1

During this time period, premature death attributed to ischemic heart disease dropped by 17%, while that attributed to stroke dropped by 37%. However, cardiomyopathy and hypertensive heart disease have been on the rise. During this 20-year time span, premature death attributed to hypertensive heart disease has risen by 13%.1

In 2010, ischemic heart disease accounted for the largest burden of disease among all diseases in Spain, as measured by death and disability. From 1990 to 2010, the burden of disease attributed to ischemic heart disease declined by about 10%. Stroke was the third largest contributor to the disease burden in Spain in 2010. The disease burden attributed to stroke experienced a decline of about 30% from 1990 to 2010.1

Risk factors

According to the GBD 2010, the leading risk factor in Spain was dietary risks, accounting for over 12% of total disease burden. In addition, a variety of other risk factors linked to CVD were ranked in the top eight leading risk factors for the overall disease burden in the country: high body-mass index, smoking, high blood pressure, high fasting plasma glucose, physical inactivity, harmful use of alcohol, and high total cholesterol. Of these risk factors, high body-mass index, smoking, and high blood pressure are of particular significance because they each accounted for over 9% of the total disease burden and have strong links to CVD. The burden of disease and CVD linked to physical inactivity is also of note, with over 5% of the total disease burden in Spain attributed to this risk factor. High total cholesterol, which is strongly linked to CVD, accounted for almost 3% of the disease burden in 2010.1

References:

1. GBD 2010 Profile Spain.
Section 4.2

National policy

National capacity (national CVD plans, national NCDs plans, legislation)

Article 43 of the Spanish Constitution of 1978 establishes the right to health protection and healthcare for all citizens. Regulation of the actions to enable exercise of the right to health protection are set out in a set of regulations with the rank of Act: General Health Act (1986), Act on the Cohesion and Quality of the National Health System (2003), Act on Guarantees and Rational Use of Medicines (2006), General Health Act (2011) and Royal Decree-Law on Emergency Measures for the Sustainability of the National Health System and Improvement of Quality and Safety (2012).

Since 2002, healthcare has been fully decentralised to Spain’s existing 17 regions (autonomous communities - ACs) following political devolution. The ACs are responsible for establishing their own health plans and organising their own health services. According to the 1986 Healthcare General Act and the 2003 NHS Cohesion and Quality Act, the 17 regional health ministries have primary control over the funding, organisation and delivery of health services within their territory.

The Interterritorial Council of the National Health System (CISNS) is comprised of the 17 regional ministers of health and is chaired by the national Minister of Health, Social Services and Equality. The main objective of the CISNS is to facilitate the continuous coordination, cooperation, communication and exchange of information on healthcare services across the ACs and with the state administration.

The main task of the Spanish Ministry of Health, Social Services and Equality (MSSSI) is to assist national coordination and cohesion though it has no authority over the ACs. Centralised health powers held by the MSSSI consist mainly of: legislating on pharmaceuticals; guaranteeing the equitable functioning of health services across the country, including the definition of the basic benefits package; the setting of minimum thresholds for services regarding expenditure and quality; and high level inspection activities.

National Health Strategies

The 2003 NHS Cohesion and Quality Act charged the Ministry of Health and Social Policy to develop national health strategies aiming to improve care for patients with prevalent diseases that represent a high social burden. Specifically, “without affecting the autonomous competencies with regard to healthcare planning and the organisation of services, the Ministry of Health and the competent authorities of the Autonomous Communities, through the Interterritorial Council of the National Health System, and in collaboration with the scientific societies, to draw up Comprehensive Health Plans on the most prevalent or relevant pathologies, or those that entail a high family and social burden, guaranteeing comprehensive healthcare covering the disease's prevention, diagnosis, treatment and rehabilitation”.

As a result, the CISNS has approved national disease strategies on ischemic heart disease and stroke, as well as for diabetes, COPD, rare diseases, stroke, and specific services such as palliative care and mental health services.

The Comprehensive Ischemic Heart Disease Plan

Ischemic heart disease in Spain has been a strategic priority for the Ministry of Health since 2002. Political momentum led to the creation of the Comprehensive Ischemic Heart Disease Plan 2004-2007 aiming to promote equity among Spanish patients, increase quality of care and improve information to patients, healthcare professionals and the public. The Comprehensive Plan, as dictated by the 2003 NHS Cohesion and Quality Act, sets out service standards and care models, criteria for service organisation, outline of activities of known effectiveness, evaluation tools and indicators. Each AC can choose to implement the organisational models that most fit its own region’s needs and circumstances.

The Comprehensive Plan, approved by the CISNS in 2003, covered areas such as: prevention and promotion of healthy habits; detection, diagnosis and treatment of risk factors; myocardial infarction; coronary heart disease; secondary prevention and rehabilitation; information systems and research. The Plan strongly featured secondary prevention as the results of EUROASPIRE II and PREVESE II studies revealed that Spanish patients with coronary cardiopathy were not being adequately controlled for blood pressure and cholesterol levels, exercise and tobacco cessation.
Section 4.2 National CVD burden and policy
Spain

The Plan set out standards for secondary prevention and rehabilitation:

- At discharge, all patients, their relatives and/or carers, should receive oral and written information about the most adequate secondary prevention measures to follow (including both lifestyle (exercise, diet, tobacco control) and treatment measures)
- All discharge instructions must contain a copy of the last ECG and all the necessary information for the GP and the cardiologist to make the patient’s prognosis and diagnosis in subsequent appointments
- All patients, unless contraindicated, should receive pharmacological treatment. Aspirin and beta-blockers should be prescribed to all patients unless there are contraindications. Statins or in specific cases, other lipid lowering agents, should be prescribed to patients who have not achieved LDL cholesterol levels less than 100mg/ dl following dietary modification. ACE inhibitors should be prescribed to patients with left ventricular dysfunction
- The GP should offer support to patients and reinforce the information provided by the hospital and continue with all interventions on healthy lifestyles and risk factors, as well as the exercise plan indicated in each case
- All patients should receive the most comprehensive and adequate long-term treatment plan possible, including: dietary; pharmacological; psychological; exercise and social support
- Improve public health professionals knowledge of secondary prevention and cardiac rehabilitation.

The Plan set out a menu of actions and a set of indicators that came from the objectives outlined. Although the Plan stated that its overall impact would be measured by ischemic cardiopathy mortality rates, the Plan did not go as far as setting overall mortality reduction targets.

The Plan, set from 2004-2007, provided the framework reference for subsequent efforts, such as the Ministry of Health and Social Policy’s Ischemic Heart Disease Strategy of the Spanish NHS, approved by the CISNS on 28 June 2006. An updated Ischemic Heart Disease Strategy of the Spanish NHS was produced in 2009, based on the conclusions of the 2006 first Strategy evaluation and on the review of the most current scientific evidence. The updated Strategy is the result of consensus and collaboration between the ACs, scientific societies, patient organizations, independent experts and Ministry technicians. ACs are encouraged to set up a system to monitor quality of care in ischemic heart disease in their regions.

The Spanish Ischemic Heart Disease Strategy

The Spanish Ischemic Heart Disease Strategy is divided into 4 strategy pillars (health promotion and protection, healthcare, cardiac rehabilitation and research) with objectives, recommendations and indicators outlined for each. Similarly to the Comprehensive Ischemic Heart Disease Plan 2004-2007, the Spanish Ischemic Heart Disease Strategy does not explicitly set out an overall objective to reduce mortality due to ischemic heart disease nor does it set any national targets around this area. It does however mention mortality rates, premature mortality rates, and rates of hospitalisation for acute Myocardial Infarction as a way of measuring the strategy’s impact.
Under cardiac rehabilitation, the Strategy sets one sole objective: to provide discharged patients with access to secondary prevention and cardiac rehabilitation programs. To help achieve this objective, the Strategy offers recommendations aimed at the development of actions and interventions:

- The patient’s discharge report must contain recommendations for the strict control of risk factors (arterial hypertension, dyslipemia, diabetes and obesity), as well as the correct use of the medication prescribed. In addition, the report must advise on the importance of adopting healthy eating habits, giving up smoking, alcohol and other toxic substances, doing physical exercise and maintaining an adequate body weight.

- Improve health professionals’ knowledge of secondary prevention and cardiac rehabilitation through continuous training.

- Evaluate the patient’s status of risk factors, physical, psychological and social issues, with the aim of improving the situation after hospital discharge. This information should be sent to the patient’s GP or those in charge of their healthcare.

- Create, implement and maintain multifactorial and inter-level secondary prevention and cardiac rehabilitation programmes, which should start during patient’s hospital stay, and provide patients with the necessary information to continue those programmes after hospital discharge.

The Strategy provides one indicator for rehabilitation which follows from the main objective: the percentage of health areas with a cardiac rehabilitation programme. A target is not provided for the objective or for any of the cardiac rehabilitation recommendations.

Given the decentralised nature of the Spanish health system, ACs are responsible for healthcare organisation and delivery in their regions. As a result, they have their own regional health plans and disease specific plans (particularly for high prevalence diseases). Murcia, for example, has its own Comprehensive Program for Ischemic Cardiopathy, 2010-2013, which follows the recommendations set out by the Ischemic Heart Disease National Strategy.

Comprehensive Program for Ischemic Cardiopathy: Murcia

The Programme sets out general, specific and operational objectives. Unlike the National Strategy, Murcia’s Comprehensive Program sets out targets on decreasing mortality due to Ischemic heart disease. The Murcia Comprehensive Program sets out two general objectives regarding secondary prevention/rehabilitation:

- Ensure that patients in any hospital in the region can benefit from cardiac rehabilitation programmes.

- Guarantee patients that have suffered from a cardiovascular event have a specific personalised secondary prevention plan.

The programme also sets out specific objectives relevant to secondary prevention:

- Patients with a history of Ischemic Cardiopathy should have a specific personalised plan in their health centre, aimed at optimising risk factor control.

- To promote actions from primary care teams to improve risk factor control in patients with Ischemic Cardiopathy.

The programme also includes information about care models, protocols and clinical recommendations according to the latest scientific research. It recommends that patients who have suffered from a coronary event should be offered treatment that includes (unless contraindicated): beta-blockers, aspirin, ACE inhibitors and statins. The information provided on drug treatment in secondary prevention is very detailed, specific drugs are discussed and treatment recommendations given. Furthermore, the Comprehensive Program also provides specific follow up activities for secondary prevention with a detailed guide for follow up consultations. This includes outlines for primary care activities to be delivered beyond two years post hospital discharge.

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National CVD burden and policy
Spain

As shown by the Murcia example, regional disease strategies/plans can set out impressive and concrete policy and make very specific recommendations on secondary prevention. It is unknown if all ACs in Spain have set out regional Ischemic heart disease plans or if there has been a national assessment and comparison of the different regional AC policies.

There are several national disease strategies within the framework of the National Health System Quality Plan. For Ischemic cardiopathy, there is a Stroke Strategy outlined by the Spanish Health System, approved by the CISNS in November 2008.9 The Stroke Strategy sets out a strategy (health promotion and prevention (primary and secondary), acute stage care, rehabilitation and reininsertion, training and research) and objectives for each of the priority areas. The Stroke Strategy sets out the reduction of stroke mortality as a clear objective however it falls short of setting a target for mortality reduction. With regards to drug therapy as part of secondary prevention, the Stroke Strategy sets out the following objectives9:

- Patients who have experienced a stroke or transient ischemic attack (TIA) must keep risk factors in check and undergo preventive medical treatment
- The ACs should implement measures for the purpose of ascertaining and increasing the percentage of patients who are still adhering to the treatment five (5) years into treatment.

The Strategy refers to detailed therapeutic secondary prevention clinical recommendations included in the Ministry of Health and Consumer Affairs’ “Practical Clinical Guide to Primary and Secondary Stroke Prevention”.5 Each AC according to its own population needs and circumstances produces stroke regional strategies based on the Stroke Strategy of the National Health System.

Chronic disease policy

With an ageing population, Spain follows the international trend of growth in the number of chronic patients in the last decade. There are over 15 million patients suffering chronic illnesses and their treatment accounts for 70% of healthcare expenditure.5 Such a public health and economic burden has driven increased national activity and discussion regarding the Spanish health system and the adaptation of chronic care models.

Several ACs launched strategies to tackle chronic diseases and national momentum on this issue culminated with the 2011 Seville Declaration10 where ACs and professional societies actively encouraged the development of chronic disease strategies in all ACs within an integrated national strategy. As a result, the Ministry of Health, Social Services and Equality produced the Strategy for Addressing Chronicity in the National Health System, approved by the CISNS in 2012.11 The Strategy aims to guide the organisation of services towards improving health and preventing disease. General objectives include: decreasing chronic disease prevalence, reducing premature mortality and improving quality of life. The Strategy sets out guiding principles and outlines strategic priorities in: health promotion, prevention of health conditions and chronic limitations of activity, continuity of care, reorientation of healthcare, health equity and equal treatment, research and innovation.11 The strategy’s indicators are still under development.11 Several other national government strategies and activities are being developed following the introduction of the Strategy for Addressing Chronicity, such as the ‘Strategy for Prevention and Health Promotion in the Spanish Health System’ approved by the CISNS in December 2013.13

Although the Strategy for Addressing Chronicity is not focused on specific diseases but rather on all health limiting conditions of a chronic nature, this Strategy has implications for secondary CVD prevention. As well as reorganising the health system to deal with chronic conditions, the Strategy addresses the need to reduce the prevalence of risk factors. It sets out to ensure effective, safe, efficient, sustainable and proportionate health interventions based on the best available scientific evidence and to optimise pharmacological therapy in patients with chronic treatments, paying special attention to polymedicated patients.11 Further opportunity is presented to secondary prevention as the Strategy aims to develop a model for identifying those at risk of disease and predict the needs of those already presenting with a chronic condition. This is aligned to the planning of individualised interventions (prioritising those with most impact on quality of life) and linking in with the work being done to improve outcomes on polymedicated patients.12

### References


Financing

According to OECD’s Health Data 2013, total health spending accounted for 9.3% of GDP in 2011, equal to the OECD average.\textsuperscript{14} The financial and economic crisis initially led to an increase in the health spending to GDP ratio in Spain, as GDP began to fall sharply in the second half of 2008 and in 2009 while health spending continued to increase, albeit at a slower pace. However, subsequent cuts in health spending in 2010 (by 0.5%) and in 2011 (by 2.8%) have led to a decrease in the health spending share to GDP.\textsuperscript{15} In 2011, 73% of national health spending was funded by public sources (slightly more than the OECD average of 72%).\textsuperscript{16} Data from 2010 reveals that 26% of Spanish health funding came from private sources (6% private insurance and the remaining 20% paid by individuals).\textsuperscript{17} The Spanish National Health System’s funding flows through block grants from the central government to the regions. As part of the decentralised model, the ACs administer 90% of healthcare funding. Some ear-marked health funds include transfers from the National Government to cover certain expenses related to the implementation of policies to increase efficiency and to reduce inequalities across the NHS.\textsuperscript{18} It is not known how much funding was allocated to accompany the national strategies described in the section above. In 2003, the Government (through the ACs) was estimated to spend €727m on direct costs on ischemic cardiopathy (€371m on hospitalisations, €44m on drugs, and €31m on follow up).\textsuperscript{19} There are no recent figures on the direct costs of strokes to the Spanish healthcare system.

Since 2011, the Spanish financial and economic crisis has resulted in further cuts in public spending on health as well as profound healthcare reforms. The Spanish health and social services budget was reduced by 13.65% in 2012, with substantial cuts to professional training (75%).\textsuperscript{20} It is not known how funding for CVD prevention and control and secondary CVD prevention was affected by these cuts. The national government announced a further €3134m cut for 2013, including an additional €1108m to be taken from the dependency fund for elderly people and people with disabilities, of which €571m will come from the ACs.\textsuperscript{21} 2012 budgetary changes were accompanied by a significant structural change that was introduced by Royal Decree. The Royal Decree-law 16/2012 came in to force in September 2012, and includes the following measures:

- **The exclusion of undocumented migrants from all but basic emergency healthcare, prenatal care, and pediatric care**

- **Changes to drug copayments:**
  - Those in employment will pay up to 60% more for their medicines, depending on their income, with those earning less than €18 000 annually paying 40% of the cost of medicines.
  - Pensioners now need to pay: those on higher incomes will pay 10% of the cost of medicines, and others will pay between €8 and €60 per month depending on their pension.
  - Patients with chronic disease will need to contribute 10% of drugs and medical devices to treat these diseases with a limit of €4.2 per prescription (applicable to drugs from hospital based pharmacies).\textsuperscript{22,23}

- **Drug purchasing is to become centralized.**

The exclusion of undocumented immigrants has been highly contested by many (several ACs have refused to do so and International groups such as Amnesty International and Doctors of the World have also issued concerns).\textsuperscript{24} This measure (in addition to the copayments introduced) is seen as symbolising the end of Spain’s universal healthcare system and ending the principle of free services at the point of delivery for all.\textsuperscript{25}

The rise in drug co-payments for individuals with CVD will undoubtedly drive patient’s out-of-pocket (OOP) expenses – the exact average figures for OOP expenses for CVD patients and specifically regarding expenses associated to secondary CVD prevention are unknown. The impact co-payment rises may have on access and medication adherence for secondary CVD prevention, is still unknown.


Expanded Quality Services Coverage

The 2008 Euro Consumer Heart Index measures the performance of European countries on the delivery of cardiovascular care, ranked Spain 17th out of 29 countries. The index highlighted Spain as a country with low CVD mortality and a strong primary care system. Primary care in Spain is well developed and has full geographical coverage. GPs act as gatekeepers and primary care teams are assigned according to population groups, and have established electronic health information systems. Interestingly, there are clinical practice guidelines on CVD risk prevention (which cover secondary prevention and are co-branded with the Ministry of Health) specifically targeted towards primary care. In Catalunya, financial incentives are provided to physicians to meet government targets to support CVD prevention in primary care. It is unclear whether these incentives include secondary prevention and therapeutic coverage.

As mentioned above, there are national strategies for ischemic heart disease as well as for stroke, however neither has concrete targets for secondary prevention and therapeutic coverage. Regional strategies do have CVD related targets, particularly at mortality levels. Pilot programmes to test interventions are often regional in nature, dependent on local leadership and are highly tailored to local population needs.

A decentralised system allows for more precise management of healthcare services, however it also allows for regional discrepancies in care and health inequities. A 2006 audit of secondary prevention of ischemic heart disease in rural areas of Spain revealed that patients from the smallest villages had the lowest probability of having controlled levels of LDL and also of receiving hypolipidemic therapy. The mortality rate from CVD also varies significantly between the different regions.

Clinical guidelines for Spain

The Spanish Society of Cardiology has endorsed the European Guidelines on cardiovascular disease prevention. In addition, the Spanish Society of Cardiology has published two articles, one discussing the relevance of these guidelines for Spain and a second one translating the guidelines into Spanish.

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Access

The Spanish study PREVESE II reported in 2002 the situation of secondary prevention after myocardial infarction. Analysing drug treatment at discharge, the study concluded that 45.1% of patients were prescribed beta-blockers, 46.4% were prescribed ACE inhibitors and 30.5% were prescribed lipid-lowering drugs. The EUROASPIRE II Survey, a study analysing secondary coronary heart disease prevention in 15 countries (including Spain), revealed that 63% of Spanish patients receive lipid-lowering drugs and 53.5% of patients are not reaching their blood pressure and cholesterol goals (compared to the European average of 48.9%).

The Ministry of Health, Social Services and Equality with the Spanish Agency of Drugs and Health Products published a 2014 report on the use of lipid lowering drugs between 2000 and 2012. Statins represented 89.3% of the consumption of lipid lowering drugs with an increase of 76.9 DDD (defined daily dose) between 2000 and 2012. It is not known how much of the consumption was for secondary prevention purposes. According to the data collected from the National Health System’s prescription invoicing reports, which reflect the packages dispensed in pharmacy offices charged to the National Health System, lipid-lowering drugs (82.5 DDD per 1,000 inhabitants/day) were the third most consumed drugs in 2010. Data for the 2008-2010 consumption of cardiovascular medicines charged to the National Health System is available and broken down by drug class. No increase was observed for anti-hypertensives and calcium channel blockers.

As a result of the 2012 Royal-Decree law, the content of the basic services package of the National Health System will be updated by Order of the Ministry of Health, Social Services and Equality, following agreement of the CISNS. This is at the proposal of the Committee on insurance, funding and benefits, reporting to the Ministry of Health, Social Services and Equality. Preparation of its content will take into account efficacy, efficiency, effectiveness, safety and therapeutic utility. The inclusion of new techniques, technologies or procedures will be subject to mandatory assessment by the Spanish Network of Health Technology Assessment Agencies and Benefits of the National Health System. In addition, drug purchasing will be centralised, in an attempt to drive drug related cost savings and compensate for smaller ACs with reduced acquisitive and bargaining power. It has been argued that savings in centralised purchasing should be applied to incentivise and drive pharmaceutical innovation. The concrete impact on secondary CVD prevention of centralised drug purchasing as well as the redefinition of the basic services packages are to date, unknown.

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Mortality and morbidity

According to the results of the Global Burden of Disease Study 2010, heart disease ranks among the most significant causes of premature mortality in the United States. CVD accounted for about 24.8% of premature death in 2010 (measured in terms of years of life lost, YLLs). Ischemic heart disease and stroke were, respectively, the first and third most common causes of premature death in the United States in 2010 - with lung cancer being the second highest ranked cause of premature death in the country. Ischemic heart disease accounted for 15.9% of premature mortality, while stroke accounted for 4.3% of premature mortality.1

The GBD study indicates that between 1990 and 2010, the role of cardiovascular diseases in premature death in the United States diminished slightly, from 25.1% to 24.8% of total causes of premature death. For ischemic heart disease and stroke, there was a drop in their role in premature death from 1990 to 2010, in terms of absolute numbers of premature deaths and their relative contribution to overall premature death in the United States.1

During this time period, premature death attributed to ischemic heart disease dropped by 21% while that attributed to stroke dropped by 13%. However, during this 20-year time span there have been increases in premature death from hypertensive heart disease, cardiomyopathy, and other cardio and circulatory diseases.1

In 2010, ischemic heart disease accounted for the largest burden of disease among all diseases in the United States, as measured by death and disability. From 1990 to 2010, the burden of disease attributed to ischemic heart disease declined by about 10%. Stroke was the seventh largest contributor to the disease burden in 2010.1

Risk factors

According to the GBD 2010, the leading risk factor in the United States was dietary risks, accounting for about 14% of total disease burden. In addition, a variety of other risk factors linked to CVD were ranked in the top eight leading risk factors for the overall disease burden: smoking, high body-mass index, high blood pressure, high fasting plasma glucose, physical inactivity, harmful use of alcohol, and high total cholesterol. Of these risk factors, smoking, high body-mass index, and high blood pressure are of particular significance because they each accounted for over 7% of the total disease burden and have strong links to CVD. The burden of disease and CVD linked to physical inactivity is also of note, with over 5% of the total disease burden in the country attributed to this risk factor. High total cholesterol, which is strongly linked to CVD, accounted for over 3% of the disease burden in 2010.1
National Capacity (National CVD plans, National NCDs plans, Legislation)

Healthy People

Healthy People is a Federal initiative providing science-based, 10-year national objectives for improving the health of all Americans (see www.healthypeople.org). For 3 decades, Healthy People has established benchmarks and monitored progress over time in order to:

- Encourage collaborations across communities and sectors
- Empower individuals toward making informed health decisions
- Measure the impact of prevention activities.

It sets out the US health-promotion and disease prevention agenda and although it doesn’t focus exclusively on chronic disease, Non-communicable diseases (NCDs) and associated risk factors are prominently featured.

Healthy People 2010 (launched in 2000) by the Department of Health and Human Services was a broad-based collaborative effort among Federal, State, and Territorial governments, as well as hundreds of private, public, and nonprofit organisations, to set national objectives to be achieved by 2010 under two overarching goals: to increase the quality and years of healthy life lived and to eliminate health disparities.2 Healthy People 2010 was divided into 28 focus areas, including: heart disease and stroke, cancer, diabetes, respiratory disease, mental health and mental disorders, nutrition and overweight, tobacco use, physical activity and fitness, HIV, maternal and child health. It featured 467 science-based objectives and 10 Leading Health Indicators towards meeting Healthy People 2010 goals. The leading health indicators were in areas such as: physical activity, tobacco use, overweight and obesity, access to healthcare, immunisations.3

Healthy People 2010 included heart disease and stroke as a focus area with the Centers for Disease Control and Prevention (CDC) and National Institutes of Health (NIH) involved as its co-lead agencies.4 It set out as a single goal to improve cardiovascular health and quality of life through:

- The prevention, detection, and treatment of risk factors
- The early identification and treatment of heart attacks and strokes
- The prevention of recurrent cardiovascular events.

Healthy People 2010 set out 16 objectives in heart disease and stroke including the reduction of coronary heart disease and stroke deaths, reducing cholesterol levels and blood pressure and reducing hospitalisations of older adults with congestive heart failure as the principal diagnosis. One objective that did specifically address patients with coronary heart disease, was a ‘developmental’ objective to: increase the proportion of persons with coronary heart disease who have their LDL-cholesterol level treated to a goal of less than or equal to 100 mg/ dL. Objectives were considered developmental when they did not have baseline data, with HHS stating that ‘targets for the developmental objectives will be set when baseline data become available’. However, a 2008 report on progress against the Healthy People 2010 objectives, reported that tracking data on this objective was unavailable.5 Two-thirds of the objectives set out in Healthy People 2010 with data to monitor progress moved toward or achieved their targets.6

Healthy People 2020 launched in December 2010 with 42 topics (including heart disease and stroke), and over 600 objectives. It carried over from Healthy People 2010 the overarching goals of increasing the quality and years of healthy life and eliminating health disparities but included a new important focus on social determinants of health, an issue of particular relevance to CVD and other NCDs.7

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For heart disease and stroke, Healthy People 2020 contains 24 objectives plus sub-objectives aimed at improving cardiovascular health and quality of life through prevention, detection, and treatment of risk factors for heart attack and stroke; early identification and treatment of heart attacks and strokes; and prevention of repeat cardiovascular events. Healthy People 2020 sets objectives with concrete targets to reduce coronary heart disease and stroke mortality by 2020, and it also includes numerous objectives addressing hypertension and cholesterol levels. The following objectives are particularly relevant to secondary CVD prevention (note the expansion from Healthy People 2010):

- **HDS-20** (Developmental objective) Increase the proportion of adults with coronary heart disease or stroke who have their low-density lipoprotein (LDL) cholesterol level at or below recommended levels
- **HDS-21** (Developmental objective) Increase the proportion of adults with a history of cardiovascular disease who are using aspirin or antiplatelet therapy to prevent recurrent cardiovascular events
- **HDS-22** (Developmental objective) Increase the proportion of adult heart attack survivors who are referred to a cardiac rehabilitation program at discharge
- **HDS-23** (Developmental objective) Increase the proportion of adult stroke survivors who are referred to a stroke rehabilitation program at discharge
- **HDS-24** Reduce hospitalisations of older adults with heart failure as the principal diagnosis.

A Public Health Action Plan to Prevent Heart Disease and Stroke

In 1998, the US Congress awarded an appropriation for the Centers for Disease Control and Prevention (CDC) to support state health departments in cardiovascular health. The still-in-existence CDC’s State Heart Disease and Stroke Prevention Program is designed to reduce disparities in treatment, risk factors, and disease; delay the onset of disease; postpone death; and reduce disabling conditions.

As a result of Healthy People 2010 and the CDC’s State Heart Disease and Stroke Prevention Program, the CDC (under its parent agency the Department of Health and Human Services), and a number of partners came together to produce a National long-range strategic plan for heart disease and stroke prevention: the Public Health Action Plan to Prevent Heart Disease and Stroke (Action Plan). The Action Plan, launched in 2003, embraced the overarching goals of Healthy People 2010 and addressed its goals specific to heart disease and stroke: prevention of risk factors, detection and treatment of risk factors, early identification and treatment of heart attacks and strokes, and prevention of recurrent cardiovascular events. The Action Plan charts a course for the CDC and collaborating public health agencies, interested partners and the public at large, to help in promoting achievement of national goals for preventing heart disease and stroke through 2020 and beyond. A National Forum for Heart Disease and Stroke Prevention, with multisectoral participation, was established in 2003 to implement the Action Plan.

The Action Plan was updated in 2008. It makes several recommendations in several areas, including: strengthening capacity, evaluating impact and advancing policy. The recommendations in the Action Plan are general in nature and the only recommendations that focus on secondary prevention are:

- Conduct economics research, including cost-effectiveness studies and comprehensive economic models that assess the return on investment for CVH promotion as well as primary and secondary CVD prevention
- Initiate policy development in CVH promotion and CVD prevention at national, state, and local levels to assure effective public health action against heart disease and stroke.
  - Establish active collaboration among public health agencies, clinical preventive service providers, and other partners at all levels to implement effective policies and programs that address CVH promotion and primary and secondary prevention of cardiovascular disease (CVD).

The Patient Protection and Affordable Care Act

The role of the US government in healthcare is complex, continues to evolve and is currently undergoing major reform. In March 2010 President Obama signed into law the Patient Protection and Affordable Care Act (ACA), enacting a sweeping series of insurance and health system reforms. Many of the ACA provisions have serious consequences for CVD prevention and treatment and are further expanded in sections below.

Major provisions of the legislation, many of which go into effect in 2014, include:

- Expanding Medicaid (a joint federal-state programme for certain low-income populations) to include everyone with incomes below 133% of the federal poverty level
- Establishing state-based insurance marketplaces for individuals and small businesses (providing insurance subsidies for low- and middle-income individuals and tax credits for small businesses)
- Prohibiting insurers from denying coverage to individuals with pre-existing conditions, beginning in 2014 for adults
- Eliminating copayments (out of pocket expenses) for recommended preventive services and immunisations
- Eliminating lifetime limits in insurance plans and phases out annual dollar limits on essential benefits
- Establishing the Center for Medicaid and Medicare Innovation to develop and test payment models for improving quality and lowering costs
- Increasing Medicare (a public federal program for those age 65 and older, some of the disabled, and those with end-stage renal disease) and Medicaid payments for primary care.

Financing

The total direct and indirect cost of CVD and stroke in the United States for 2010 is estimated to be USD $315.4 billion. This figure includes health expenditures (direct costs, which include the cost of physicians and other professionals, hospital services, prescribed medications, home health, care, and other medical durables) and lost productivity that results from premature mortality (indirect costs).

Health spending accounted for 17.7% of GDP in the United States in 2011, with public spending accounting for 48% of total healthcare spending and out of pocket payments through cost sharing insurance arrangements and direct purchase of services accounting for 11.6% ($987 per capita). The federal government is expected to spend $7.9 trillion on Medicare from 2014 to 2023 and has estimated that Medicaid spending would total $4.3 trillion between 2014 and 2023.

One study analysed national spending on CVD from 1996-2008, showing it had grown at a compound annual growth rate of 5.7%, a lower rate when compared to diabetes and cancer that grew over the same time period at rates of 8.5% and 7.3%, respectively. It is not known how much of national spending was allocated towards secondary CVD prevention.

The Bipartisan Budget and Emergency Deficit Control Act of 2013 was enacted into law in December 2013 and in it the Medicare Chronic Care Special Needs Plans (C-SNPs) were extended to 2015 for chronically-ill beneficiaries. These plans were created to focus on one chronic disease or condition that Centers for Medicare and Medicaid Services (CMS) has identified as being particularly prevalent and high-cost for the Medicare population. Centres and are allowed to limit enrollment to only those beneficiaries who have specific diseases or characteristics, such as congestive heart failure, as well as provide benefits, provider choices and drug formularies tailored to best meet the specific needs of the patients they serve. This will support those Medicare patients with existing CVD conditions in making use of secondary CVD prevention.

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Expanding service coverage

ACA promotion of access to preventive care

The Centers for Medicare and Medicaid Services (CMS) administer the Medicare programme and work in partnership with state governments to administer Medicaid. Medicare covers hospital and outpatient care, and offers outpatient prescription drug coverage through a supplementary programme (Medicare Part D). Private insurance is regulated at the state level, but generally is allowed wide discretion in designing benefit packages. The ACA promotes access to preventive care through new insurance coverage requirements. Most private insurance plans, Medicare, and Medicaid expansion programs are required to cover US Preventive Services Task Force (USPSTF) A- and B-rated services at no cost to the patient.

The USPSTF is an independent panel of experts with staff support from the U.S. Department of Health and Human Services that systematically reviews scientific evidence in prevention and evidence-based medicine, developing recommendations for primary care clinicians and health systems. The USPSTF assigns one of five letter grades to each of its recommendations. A and B recommendations have the greatest amount of quality scientific evidence behind them with significant certainty that the net benefit to patients is moderate or substantial. A and B recommendations for cardiovascular disease and stroke include blood pressure monitoring, aspirin use, cholesterol screening, behavioral counseling for a healthy diet, obesity screening, and tobacco cessation programs.

Clinical guidelines for USA

The USA has developed specific national guidelines for secondary cardiovascular disease prevention.
Million Hearts™ Initiative

Million Hearts™ is a national US initiative aimed at preventing one million heart attacks and strokes by 2017. Launched in September 2011 by the Department of Health and Human Services, and with funding support from the Prevention and Public Health Fund, this initiative brings together communities, health systems, nonprofit organisations, federal agencies, and private sector partners to fight heart disease and stroke.25

Million Hearts™ will implement the cardiovascular-disease–prevention priorities of the National Quality and National Prevention Strategies and help in meeting targets set by Healthy People 2020. Million Hearts™ aims to reach its ambitious goal through a targeted focus on the ABCS of heart disease and stroke (Aspirin for people at risk, Blood pressure control, Cholesterol management, Smoking cessation), through both a clinical realm and a community realm. It aims to implement proven, effective, inexpensive interventions27:

- Improving access to effective care
- Improving the quality of care for the ABCS
- Focusing clinical attention on the prevention of heart attack and stroke
- Activating the public to lead a heart-healthy lifestyle
- Improving the prescription and adherence to appropriate medications for the ABCS.

This work is particularly relevant to secondary CVD prevention as it will include initiatives to promote medication adherence; support providers in the use of Electronic Health Records to support in patient recall and include initiatives to promote medication adherence; support providers

This national initiative promotes large scale active cross-agency collaboration on cardiovascular disease working against a set target. The Centers for Disease Control and Prevention and Centers for Medicare and Medicaid Services are the co-leaders of Million Hearts™ within the U.S. Department of Health and Human Services, working alongside other federal agencies including the Administration for Community Living, National Institutes of Health, the Agency for Healthcare Research and Quality, and the Food and Drug Administration, the Health Resources and Services Administration, and the Substance Abuse and Mental Health Services Administration, the Office of the National Coordinator, and the U.S. Department of Veterans Affairs.29 Million Hearts™ is also innovative in its public-private partnerships. The breadth of partnerships and cross-agency collaboration afford Million Hearts™ long-term sustainability but also provide a platform for CVD action beyond the current US administration.

Center for Medicare and Medicaid Innovation

The Center for Medicare and Medicaid Innovation (CMMI), created under the ACA, is charged with testing and spreading innovative payment and service delivery models in Medicare and Medicaid, that reduce spending while preserving or improving quality.25

Crucially, in order to encourage reform, the diffusion of successful pilot programmes does not require Congressional approval.31

The rapid expansion of care model may help re-organise how care is delivered, particularly for chronic conditions. This may also be a platform for improving initiatives in secondary CVD prevention.

Medicare Hospital Readmissions Reduction Program

The Medicare Hospital Readmissions Reduction Program, effective October 1, 2012, was designed to provide financial incentives for hospitals to implement strategies to reduce the number of costly and unnecessary hospital readmissions.30 Medicare reimbursement payments to hospitals with high 30-day readmission rates (for heart attack; heart failure and pneumonia) are reduced.33 Data on hospitals penalised for their high readmission rates are made public by the CMS.

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33 Health Policy Brief: Medicare Hospital Readmissions Reduction Program, Health Affairs, November 12, 2013.
Hospitals are implementing various strategies to decrease the rate of readmissions, such as:

- Increasing coordination with other providers and care settings to ensure discharged patients receive the level of care they need for a safe transition out of the hospital
- Prior to discharge hospitals are using registered nurses, case managers and discharge planners to assess high risk patients, identify patient needs and make sure there is a plan for meeting each need, and provide education and meet other discharge planning needs
- Post discharge, hospitals are coordinating with community resources such as physicians, home health agencies, etc. Some hospitals are calling patients within hours after discharge to ensure that they understand their plan for continued care, have access to needed resources, medications, etc. and answer any questions the patient might have
- Implementing policies and procedures to notify physicians of their respective patient’s discharge, follow-up on test results, and checks on patient progress
- The Readmissions Reduction Program may result in improvements in secondary CVD prevention with measures described above positively impacting medication prescription and adherence. Further linking the program to quality improvement initiatives like Get With The Guidelines program, is likely to improve current outcomes.

Get With the Guidelines

Although not an initiative led by the Government, Get with The Guidelines has the potential to tie in with current government processes and priorities in healthcare reform. To help translate guidelines into clinical practice, the American Heart Association/American Stroke Association produced a suite of programmes called Get With The Guidelines (GWTG).35 The GWTG Program was developed to provide hospitals with a systematic approach to measuring and improving the quality of care by utilizing evidence based tools to help ensure that patients are initiated and discharged on appropriate medications and with risk modification counseling. GTGW has produced sophisticated clinical databases (registries) through which hospitals and physicians collect information in real time for the assessment of quality, regional, and national benchmarking, national recognition, and the generation of clear and meaningful data.36

GWTG has 4 specific disease registries: stroke; heart failure; coronary artery disease and resuscitation. In certain diseases, such as stroke, GWTG now enrolls >40% of all indexed hospitalisations. The GWTG Coronary Artery Disease Registry was combined with the National Cardiovascular Data ACTION Registry in 2007 to produce the ACTION Registry–GWTG, a national surveillance system for high-risk patients with acute myocardial infarction.37 The registry establishes the national standard for understanding and improving quality, safety and outcomes of care for patients with acute coronary syndrome.

Much of the GWTG benchmarking focuses on evidence-based secondary prevention.38 Some of the quality of care measures used in the ACTION Registry – GWTG relevant to secondary prevention, include: aspirin at discharge; beta-blockers at discharge; lipid-lowering medication at discharge; ARB/ACE inhibitor at discharge for patients with left ventricular fraction less than 40% and cardiac rehabilitation referral for patients with acute myocardial infarction.36 GWTG–Heart Failure and GWTG–Stroke include similar sets of specific secondary prevention quality of care measures.

The potential linkage of the GWTG clinical database with administrative data (eg, Medicare fee-for-service claims data) provides real-world clinical effectiveness research and can be used to assess current practice, identify focused areas of health disparities, and develop successful implementation strategies to address opportunities to improve acute hospital care stroke performance measures. The potential linkage of the GWTG clinical database with administrative data (eg, Medicare fee-for-service claims data) provides real-world clinical effectiveness research and can be used to assess current practice, identify focused areas of health disparities, and develop successful implementation strategies to address opportunities to improve acute hospital care stroke performance measures.36 Multiple additional studies using GWTG data integrated with national databases such as CMS are underway and have potential to assess the benefits of various interventions on prognosis and mortality.36 Quality measure reporting through GWTG aligns with the increased national political interest in clinical effectiveness research and quality performance improvement. The GWTG programme is associated with significant increases in the quality of care and certain measures of efficiency such as the reduction in 30-day readmission rates – an element of interest under the ACA.36 Increased cross linkages between GWTG and Federal reporting and performance-related programmes are likely to occur over the next few years.

The WHF would like to thank Laurie Whitsel, Ph.D., Director of Policy Research and Madeleine Konig, Senior Policy Analyst, at the American Heart Association/American Stroke Association, for sharing their knowledge and being interviewed on the subject of policy and secondary CVD prevention in the US.

### Access

Programmes like Get with the Guidelines are actively tracking secondary CVD prevention prescribing at the point of hospital discharge with results available on progress on such indicators. CMS does not have an established formular. Medicare part D offers outpatient prescription drug coverage and for the most part covers drugs for heart and stroke, excluding drugs not approved by the FDA, off-label use and drugs not available by prescription. People with Medicare part D pay a certain out-of-pocket monthly premium, 100% of drug costs until a deductible is met and then 25% of the cost of the drugs. ACA committed to eliminating Medicare’s coverage gap which lies between the initial coverage limit and the catastrophiccoverage threshold in prescription coverage. This is expected to increase access to blood-pressure, cholesterol-lowering, and smoking-cessation medications. A 2007 study reported that under the assumptions that Medicare Part D covered an average of 37% of beneficiaries’ drug costs, under base-case assumptions, it estimated that providing post-myocardial infarction Medicare beneficiaries with full coverage for combination pharmacotherapy would save more than $5,600 per patient over a three-year period.

The ACA ensures insurance health plans offered in the individual and small group markets (both inside and outside of a state health insurance marketplace), offer a comprehensive package of items and services, known as essential health benefits. Essential health benefits must include items and services within several benefit categories (including prescription drugs) that are offered at no dollar limits. Insurance policies must cover these benefits in order to be certified and offered in the state health insurance marketplace. States expanding their Medicaid programs must provide these benefits to people newly eligible for Medicaid. Lists of prescription drug categories and classes according to each state selected benchmark plan are provided by the Centre for Consumer Information and Insurance Oversight. With low cost drugs that are off-patent, there can be shortage issues due to problems in basic drug supply.

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Journalist Briefings...
Keeping CVD at the top of the agenda
Governments worldwide are accountable for progress against the WHO Global Monitoring Framework on NCDs. The policy options set out by the WHO NCDs 2013-2020 Global Action Plan are key enablers in achieving the targets/indicators in the Global Monitoring Framework. The mapping of government action and policy in secondary CVD prevention according to the policy options set by the WHO NCDs 2013-2020 Global Action Plan has identified several gaps and obstacles from a national policy perspective.

Outlined overleaf, these gaps can help provide the starting point for national advocacy efforts aimed at improving national secondary CVD prevention and reducing a country's CVD burden.
Section 5

National barriers
Australia

Lack of a comprehensive national CVD action plan with targets for secondary prevention of CVD

Australia lacks specific time bound targets for CVD mortality reduction and for drug therapy related to secondary prevention of CVD, as recommended by the WHO in the NCDs Global Monitoring Framework. An external review of national CVD programmes (2009), found that the National Service Improvement Framework for Heart, Stroke and Vascular Disease has not been fully utilised and has only been partially implemented, often in an ad hoc fashion by the jurisdictions and noted a limited uptake of the Framework as a base for structured planning with associated actions, resource allocation and performance measures.4 While the concept of a national action plan reportedly has strong support from stakeholders including state and territory governments, such a plan has not yet been put in place. A national plan will improve outcomes for patients and help contain future public health costs. It will also help address gaps in the current approach to secondary prevention of CVD. Ideally the plan would include key performance indicators to effectively monitor the success and outcomes of cardiac rehabilitation referral systems and other interventions related to secondary prevention.2

Lack of sufficient data linkages to track patients and improve outcomes

According to 2006 AIHW data, approximately 80% of Australians aged 65 years and over (the age group most affected by CVD) have three or more coexisting chronic conditions. Capacity for insight into managing this complexity is constrained by the data sources available. Currently available national administrative data sources do not facilitate linking of patient records. Such linkages between records of medical services delivered, medicines supplied, hospitalisations and deaths could be used to assess the quality of care given to patients at a national level and outcomes.3 This would also facilitate the ability to track which medicines were prescribed for primary or secondary prevention of CVD (or other conditions). The Heart Foundation and the National Stroke Foundation recommend the adoption of CVD clinical performance indicators that capture the proportion of patients admitted to the hospital with CHD who upon discharge receive appropriate medications and/or are referred to cardiac rehabilitation/secondary prevention programmes. They also recommend the creation of a national cardiac procedures registry that would enable service planners to compare outcomes with national and international standards to improve procedures, practices and efficiencies within the healthcare system.4

Evidence-practice gap: Underutilization of secondary CVD services

Some individual states/territories have identified the importance of instituting individual case management for patients in primary care, along the lines of that provided by the National Diabetes Services Scheme to increase adherence to treatments. Diabetes educators are placed in hospitals, community health centers, primary care practices and other settings, and such a model could work for secondary prevention of CVD as well.3

Persistent gaps in CVD service delivery/secondary prevention to indigenous Australians and those living in remote areas

Some advocates have suggested closing the gap in treatment of indigenous Australians in hospitals by introducing protocols and supporting change through incentive payments and performance indicators. They look towards National Partnership Agreements (federal funds to provide facilitation and reward payments against agreed milestones and targets to address specific reform priorities, such as sub-acute care and hospital admission times) as a mechanism through which to address gaps in CVD services. These could, for example, improve access to and completion rates of cardiac rehabilitation and support a multidisciplinary team approach to secondary prevention. Specific milestones and targets could be set to improve access and participation rates for Aboriginal and Torres Strait Islander people and people living in rural/remote areas.4

1 Ernst & Young, Review of Cardiovascular Disease Programs, Final Report, Department of Health and Ageing, 30 March 2009.
National barriers
Brazil

Lack of national targets for secondary prevention of CVD

Brazil lacks specific national time bound targets for CVD mortality reduction and for drug therapy related to secondary prevention of CVD, as recommended by the WHO in the NCDs Global Monitoring Framework. Although there are several Brazilian policies citing the reduction of CVD mortality as a goal, there is a lack of specificity and time limit. The National NCDs Plan’s aim for a 2% reduction in NCDs a year can be seen as an all-embracing target under which CVD mortality reduction can potentially be framed. The National NCDs Plan itself does set out a very small number of concrete and measurable targets. However, none of these relate to secondary CVD prevention as recommended by the WHO. The plan does acknowledge drug therapy for secondary CVD prevention as a ‘best buy’ but falls short of setting any measurable targets in this area.

Regional variations in drug access

There is a need for regular government benchmarking of CVD prevention and control performance across the country against concrete and measurable targets. Although there are established Systems of Care for acute myocardial infarction (AMI) and stroke, there needs to be a national secondary CVD prevention programme that coordinates between the federal, state and municipal levels and has pre-established funding levels agreed by each government sphere. It is necessary to have a medicine acquisition strategy that is able to accommodate health service demand and makes any policy-stipulated free medicines widely available, reducing any ‘out of pocket’ expenses. Therapeutic planning will require registering patients and linking and following up patients in primary healthcare. Implementing the AMI and stroke registries called for in the National NCDs Plan will be a crucial element in addressing secondary CVD prevention in Brazil.

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1 Personal communication, Dr Marcio Sousa, doctor of the Brazilian Society of Cardiology.
National barriers
China

Lack of secondary CVD prevention targets

Although China has set itself targets on CVD mortality reduction (5% reduction due to stroke by 2015), there are no specific time bound targets for action on secondary CVD prevention from a drug therapy perspective, as recommended by the WHO in the NCDs Global Monitoring Framework. Government targets in this area would help drive action, improve service delivery and monitor country progress.

Need for a long-term comprehensive CVD strategy

A CVD plan is currently under development according to WHO Western Pacific region. The NCDs Global Monitoring Framework set ambitious targets for the year 2025, so comprehensive plans for China would benefit from being long-term. A government long-term strategy would allow for a holistic view of CVD – from primary prevention to palliation – that could allow for a more thorough exploration of areas such as secondary prevention and drug therapy for individuals who have already suffered from a CVD event.

Outpatient reimbursement

To improve CVD prevention and control, it is essential that primary healthcare be strengthened so as to alleviate the burden on higher level health services. Outpatient services need to be fully reimbursed for patients to be able to fully access CVD management and drug therapy for secondary CVD prevention.
National barriers
France

Lack of secondary CVD prevention targets

Although France has set itself targets on CVD mortality reduction (5% reduction due to ischemic cardiopathy by 2015), there are no specific time bound targets for action on secondary CVD prevention from a drug therapy perspective, as recommended by the WHO in the NCDs Global Monitoring Framework. Government targets in this area would help drive action, improve service delivery and monitor country progress.

Lack of a long term comprehensive CVD strategy

There are several CVD policies in France but they do not exist in a formalised government strategy whereby they are afforded high political significance. The NCDs Global Monitoring Framework set ambitious targets for the year 2025, therefore comprehensive plans would benefit from being part of a long-term strategy. Such an approach would allow for a holistic view of CVD – from primary prevention to palliation – that could allow for a more thorough exploration of areas such as secondary prevention and drug therapy for individuals who have already suffered from a CVD.
Section 5

National barriers

Germany

Lack of a comprehensive national CVD action plan with targets for secondary prevention of CVD

Germany lacks specific time bound targets for CVD mortality reduction and for drug therapy related to secondary prevention of CVD, as recommended by the WHO in the NCDs Global Monitoring Framework. Other disease groups have received intensified national and federal state attention. For example, in 2012, as part of the National Cancer Plan, the federal government introduced a draft bill proposing the implementation of a nationwide standardised cancer registry in 2018 to improve the quality of cancer care. While there is no national public health strategy, there are some individual national programmes, e.g. National AIDS Campaign. According to WHO data, the German response to HIV/AIDS is viewed as successful, with an emergency Ministry of Health programme to respond to the crisis launched as far back as 1987. Using the successful example of the National AIDS Campaign, government targets in the area of CVD prevention and control, including secondary prevention, would help drive action, improve service delivery, monitor country progress and address federal state disparities in service delivery and access to secondary prevention throughout the country. Furthermore, changes in national reimbursement policies towards an incentive rather than restrictive system may enable Germany to attain better drug therapy treatment goals.

Lack of national policies targeted to aging of population and secondary CVD prevention

According to the Robert Koch Institute, ‘the biggest challenge for the healthcare system is the increasing age of the population.’ The demographic change will result in a greater percentage of older people with chronic diseases, including CVD, requiring treatment and care in the future. The American College of Cardiology notes that problems associated with an ageing population are expected to be particularly acute in wealthy, industrialised countries such as Germany, where 20% or more of the population is 65 years of age or older (2010). According to WHO, future changes in the structure of the German population will lead to an increase in the elderly population’s need for prevention, therapy, and rehabilitative care. It is also expected that there will be an additional need for health services to address CVD, and a large preventive potential for ischaemic and cerebrovascular diseases. In the absence of targeted policy measures, the aging of the population is expected to lead to significant increases in societal expenditures beginning around 2020 onward, the largest proportion of it going to pensions, followed by health and long-term care. As such, future national and federal state policies must address demographic changes as a significant factor in secondary CVD prevention.

Inconsistency in service delivery/secondary prevention services by region/lack of national coherence

According to the 2008 Euro Consumer Heart Index, which measures the performance of European countries on differing aspects of delivery of cardiovascular care, Germany received a low rating on the quality and intensity of CVD preventive activities, comparable to the efforts of countries with much lower GDPs (e.g. Bulgaria and Romania). Given that the primary responsibility for the competence for public health strategies lies primarily on the federal state level rather the national level, some researchers and policymakers note that addressing the inequities in health access and status by federal state, particularly as it relates to the provision of secondary prevention of CVD, is a key priority. Some federal states are more advanced than others in the development, implementation and financing of secondary CVD prevention strategies. For example, NRW and Schleswig-Holstein have shown initiative in developed CVD-related targets, and in developing rehabilitation networks, respectively. These advances could be replicated in other federal states and coordination among them at the national level could be strengthened in order to enhance Germany’s national capacity for secondary CVD prevention.

4 http://www.rki.de/EN/Content/Health_Monitoring/Health_Reporting/HealthInGermany/health_in_germany_summary.pdf;jsessionid=AF2E0D7747E24FE0F791B848F1DB85115.2_cid572?_blob=publicationFile, accessed on March 30, 2014.
National barriers
Italy

Lack of a comprehensive national CVD action plan with targets for secondary prevention of CVD

Italy lacks specific time bound targets for CVD mortality reduction and for drug therapy related to secondary prevention of CVD, as recommended by the WHO in the NCDs Global Monitoring Framework. Other disease groups, such as cancer, have received governmental attention and dedicated resources through the institution of national rather than regional commissions. For example, the National Health Plan for 1994–1996 led to the establishment of the National Oncology Commission; it was tasked with developing an intervention program to monitor and prevent cancer. Screening guidelines were then produced with the aim of reducing the heterogeneity of interventions and enhancing evidence-based programme planning.1 For CVD, on the other hand, only regional level Commissions have been established (e.g. the Lombardy Regional CVD Commission, charged with developing programmes for the post-acute and chronic periods). Government targets in the area of CVD prevention and control, including secondary prevention, would help drive action, improve service delivery, monitor country progress and address north-south regional disparities in service delivery and access to secondary prevention throughout the country.

Evidence-practice gap: Under-utilisation of secondary CVD services

Over the past decade, a series of scientific meetings, conferences and campaigns have been dedicated to increasing adherence to CVD treatment in Italy (e.g. the 2013 consensus conference on clinical management after acute coronary syndrome (ACS),2 with the aims of increasing awareness, improving the attainment of targets (pharmacological and non-pharmacological) and improving outcomes. Despite this, recent data on drug adherence, smoking cessation, weight control and physical inactivity suggest that uptake remains inadequate. As a consequence, despite a relative reduction of acute phase MI mortality, researchers report little improvement in hospital readmission and mortality rates from 30 days to one year after ACS.2 This disconnect points to the clinical and economic importance of improving adherence at the national level. Advocates recommend actions to increase patient adherence to anti-hypertensive therapies, such as psychological support to enhance patients’ motivation, patient reminders, and the use of fixed dose combination therapies to decrease pill burden.3 Some advocates recommend the development of a post-ACS network. This would allow the coordination of health professionals (e.g. cardiologists, general practitioners, nurses, other health personnel devoted to risk factor control) working in cardiac rehabilitation units, acute phase hospitals, and out of hospital services to promote drug adherence and lifestyle interventions.

Inconsistency in service delivery/secondary prevention services by region/lack of national coherence

Many researchers and policymakers note that addressing the inequities in health access and status by region, particularly as it relates to the provision of secondary prevention of CVD, is a key priority. Some regions are more advanced than others in the development, implementation and financing of secondary CVD prevention strategies. For example, in the Lombardy Region during the period 2005-2010, the CVD Commission organised the ST-elevation myocardial infarction (STEMI) network4 (based on the hub and spoke concept) with the active involvement of general cardiologists, cardiac rehabilitation cardiologists and general practitioners. The federal government could promote and facilitate the adoption by the other regions of the Lombardy model of an integrated network to deliver secondary prevention of CVD services, by other regions.


75 Secondary cardiovascular disease prevention and control

Section 5 National barriers to secondary cardiovascular disease prevention
National barriers
Spain

Lack of CVD prevention targets

Spain lacks specific national time bound targets for CVD mortality reduction and for drug therapy related to secondary prevention of CVD, as recommended by the WHO in the NCDs Global Monitoring Framework. There is an opportunity to address the mortality targets in the currently ongoing work on the indicators for the Strategy for Addressing Chronicity in the National Health System. For purposes of clarity and transparency, information on budgetary allocations in support of each national strategy should be made easily and publically accessible. ACs have robust plans and some do include targets in different areas relating to CVD, however there is a need for national coordination and regional systematic review, as well as national target setting to enable national measuring of progress. There is a clear advocacy ‘watchdog’ role for civil society to monitor and compare policies on secondary CVD prevention across the several ACs.

Potential impact of budgetary cuts and increase in co-payments

Policies responding to the economic crisis have resulted in reductions in health expenditures, as well as the increase of co-payments, making access to some types of care more difficult for specific individuals. Although it is too early to ascertain, this search for short-term savings might compromise longer-term efficiency and equity. The impact on patients needing to access secondary CVD prevention is still unknown, but it is important that civil society monitor carefully patients’ experiences and any negative impact this may have on treatment access and adherence. Furthermore, it will be important to ensure that gains previously achieved in access to secondary CVD prevention are not lost with changes in benefits packages.

Lack of national data collection on recurrent cardiovascular events

According to Healthy People 2020, no national system exists to collect data on how often cardiovascular events occur or recur, or how often they result in death.¹ There is inadequate tracking of quality indicators across the continuum of care, from risk factor prevention through treatment of acute events to post-hospitalisation and rehabilitation. New measures and tools are needed to monitor improvement in cardiovascular health over the next decade. The government can expand on existing models on quality and performance tracking, such as Get With the Guidelines, together with electronic health record integration.

Need for benefits compliance

The ACA’s expansion of preventive services coverage has the potential to seriously impact CVD, but the comprehensiveness of benefits offered needs to be evaluated with insurance companies monitored for compliance.

Need for evaluation of health equity outcomes

With the ACA increasing insurance coverage, in years ahead it will be important to analyse if all populations are accessing care adequately and if the mass increase in insurance coverage actually translates to better health outcomes in secondary CVD prevention.

Common national barriers to secondary CVD prevention

The table below brings together the findings from the country policy mapping to show the commonalities in the challenges faced for secondary cardiovascular disease prevention. This provides a clear indication of the secondary CVD prevention level barriers to address, in order to achieve the ‘25 by 25’ target:

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>France Spain Italy Germany China Australia Brazil USA</td>
</tr>
<tr>
<td>Lack of long-term national comprehensive CVD strategy</td>
<td>*</td>
</tr>
<tr>
<td>Lack of national secondary CVD prevention targets</td>
<td></td>
</tr>
<tr>
<td>Financial constraints (e.g. budget cuts)</td>
<td></td>
</tr>
<tr>
<td>Inequities in health access</td>
<td></td>
</tr>
</tbody>
</table>

*Although France does have a National Plan of Action on Stroke (2010-2014)*
Clinical guidelines and implementing best practices

Global Guidelines

Making the facts available to healthcare professionals and media
Section 6.2

Uptake of recommendations of clinical guidelines

Three major studies have evaluated the uptake of secondary prevention at a regional and global level

Low and middle income countries

The WHO-PREMISE study on the prevention of recurrences of myocardial infarction and stroke evaluated 10,000 patients with coronary heart disease (CHD) and stroke from Brazil, Egypt, India, Indonesia, Iran, Pakistan, Russia, Sri Lanka, Tunisia and Turkey. The proportions of patients with previous CHD and stroke receiving the recommended treatment were as follows: aspirin 81.2%, 70.6%; beta-blockers 48.1%, 22.8%; ACE inhibitors 39.8%, 37.8%; statins 29.8%, 14.1%.

Europe

The European Society of Cardiology has conducted four surveys evaluating the uptake of recommendations in patients with established cardiovascular disease. The first EUROASPIRE survey was done in 1995–96 in nine European countries, the second in 1999–2000 in 15 European countries, and the third in 2006–07 in 22 countries. Results of the fourth survey are still pending.

Eight countries (Czech Republic, Finland, France, Germany, Hungary, Italy, the Netherlands, and Slovenia) participated in the three surveys and provided the basis to analyse some time trends.

Antiplatelet treatment

<table>
<thead>
<tr>
<th>Antiplatelet treatment</th>
<th>β blockers</th>
<th>All blood-pressure-lowering drugs</th>
<th>All lipid-lowering drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA I</td>
<td>EA II</td>
<td>EA III</td>
<td>EA I</td>
</tr>
<tr>
<td>2570/3180 (80.9%)</td>
<td>2486/2973 (83.6%)</td>
<td>2214/2376 (93.2%)</td>
<td>1780/3180 (56.0%)</td>
</tr>
<tr>
<td>2687/3180 (84.5%)</td>
<td>2694/2973 (90.6%)</td>
<td>2301/2376 (96.8%)</td>
<td>2687/3180 (84.5%)</td>
</tr>
</tbody>
</table>

The EUROASPIRE survey showed that the uptake of treatments for secondary cardiovascular disease prevention increased from the time of the first survey (1995-96) to the time of the third survey (2006-07)

Global

The Prospective Urban Rural Epidemiological (PURE) study enrolled 153,996 adults from countries with incomes classified as high (three countries), upper-middle (seven), lower-middle (three), or low (four) between 2003, and 2009. 56,550 participants had a self-reported coronary heart disease event and 22,922 a stroke event. Unlike the previously cited studies the PURE study provided estimates at the community level rather than data from clinical care settings. Uptake of proven cost effective interventions was found to be very low; up to 45% (upper-middle-income countries), 69% (lower-middle-income countries), and 80% (low-income countries) of patients did not receive any drug.

Despite over 20 years of evidence about cost effective treatment and global and national recommendations for secondary prevention, uptake is low.
World Congress of Cardiology...
Bringing together thought leaders
in the field of CVD
Barriers to the use of secondary cardiovascular disease guidelines at the healthcare provider level

It is widely accepted that simply providing evidence is not sufficient to implement optimal care. Failure to implement evidence could be influenced by factors at the healthcare provider level. This section explores physicians’ knowledge, attitudes and practices in relation to secondary coronary artery disease prevention guidelines. An online survey and in-depth interviews were conducted with physicians, and the results were organised around the framework for guideline implementation described by Cabana which includes knowledge, attitudes and behaviours.

Sequence of Behaviour Change

**Knowledge**
- Lack of familiarity
  - Volume of information
  - Time needed to stay informed
- Guideline accessibility

**Attitudes**
- Lack of agreement with specific guidelines
  - Interpretation of evidence
    - Applicability to patient
    - Not cost beneficial
  - Lack of confidence in guideline developer
- Lack of agreement with guidelines in general
  - Too prescriptive
  - Too rigid to apply
  - Based synthesis
  - Challenge to autonomy
  - Not practical

**Behaviour**
- Lack of outcome expectancy
  - Physician believes that performance of guideline recommendation will not lead to desired outcome
- Lack of self-efficacy
  - Physician believes that he/she cannot perform guideline recommendation
- Lack of motivation / inertia of previous practice
  - Habit
  - Routines

**External barriers**
- Patient factors
  - Inability to reconcile patient preferences with guideline recommendations
- Guideline factors
  - Guideline characteristics
  - Presence of contradictory guidelines
- Environmental factors
  - Lack of time
  - Lack of resources
  - Organisational constraints
  - Lack of reimbursement
  - Perceived increase in malpractice liability

Barriers to the use of secondary cardiovascular disease guidelines at the healthcare provider level

Online survey

A quantitative questionnaire using closed ended questions was completed anonymously by 65 participants registering in the Champion Advocates Programme website: www.championadvocates.org. The questionnaire is included in Appendix 3.

Results

A total of 66 people (77% male) completed the online survey. The average number of years since graduation was 23.9. The majority of respondents were cardiologists (74%) and they practice in 36 different countries including: Australia, Austria, Bangladesh, Belgium, Bosnia and Herzegovina, Brazil, Cameroon, Colombia, Czech Republic, France, Guatemala, India, Indonesia, Iran, Italy, Jordan, Kenya, Lebanon, Libya, Morocco, Mozambique, Nepal, Netherlands, Nigeria, Pakistan, Peru, Portugal, Rwanda, Serbia, Switzerland, Tanzania, Turkey, UK, USA, Venezuela, Yemen and Zambia. The most frequently cited clinical guidelines used by the respondents were the ones developed by the European Society of Cardiology (49%) followed by the one developed by the American Heart Association/American College of Cardiology (32%). The World Health Organization guidelines were reported to be used by almost a fifth of the respondents (18%).

Although most of the respondents (92%) stated that they usually base their decisions on guidelines recommendations and the majority (89%) believe that following clinical guidelines improves patients’ outcomes, they believe that only about half of the doctors in their country follow them. Among the possible reasons for this is that there are too many guidelines (56% of respondents mentioned this), the guidelines are constantly updated, and therefore difficult to follow (42%), they are too complicated (28%) or too prescriptive (22%). Other reasons raised by some respondents, which negatively affect the implementation of clinical guidelines in their setting are a lack of consideration of cost and a lack of adaptation of the guideline recommendations to specific settings (e.g. Africa and South Asia). Among the strategies suggested to increase the use of clinical guidelines, the most common ones were: simplification, unification of existing guidelines and the use of technology to make them more easily available.

Interviews

In-depth interviews were conducted with 40 physicians in seven countries across Europe (Austria, France, Germany, Italy, the Netherlands, Spain and the UK – England and Scotland). Interviews were conducted in person or via Skype in English, Spanish, or Catalan, and lasted between 15 and 90 minutes, with an average of around 25 minutes. Interviewers used a topic guide covering knowledge, attitudes and practices in relation to clinical guidelines on coronary artery disease secondary prevention, as well as exploring contextual factors and issues around the healthcare system. Interviews were recorded and coded using an inductive approach, drawing on techniques from the constant comparative method, such as line by line analysis of early interviews, naming each line and segment of data, and the use of subsequent interviews to test preliminary assumptions. Please refer to Box 1 in Appendix 6 for more information on the study’s methodology.

Summary

The purpose of the interviews was to explore physicians’ knowledge, attitude and practices in relation to secondary coronary artery disease prevention guidelines at primary and secondary care. 34 interviews were conducted, supplemented with two group discussions, with three participants each, yielding a total of 40 individuals (Box 1 in Appendix 6). The interviewees in this study were sampled purposively to include a range of Cardiologists and General Practitioners in seven EU Member States (France, Spain, the UK (England and Scotland), Austria, Germany, Italy, and the Netherlands). Interviews were semi-structured, using a topic guide that covered: knowledge, attitudes, practices of physicians in relation to clinical guidelines on coronary artery disease secondary prevention as well as exploring contextual factors and the specific healthcare organisation of each country.

1. Findings

Knowledge of Clinical Guidelines

Definition of Clinical Guidelines

Most cardiologists and general practitioners suggested that clinical guidelines are a tool or set of recommendations that can assist in resolving a clinical problem and are based on the synthesis of the most up-to-date evidence based practice. The reliance on evidence based medicine was the most frequently mentioned endorsement of the concept “it’s a guidance on best practice, an evidence based practice and it provides a reference for evidence based practice”. While most participants agreed that clinical guidelines are useful, the majority emphasised the ‘guidance’ component of the concept. In most definitions, it was highlighted that clinical guidelines are there to provide advice and recommendations, but that clinicians should have the freedom to decide how patients should be treated.

Knowledge of clinical guidelines on secondary care

Interviewees were asked about their knowledge of clinical guidelines on secondary care. The majority of cardiologists referred to the European Society of Cardiology guidelines. Some participants mentioned that their national societies had produced clinical guidelines in the past, but that there has been a move to align national guidelines with those produced at a European level. Several cardiologists mentioned that European cardiology guidelines were studied and adapted to the country context. General practitioners (GP) reported they mostly refer to clinical guidelines produced by their national General Practitioner associations, or that they are using those produced by the national Institute for Health and Care Excellence (NICE) or the Scottish Intercollegiate Guidelines Network (SIGN). Only a few GPs had knowledge of guidelines developed by cardiologists.
Section 6.3

2. Usefulness of Clinical Guidelines

The majority of interviewees reported clinical guidelines as being useful. The most frequently cited reasons for this were: being considered of a good quality standard and a good reference document; giving one the confidence that ‘things are being done properly’; helping translate the most up-to-date evidence; unifying the management of patients; reducing variability within practice; making the decision making process easier with a complex case or patient; and in some cases allowing for greater interaction with patients when clinical guidelines have been adapted to their needs.

3. Barriers to Clinical Guidelines

Whilst most healthcare professionals agreed that clinical guidelines are useful, both Cardiologists and General Practitioners reported numerous barriers.

Clinical Guidelines not relevant for all patients

The most frequently mentioned barrier reported by both groups refers to clinical guidelines not being relevant to all patients. There are two components to this barrier. Firstly, healthcare professionals reported that the clinical trials upon which clinical guidelines are based, only include patients with very specific characteristics, excluding older and younger patients, as well as those with co-morbidities. The end result is a clinical guideline that describes an ‘ideal patient’, not the real patients that physicians meet and treat every day. A major constraint was reported around patients with co-morbidities or special needs such as allergies, where it was not always possible to apply the guidelines. Secondly, GPs in particular felt that clinical guidelines do not take into account the socio-economic factors experienced by patients, which in several cases can negatively affect the application of guidelines.

Awareness levels

Interviewees felt that in some instances there was a lack of awareness or familiarity among healthcare professionals on the use of clinical guidelines. An exception was a GP who mentioned that guidelines are not being used because GPs are too busy to pay attention to them. “I think clinical guidelines are not used because we are overwhelmed with patients, we are running around and we don’t have time to worry about them.”

Generation gap in attitudes towards clinical guidelines

Several Cardiologists and GPs made reference to a generation gap in the use of guidelines. GPs reported on many occasions that the younger generation is more inclined to implement clinical guidelines. The reasons mentioned were twofold. Firstly, clinical guidelines were seen as giving confidence to less experienced clinicians, and a sense of protection against lawsuits. Additionally, guidelines are more in line with a culture of evidence based medicine, which younger physicians are more familiar with.

Undue influence of the Pharmaceutical Industry

The second most frequently mentioned reason particularly among Cardiologists was the perceived influence of the pharmaceutical industry in the design of clinical guidelines. There were many reports of Cardiologists discussing how conflicts of interest were not reported by those involved in providing evidence for the development of guidelines. GP conflicts of interest were reported less frequently than Cardiologist conflicts.

Interviewees noted that the pharmaceutical sector is perceived as influencing elements linked to the design and implementation of clinical guidelines. Some interviewees expressed concern that the studies in which clinical guidelines are based are often driven by pharmaceutical industry interests. As highlighted by a German Cardiologist “There are drugs in the recommendations for heart failure which come from studies in which the pharmaceutical industry has intervened too much. Most of the developers are from the pharmaceutical industry and that’s not a good development”.

Barriers related to guidelines’ design

Barriers relating to the way in which clinical guidelines are designed, including length, being too theoretical and not having clear messages, were also mentioned. All of these factors were seen as negatively influencing their uptake. An additional barrier in this area is related to the composition of committees involved in guideline design. Some participants suggested committees should comprise a wide range of professionals, including GP, Cardiologists, patients, experts with no conflicts of interest, and experts who are involved in providing care to patients.

Barriers related to the accessibility and lack of coordination

Several health professionals commented on the difficulties experienced in accessing and locating clinical guidelines. Some interviewees referred to an ‘explosion of clinical guidelines’ in recent years, making it difficult to be properly informed and highlighting the need for better coordination “Guidelines have been in existence for many years. In the last ten years, it’s been crazy, just hysterical, every day there is a new guideline and there is no co-ordination”. Lack of coordination was also mentioned between the different organisations responsible for developing them, with reports that the same topic was developed more than once.
Section 6.3

Barriers to the use of secondary cardiovascular disease guidelines at the healthcare provider level

4. Strategies to improve the implementation of Clinical Guidelines

Healthcare professionals were asked how the implementation of clinical guidelines could be improved. Most agreed that there was a need to provide an effective training package on how to implement them; to improve their accessibility; and prepare short and clear guidelines that could be adopted within their busy schedules. Some suggested that new technologies need to be introduced to make them more easily accessible, including websites summarising their content; and mobile phone applications. A few healthcare professionals referred to patient consultation and emphasised the need to involve patients in their design and implementation.

5. Coordination between primary healthcare and specialist care

A key finding in this research related to the lack of coordination between primary healthcare physicians and Cardiologists in all countries studied. This was exemplified by the lack of knowledge regarding each other’s clinical guidelines and the way in which professionals communicated. In most countries, verbal communication is non-existent and patients themselves are responsible for providing information from the specialist to the primary healthcare physician, through written notes and prescriptions. In some countries, these notes are now computerised, and some healthcare professionals communicate via email or letters. There were only a few exceptions where healthcare professionals were reportedly communicating via the phone, and only one instance where all healthcare professionals were based in the same physical space, where Cardiologist and the General Practitioner could communicate directly. Some Cardiologists reported competing pressures with GPs related to funding mechanisms and GPs commented on the difficulties of implementing Cardiologists’ requests in their daily practice due to financial constraints.

Overall, the results suggest that due to healthcare professionals’ busy schedules, financial constraints and lack of coordination, secondary prevention is compartmentalised into different levels of the healthcare system, preventing a holistic view of the patient, which would enable secondary care prevention to be appropriately coordinated throughout the healthcare system.
Conclusion

The research suggest that, in general, healthcare professionals find clinical guidelines useful. However, guidelines can be improved in terms of their simplicity, length, frequency with which they are updated, applicability and accessibility. An aspect that requires attention is the composition of the committees responsible for designing guidelines and the perceived undue influence of the pharmaceutical industry in this process. Finally, another important aspect that should be improved is the communication between physicians at the primary care level and Cardiologists and the coordination between the different guidelines available in each country. In summary, although clinical guidelines are considered useful, there is still room for improvement to ensure that they are successfully implemented in daily clinical practice.
**Strategies to facilitate the use of secondary cardiovascular disease guidelines at the healthcare provider level**

Different strategies to increase the use of clinical guidelines at the healthcare provider level have been evaluated. The Rx for Change databasea and the Cochrane Effective Practice and Organisation of Care (EPOC) Review Groupb provide useful systematic reviews evaluating the effectiveness of KT strategies directed at provider and recipients. Table 4 summarises the results from overviews or systematic reviews evaluating some strategies to disseminate the use of guidelines or evidence based interventions at the healthcare provider level.

**Table 4:** Strategies to increase use of guidelines

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Local Leader Opinion</th>
<th>Audit and feedback</th>
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<tbody>
<tr>
<td>Description</td>
<td>Opinion leaders are people who are seen as likeable, trustworthy and influential. Because of their influence, it is thought that they may be able to help and persuade healthcare providers to use evidence when treating and managing patients</td>
<td>The process when an individual’s professional practice or performance is measured and then compared to professional standards or targets, and the results of this comparison are then fed back to the individual</td>
</tr>
<tr>
<td>Number of studies</td>
<td>15 (17 comparisons)</td>
<td>49 (82 comparisons)</td>
</tr>
<tr>
<td>Number of reviews</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Effect estimate*</td>
<td>Results were heterogeneous but on average LOL increase compliance with desired practice by 12%</td>
<td>4.3% (0.5% to 16%) absolute increase in healthcare professionals’ compliance with desired practice</td>
</tr>
<tr>
<td>Quality of the evidence</td>
<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td>Factors influencing the effectiveness</td>
<td>In most of the included studies the role of the opinion leader was not clearly described and it is therefore not possible to say what is the best way to optimise the effectiveness of opinion leaders</td>
<td>The effect appears to be larger when baseline performance is low, the source is a supervisor or senior colleague, delivered both verbally and written, provided more than once, aims to decrease current behaviours, targets prescribing, and includes both explicit targets and an action plan</td>
</tr>
<tr>
<td>Other issues</td>
<td>Only four studies were from low- and middle income countries</td>
<td></td>
</tr>
</tbody>
</table>

*Only the effect estimate considered most relevant was reported.

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a http://www.cadth.ca/resources/rx-for-change.
### Section 6.4

**Computerized Clinical Decision Support Systems**
- CCDSS used by a healthcare provider for management of chronic conditions

**Financial incentives**
- Financial incentives are extrinsic sources of motivation and they exist when an individual can expect a monetary transfer which is made conditional on acting in a particular way

**Continuing medical education meetings and workshops**
- Educational meetings include courses and workshops in various formats

**Educational outreach**
- Face-to-face visit also referred as university-based educational detailing, academic detailing, and educational visiting

<table>
<thead>
<tr>
<th></th>
<th>Computerized Clinical Decision Support Systems</th>
<th>Financial incentives</th>
<th>Continuing medical education meetings and workshops</th>
<th>Educational outreach</th>
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<td>CCDSS used by a health</td>
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<td>care provider for</td>
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<td>management of chronic</td>
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<th></th>
<th>55</th>
<th>32</th>
<th>81</th>
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<td>87% (n = 48) measured</td>
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<td>system impact on the</td>
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<tr>
<td>process of care and</td>
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<tr>
<td>52% (n = 25) of those</td>
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</table>
| demonstrated statistically significant improvements Sixty-five percent (36/55) of trials measured impact on, typically, non-major (surrogate) patient outcomes, and 31% (n = 11) of those demonstrated benefits

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<thead>
<tr>
<th></th>
<th>Moderate</th>
<th>Low to moderate</th>
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<tr>
<td>Financial incentives</td>
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<tr>
<td>were generally ineffective in improving compliance with guidelines outcomes (improving 5/17 outcomes from five studies in two reviews)</td>
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<tr>
<td>6% (1.8 to 15.9) increase in compliance with desired practice 3%) (0.1 to 4) improvement on patient outcomes</td>
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<tr>
<td>5.6% (3.0 to 9) increase in compliance with desired practice</td>
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<td>completeness what affects its generalisability</td>
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<thead>
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<th></th>
<th>Of the 23 studies that reported where the study was conducted, all were conducted in high-income countries and in primary settings</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Of the 23 studies that reported where the study was conducted, all were conducted in high-income countries and in primary settings</td>
</tr>
</tbody>
</table>

**References**


The World Heart Federation has helped achieve a global measurable goal around CVD, and can drive achievement of that goal.
National or regional initiatives from Cardiovascular Societies to facilitate the use of secondary cardiovascular disease guidelines at the healthcare provider level

Europe

The third phase of the European Association for Cardiovascular Prevention and Rehabilitation (EACPR) Prevention Implementation Programme was designed to support the launch of the 2012 European Guidelines on CVD Prevention in clinical practice, at both a European and national level. The main objective was to provide cardiologists, other health professionals, patient organisations and policymakers with practical implementation tools to improve clinical practice and influence national policy on CVD prevention.

Health Professional Toolkit (memo card & CD-rom)

Health Professional Toolkits, including all available resources to facilitate the implementation of the European Guidelines on CVD Prevention in daily practice were distributed to over 5,000 health professionals in Europe. In addition, 500 copies were sent to each sponsor: AstraZeneca, Roche and Servier.

National Coordinators training

National CVD Prevention Coordinators (NCPC) were appointed by the Presidents of National Cardiac Societies in European Society of Cardiology (ESC) member countries to facilitate the endorsement, adaptation, translation and publication of the European Guidelines on CVD Prevention. National Coordinators also liaise with the country’s Ministry of Health representatives and coordinate the development of CVD Prevention tools at national level. Training was organised for National CVD Prevention Coordinators at EuroPRevent 2012, to present the 5th Joint Task Force of European Guidelines on CVD Prevention, and provide National Coordinators with an implementation package (slides, press release, e-toolkit materials) for translation and adaptation at the national level.

US

The Get With The Guidelines (GWTG) is a comprehensive set of programmes from the American Heart Association/American Stroke Association (AHA/ASA). The objective is to translate clinical guidelines, including on coronary artery disease secondary prevention, into clinical practice.

GWTG staff work with participating hospitals to implement AHA/ASA guidelines by using quality improvement professional consultation, workshops, and webinars. In addition, the AHA developed clinical databases through which hospitals collect information for the assessment of quality, regional, and national benchmarking.

A total of 1,956 US hospitals participate in at least one GWTG programme. GWTG now enrols in excess of 40% of all index stroke hospitalisations in the United States annually.

The GWTG has published over 200 articles in peer reviewed journals and through them has reported a wide range of achievements including a substantial, improvement in the development of measures, guidelines, development of successful implementation strategies, and overall improvement in the quality of care. More details about GWTG are included in the national policy section for the US.
‘Make a Healthy Heart your Goal’ campaign in Sweden
Key Global Resources

**Institute for Health Metrics and Evaluation (IHME)**
(www.healthmetricsandevaluation.org)

The IHME is the coordinating centre for the newest Global Burden of Disease Study 2010. The IHME website includes a variety of reports, information, and other resources on the global burden of disease. It also includes a variety of excellent interactive features that allow users to create customized visualisations of the burden of disease at global, regional, and national levels by different age groups and other parameters.

**NCD Alliance**
(www.ncdalliance.org)

The NCD Alliance is a global advocacy alliance comprised of four international NGO federations representing the four main NCDs-International Diabetes Federation, International Union Against Tuberculosis and Lung Disease, the Union for International Cancer Control, and World Heart Federation. The website contains a variety of factsheets, reports, up-to-date news, and other resources for NCDs advocacy efforts.

**World Health Organization (WHO) Global Health Observatory (GHO)**
(www.who.int/gho/NCDs/)

This website contains interactive maps and data on the burden of NCDs and other global health challenges.

**Framework Convention Alliance, FCA**
(www.fctc.org)

The Framework Convention Alliance website includes informational and advocacy resources for global tobacco prevention and control. FCA aims to promote the adoption and effective implementation of the WHO Framework Convention on Tobacco Control (FCTC), the world’s first global public health treaty which requires parties to adopt a comprehensive range of measures designed to reduce the devastating health and economic impacts of tobacco.

**World Health Organization (WHO) Noncommunicable diseases and mental health**
(www.who.int/nmh)

Information on NCDs including data on burden, NCDs control science, and policies. The webpage includes the latest developments on the Global Action Plan and Monitoring Framework.

**World Heart Federation**
(www.worldheart.org)

Website of the World Heart Federation providing a comprehensive range of resources for health professionals, the general public, journalists, and advocates, including news, information, fact sheets, and tool kits.

**World Heart Federation Champion Advocates Programme (CAP)**
(www.championadvocates.org)

The Champion Advocates Website was designed to support an initiative focusing on the importance of secondary prevention as part of the WHF goal of reducing premature mortality from CVD by at least 25% by 2025.
Section 7

Links to resources: National

### Australia

**National Secondary Prevention of Coronary Disease Summit, Technical Report (July 2012), The George Institute, Australia**


**AIHW 2011. Cardiovascular disease: Australian facts 2011**


**Ernst & Young, Review of Cardiovascular Disease Programs**


**National Heart Federation of Australia.**


**National Health Priority Action Council (NHPAC) (2006)**


### Brazil

**Brazilian National NCDs Plan**

(In Portuguese) Plano de Ações Estratégicas para o Enfrentamento das Doenças Crônicas Não Transmissíveis (DCNT) no Brasil 2011-2022


**Strategy of Care for Acute Myocardial Infarction**


**Protocolo clinico sindromes coronarianas agudas**


**Strategy of Care for Stroke**

Section 7


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Section 7

Links to resources: National

Germany


European Heart Network

Germany Report

OECD Data

Italy

OECD Health Data 2013


Linee guida nazionali su cardiologia riabilitativa e prevenzione secondaria delle malattie cardiovascolari

2007 Gaining Health
http://www.ministerosalute.it/stiliVita/stiliVita.jsp

29/03/2006 National Health Plan
http://www.ministerosalute.it/resources/static/primopiano/316/PSN_2006_08_28_marzo.pdf

2005 National Prevention Plan
http://www.epicentro.iss.it/focus/piano_prevenzione/indice_prevenzione.asp

2004 Heart Project
http://www.cuore.iss.it/

English Version http://www.cuore.iss.it/eng/other/cuore.asp

Section 7

Links to resources: National Health System

Spain

National Health System of Spain, 2012. Ministry of Health, Social Services and Equality

Executive Summary. Strategy for Addressing Chronicity in the National Health System

Summary of the Ischaemic Heart Disease Strategy of the Spanish National Health System


USA

A Public Health Action Plan to Prevent Heart Disease and Stroke

Advocacy fact sheet, American Heart Association, American Stroke Association

Advocacy fact sheet, American Heart Association, American Stroke Association

Fact sheet, American Heart Association, American Stroke Association
Conclusion

The World Heart Federation has identified secondary cardiovascular disease (CVD) prevention as a public health priority, and as a significant part of a comprehensive strategy to reduce premature mortality. Unless prevention strategies targeting individuals with the highest risk of dying in the next ten years – i.e. those with underlying cardiovascular disease - are successfully implemented, the World Health Organization’s target of 25 percent reduction in premature mortality from Non-communicable diseases (NCDs) by 2025 is unlikely to be achieved. This could have an unprecedented impact in terms of number of lives lost and economic implications.

This report provides a detailed overview of secondary CVD prevention efforts around the world, and of gaps between the publication and the adoption and implementation of guidelines. Utilising the WHO NCDs Action Plan as a global framework, the research maps national policy landscapes against the global framework in terms of national capacity, financing, quality services coverage, and access. The report also includes a survey and in-depth interviews exploring healthcare provider perceptions and practices in relation to the use of clinical guidelines for secondary prevention.

The report identifies barriers and/or gaps preventing the successful implementation of secondary prevention guidelines at two levels: at the national policy level, and at the healthcare provider level.

Gaps and barriers at the national level

A number of countries do not have a formal comprehensive national CVD plan, that enables them to target their efforts appropriately. Where national plans do exist, they do not always include time-bound targets for CVD mortality reduction, nor are they always accompanied by the appropriate financial commitment, limiting their ability to drive successful outcomes.

In addition, countries are experiencing inequities in health access by region, or among population groups, especially in those countries with a federalised government system. For example, some regions are more advanced than others in the development, implementation and financing of secondary CVD prevention strategies, or countries are seeing gaps in CVD prevention delivery to specific population groups such as indigenous populations, or those living in remote and rural areas.

The lack of monitoring systems with data linkages to track patients is also negatively impacting outcomes. Enhanced administrative data sources that facilitate the linking of patient records, would be a great step forward in the ability to monitor patients appropriately. There is also a need to increase the capacity for insights into managing patients with co-existing chronic conditions.

Finally, external factors such as the recent economic crisis, especially in Europe, and national health system reforms, such as in China, are perceived to negatively affect people’s health. Policies responding to the economic crisis have resulted in reductions in health expenditures, as well as in an increase of requests for co-payments or for patients to bear the full cost of treatment. This often restricts access to some types of care for part of the population, based on financial income and impacts negatively on cardiovascular health.
Barriers to healthcare provider uptake of guidelines

Even where secondary CVD prevention policies are in place, there is often a substantial gap between the standards set in policy and clinical practice, leading to poor implementation and utilisation of effective preventive drug treatments and cardiac rehabilitation. Data on drug adherence, smoking cessation, weight control and physical inactivity suggest that secondary CVD services are being under-utilised.

The World Heart Federation’s research team also undertook in depth interviews with 40 cardiologists and GPs, and administered an online survey completed by 65 physicians (mainly cardiologists) from over 30 countries. These studies revealed that doctors report feeling overwhelmed by the number of guidelines available. They often perceive guidelines as lengthy, complex, too prescriptive, and too frequently updated, making it difficult for them to keep up-to-date with the latest recommendations.

Although physicians in general recognised the importance of clinical guidelines, they felt their usefulness is limited, as they can’t always be applied to all patients or to all settings. For example, they feel guidelines sometimes lack consideration of cost and are not easily adaptable to specific settings. Some doctors also expressed concerns about the involvement of the pharmaceutical industry in the development of guidelines – with many perceiving the industry as having undue influence.

The studies also revealed sub-group differences in terms of demographics – with younger healthcare providers reported as more likely to implement guidelines. Reasons for this included a perception that following guidelines gives younger, less experienced doctors confidence that they are making the right decisions and are protected against potential legal ramifications. In addition, there is a perception that the younger generation of doctors has been trained more in line with a culture of evidence-based medicine, and is subsequently more inclined to implement evidence-based guidelines.

Improving the uptake of clinical guidelines

Among the possible strategies to improve the uptake of clinical guidelines, physicians suggested simplifying and unifying existing guidelines, and using technology to make them more easily available. The report also summarises a number of strategies that have been proven to facilitate the uptake of secondary CVD guidelines. These included influence by local opinion leaders; auditing and providing feedback on individual healthcare professionals’ practice or performance; the use of computerised clinical decision support systems for the management of chronic conditions; financial incentives; continuing medical education and educational outreach. The report provides information about the level of effectiveness of each of these strategies, based on existing literature.

Recommendations

This report shows that there is a clear need for a comprehensive approach to improve the use of secondary prevention for cardiovascular disease (CVD) in order to achieve the ‘25 by 25’ mortality reduction target.

Cardiovascular disease has been afforded unprecedented global political momentum as part of the worldwide effort on Non-communicable diseases (NCDs). Never before has the community been better placed to act globally in a coordinated way to overcome this challenge. In order to achieve the desired goals, a practical and comprehensive roadmap, addressing policy and health system barriers and proposing implementation strategies that could be adapted accordingly to the setting, is urgently needed.
The World Heart Federation calls on national policymakers to:

- Ensure their countries have a formal comprehensive national CVD plan, appropriately prioritising secondary prevention, and that the plan includes concrete time-bound targets, accompanied by adequate funding
- Monitor the uptake of guidelines to ensure effective preventive drug treatments and cardiac rehabilitation are being offered
- Identify, highlight, and address any financial constraints preventing the implementation of guidelines that impact on patient health outcomes
- Ensure equitable access to healthcare and to CVD-specific services across a country’s entire population.

The World Heart Federation calls on professional organisations and societies responsible for the development of guidelines in secondary prevention to:

- Prepare guidelines that are concise, clear, and tailored to the context of the country they are addressing. Where a number of relevant guidelines already exist, unify them to ensure clarity
- Provide healthcare professionals at the primary and secondary care levels with effective training packages on how to implement guidelines, and with support on how to best coordinate communication between them for the care of patients with cardiovascular disease, and/or with other co-existing conditions
- Consider the potentially helpful role of technology in training or in supporting clinical decision-making (e.g. via computerised, shareable patient records)
- Identify, highlight, and address any financial constraints preventing the implementation of guidelines that impact on patient health outcomes
- Provide patient-friendly materials on relevant aspects of national guidelines.

The World Heart Federation calls on individual healthcare professionals to:

- Improve coordination between primary and secondary care, to ensure healthcare professionals at both levels can have a holistic view of a patient, and to ensure secondary care prevention is appropriately coordinated throughout the healthcare system
- Establish individual case management for patients, to ensure the appropriate utilisation of secondary CVD services.

The World Heart Federation calls on patient advocacy groups to:

- Elevate the issue of secondary prevention of cardiovascular disease, equitable access to treatments and service, and implementation of guideline adherence on relevant public health agendas
- Identify, highlight, and address any financial constraints preventing the implementation of guidelines that impact on patient health outcomes
- Provide patient-friendly materials on relevant aspects of national guidelines.

In order to translate these recommendations into practical actions the WHF is leading a global initiative called the WHF Cardiovascular Prevention Roadmap. This initiative is bringing together key international stakeholders to develop a practical and coordinated strategy to achieve 25x25. Concrete roadmaps will be provided to prioritize areas that are ripe for immediate action, including cost-effective interventions which can be appropriately modified to meet the needs and circumstances of different countries and regions. These roadmaps will provide the urgently needed practical tools to complement the WHO Global Action Plan for Noncommunicable Diseases 2013-2020 and achieve the 25 x 25 global goal.
Appendix 1: Literature review

Methods
A broad search strategy will be conducted. Different components will be considered including:

Cardiovascular diseases
Medications used for secondary prevention
Medication adherence, and

The name of the country. The following terms were used in pubmed.


2 "antihypertensive agents"[MeSH Terms] OR "hydroxymethylglutaryl-coa reductase inhibitors"[MeSH Terms] OR "adrenergic beta-antagonists"[MeSH Terms] OR "hypoglycemic agents"[MeSH Terms] OR "aspirin"[MeSH Terms]

3 "medication adherence"[MeSH Terms] OR "medication adherence"[All Fields] OR "compliance"[All Fields] OR "medication persistence"[All Fields] OR "adherence"[All Fields] OR "persistence"[All Fields]

4 Country
Appendix 2: Relevant studies per country

**Spain**


**Italy**


**Germany**


**China**


Australia

Castelino RL, Chen TF, Guddattu V, Bajorek BV. Use of evidence-based therapy for the prevention of cardiovascular events among older people. Eval Health Prof. 2010 Sep;33(3):276-301


Brazil


Appendix 3:

Coronary artery disease secondary prevention guidelines questionnaire

Please provide us some information about you.

Gender: ______________________________ Year of graduation from medical school: ______________________________

Specialty: ______________________________ Country where you practice: ______________________________

Approximately number of patients that you see every month with a previous cardiovascular event:

Please tell us which (if any) clinical guideline you use more frequently for deciding the clinical management of patients with established coronary or other atherosclerotic vascular disease.


Other (please specify): ______________________________

Continued ▶
Now, please indicate how much you agree or disagree with each of the following statements (All the questions refer to secondary prevention guidelines i.e. any guideline that makes recommendations for patients with established coronary and other atherosclerotic vascular disease).

1. When treating my patients I usually base my decisions on guideline recommendations.
   - [ ] Totally disagree  [ ] Disagree  [ ] Unsure  [ ] Agree  [ ] Totally agree

2. The majority of doctors from my country (where I practice) base their decisions on guideline recommendations.
   - [ ] Totally disagree  [ ] Disagree  [ ] Unsure  [ ] Agree  [ ] Totally agree

3. There are too many clinical guidelines and this makes it difficult to know which I should be using.
   - [ ] Totally disagree  [ ] Disagree  [ ] Unsure  [ ] Agree  [ ] Totally agree

4. Clinical guidelines are constantly updated and this makes it difficult to know which I should be using.
   - [ ] Totally disagree  [ ] Disagree  [ ] Unsure  [ ] Agree  [ ] Totally agree

5. Clinical guidelines are too complicated and difficult to use.
   - [ ] Totally disagree  [ ] Disagree  [ ] Unsure  [ ] Agree  [ ] Totally agree

6. I know where (in what webpage) I can find clinical guidelines that are relevant for my setting.
   - [ ] Totally disagree  [ ] Disagree  [ ] Unsure  [ ] Agree  [ ] Totally agree

7. I believe that following clinical guideline recommendations will improve patients’ outcomes.
   - [ ] Totally disagree  [ ] Disagree  [ ] Unsure  [ ] Agree  [ ] Totally agree

8. I believe that clinical guidelines are too ‘cookbook’ and do not apply to the majority of patients I manage.
   - [ ] Totally disagree  [ ] Disagree  [ ] Unsure  [ ] Agree  [ ] Totally agree

9. Please mention two things that you consider difficult the use of clinical guidelines in your setting.
   1. 
   2. 

10. Please mention two things that you consider would facilitate the use of clinical guidelines in your setting.
   1. 
   2. 
### Appendix 4: Drug use in participants with coronary heart disease or stroke, by region

<table>
<thead>
<tr>
<th></th>
<th>North America and Europe</th>
<th>South America</th>
<th>Middle East</th>
<th>South Asia</th>
<th>China</th>
<th>Malaysia</th>
<th>Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coronary heart disease</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antiplatelet drugs</td>
<td>527(55.4%)</td>
<td>256(32.8%)</td>
<td>175(52.7%)</td>
<td>79(11.6%)</td>
<td>373(15.5%)</td>
<td>43(14.9%)</td>
<td>7(3.4%)</td>
</tr>
<tr>
<td>B blockers</td>
<td>432(45.4%)</td>
<td>289(37.0%)</td>
<td>149(44.9%)</td>
<td>81(11.9%)</td>
<td>163(6.8%)</td>
<td>36(12.5%)</td>
<td>4(1.9%)</td>
</tr>
<tr>
<td>ACE Inhibitors or ARBs</td>
<td>445(46.8%)</td>
<td>314(40.2%)</td>
<td>87(26.2%)</td>
<td>44(6.4%)</td>
<td>187(7.8%)</td>
<td>37(12.8%)</td>
<td>14(6.8%)</td>
</tr>
<tr>
<td>Diuretics</td>
<td>180(18.9%)</td>
<td>169(21.6%)</td>
<td>39(11.7%)</td>
<td>21(3.1%)</td>
<td>319(13.3%)</td>
<td>17(5.9%)</td>
<td>23(11.1%)</td>
</tr>
<tr>
<td>Calcium-channel blockers</td>
<td>194(20.4%)</td>
<td>95(12.2%)</td>
<td>65(19.6%)</td>
<td>49(7.2%)</td>
<td>316(13.1%)</td>
<td>24(8.3%)</td>
<td>10(4.8%)</td>
</tr>
<tr>
<td>Blood-pressure-lowering drugs</td>
<td>700(73.6%)</td>
<td>495(63.4%)</td>
<td>224(67.5%)</td>
<td>149(21.8%)</td>
<td>764(31.7%)</td>
<td>68(23.5%)</td>
<td>27(13.0%)</td>
</tr>
<tr>
<td>Statins</td>
<td>539(56.7%)</td>
<td>148(19.0%)</td>
<td>124(37.3%)</td>
<td>33(4.8%)</td>
<td>49(2.0%)</td>
<td>46(15.9%)</td>
<td>3(1.4%)</td>
</tr>
<tr>
<td><strong>Stroke</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antiplatelet drugs</td>
<td>140(43.3%)</td>
<td>94(22.0%)</td>
<td>24(34.8%)</td>
<td>12(3.8%)</td>
<td>257(29.5%)</td>
<td>21(10.9%)</td>
<td>9(9.9%)</td>
</tr>
<tr>
<td>B blockers</td>
<td>58(18.0%)</td>
<td>58(13.6%)</td>
<td>23(33.3%)</td>
<td>22(7.0%)</td>
<td>36(4.1%)</td>
<td>14(7.3%)</td>
<td>4(4.4%)</td>
</tr>
<tr>
<td>ACE Inhibitors or ARBs</td>
<td>135(41.8%)</td>
<td>150(35.0%)</td>
<td>13(18.8%)</td>
<td>6(1.9%)</td>
<td>101(11.6%)</td>
<td>12(6.2%)</td>
<td>9(9.9%)</td>
</tr>
<tr>
<td>Diuretics</td>
<td>72(22.3%)</td>
<td>72(16.8%)</td>
<td>8(11.6%)</td>
<td>1(0.3%)</td>
<td>166(19.0%)</td>
<td>11(5.7%)</td>
<td>18(19.8%)</td>
</tr>
<tr>
<td>Calcium-channel blockers</td>
<td>50(15.5%)</td>
<td>41(9.6%)</td>
<td>9(13.0%)</td>
<td>9(2.8%)</td>
<td>190(21.8%)</td>
<td>24(12.4%)</td>
<td>8(8.8%)</td>
</tr>
<tr>
<td>Blood-pressure-lowering drugs</td>
<td>187(57.9%)</td>
<td>209(48.8%)</td>
<td>36(52.2%)</td>
<td>35(11.1%)</td>
<td>389(44.6%)</td>
<td>40(20.7%)</td>
<td>20(22.0%)</td>
</tr>
<tr>
<td>Statins</td>
<td>125(38.7%)</td>
<td>34(7.9%)</td>
<td>19(27.5%)</td>
<td>2(0.6%)</td>
<td>7(0.8%)</td>
<td>19(9.8%)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Coronary heart disease or stroke</strong></td>
<td>1216</td>
<td>1148</td>
<td>392</td>
<td>970</td>
<td>3070</td>
<td>440</td>
<td>283</td>
</tr>
<tr>
<td>Antiplatelet drugs</td>
<td>635(52.2%)</td>
<td>333(29.0%)</td>
<td>195(49.7%)</td>
<td>90(9.3%)</td>
<td>571(18.6%)</td>
<td>60(13.6%)</td>
<td>16(5.7%)</td>
</tr>
<tr>
<td>B blockers</td>
<td>465(38.2%)</td>
<td>331(28.8%)</td>
<td>168(42.9%)</td>
<td>101(10.4%)</td>
<td>190(6.2%)</td>
<td>49(11.1%)</td>
<td>8(2.6%)</td>
</tr>
<tr>
<td>ACE Inhibitors or ARBs</td>
<td>553(45.5%)</td>
<td>435(37.9%)</td>
<td>96(24.5%)</td>
<td>50(5.2%)</td>
<td>264(6.6%)</td>
<td>48(10.9%)</td>
<td>23(8.1%)</td>
</tr>
<tr>
<td>Diuretics</td>
<td>233(19.2%)</td>
<td>228(19.9%)</td>
<td>44(11.2%)</td>
<td>22(2.3%)</td>
<td>440(14.3%)</td>
<td>27(6.1%)</td>
<td>39(13.8%)</td>
</tr>
<tr>
<td>Calcium-channel blockers</td>
<td>228(18.8%)</td>
<td>129(11.2%)</td>
<td>69(17.6%)</td>
<td>58(6.0%)</td>
<td>457(14.9%)</td>
<td>48(10.9%)</td>
<td>17(6.0%)</td>
</tr>
<tr>
<td>Blood-pressure-lowering drugs</td>
<td>842(69.2%)</td>
<td>664(57.8%)</td>
<td>252(64.3%)</td>
<td>182(18.8%)</td>
<td>1056(34.4%)</td>
<td>105(23.9%)</td>
<td>45(15.9%)</td>
</tr>
<tr>
<td>Statins</td>
<td>633(52.1%)</td>
<td>172(15.0%)</td>
<td>140(35.7%)</td>
<td>34(3.5%)</td>
<td>53(1.7%)</td>
<td>61(13.9%)</td>
<td>3(1.1%)</td>
</tr>
</tbody>
</table>
## Appendix 5: Uptake of recommendations for secondary prevention

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Study design</th>
<th>Time of assessment</th>
<th>Drugs</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Patients with Acute Coronary Syndrome</td>
<td>Retrospective analysis of admitted patients</td>
<td>Hospital discharge</td>
<td>Aspirin 95%</td>
<td>Vermeer Journal of Clinical Pharmacy and Therapeutics (2008) 33, 591–601</td>
</tr>
<tr>
<td>China</td>
<td>Patients with history of doctors diagnosed ischaemic heart disease or stroke</td>
<td>Cross-sectional data among adults recruited in the China Kadoorie Biobank Study from over 1737 rural and urban communities in China</td>
<td>Outpatient (median interval since diagnosis 5 years)</td>
<td>ACE Inhibitors/ARB 37%</td>
<td>Y. Chen et al. Use of drug treatment for secondary prevention of cardiovascular disease in urban and rural communities of China: China Kadoorie Biobank Study of 0.5 million people. International Journal of Cardiology 172 (2014) 88–95</td>
</tr>
<tr>
<td>Germany</td>
<td>Patients with known coronary artery disease</td>
<td>Prospective, multi-centre, observational study</td>
<td>Hospital discharge</td>
<td>Statins 40%</td>
<td>Guideline-oriented ambulatory lipid-lowering therapy of patients at high risk for cardiovascular events by cardiologists in clinical practice: the 2L cardio registry European Journal of Cardiovascular Prevention &amp; Rehabilitation. 2009 16(4):438-444</td>
</tr>
</tbody>
</table>

**Drugs**

- **Aspirin**: N:169 95%, N:1,150 86%, N:23,129 10.6%, N:3,436 83.9%
- **B-Blockers**: N:169 23%, N:1,150 69.8%, N:23,129 10.1%, N:3,436 70%
- **ACE Inhibitors/ARB**: N:169 37%, N:1,150 70.3%, N:23,129 7.6%, N:3,436 56.1%
- **Statins**: N:169 40%, N:1,150 82.7%, N:23,129 1.4%, N:3,436 100%

**Reference**


Continued overleaf
## Appendices

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Study design</th>
<th>Time of assessment</th>
<th>Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italy</td>
<td>Patients with previous cardiovascular event</td>
<td>Cross-sectional</td>
<td>At outpatient clinic 12 to 24 months after the event</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>Patients with acute myocardial infarction</td>
<td>Retrospective analysis of admitted patients</td>
<td>Hospital discharge</td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>Patients with known coronary artery disease</td>
<td>Retrospective analysis of the reduction of Atherothrombosis for Continued Health (REACH) Registry</td>
<td>Outpatient</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>Patients with myocardial infarction</td>
<td>Retrospective analysis of administrative databases</td>
<td>Outpatient (6 months after hospital discharge)</td>
<td></td>
</tr>
</tbody>
</table>

### Drugs

<table>
<thead>
<tr>
<th></th>
<th>N:878</th>
<th>N:2,054</th>
<th>N:19,069</th>
<th>N:11,671</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>89%</td>
<td>87.8%</td>
<td>82%</td>
<td>92%</td>
</tr>
<tr>
<td>B-Blockers</td>
<td>64%</td>
<td>45.1%</td>
<td>57%</td>
<td>82.4%</td>
</tr>
<tr>
<td>ACE Inhibitors/ARB</td>
<td>58%</td>
<td>46.4%</td>
<td>65%</td>
<td>79.5%</td>
</tr>
<tr>
<td>Statins</td>
<td>91%</td>
<td>30.5%</td>
<td>83%</td>
<td>85.4%</td>
</tr>
</tbody>
</table>

### Reference

- P. Perrone-Filardi, Cardiovascular Diseases, 2012; 2: 149-153
Appendix 6: Characteristics of interviewees

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Gender</th>
<th>Practice setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Cardiology</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>England</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Italy</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Spain</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>General Practice</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Austria</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>England</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>France</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Italy</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Scotland</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Spain</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

This study is grounded within interpretative approaches, in which interviews are believed to provide access to accounts of how respondents understand and talk about their lived experiences. The aim was to explore participants’ experiences and assessments of clinical guidelines. All interviews were coded using primarily an inductive approach, drawing on techniques from the constant comparative method, such as line by line analysis of early interviews, naming each line and segment of data, the use of subsequent interviews to test preliminary assumptions, and the comparison of codes and cases across the data set and other literature.

Results were compared to the framework for guideline implementation described by Cabana, which includes knowledge, attitudes and behaviours. The framework was adapted to incorporate the analysis from the interviews and was further adapted to incorporate the issues related to the specificities of distinct healthcare systems, and account for the issues that arose from the coordination at primary and secondary care level.

The qualitative data analysis tool NVivo10 was used to manage the data. Excerpts of data were shared among the authors and discussed line by line in relation to the codes that were emerging. This research was organised around four main areas: knowledge and usefulness of clinical guidelines; barriers to their implementation; the coordination at primary and secondary care; and strategies to improve the use of clinical guidelines.
Appendix 7: Summary of clinical guidelines by country

The table below summarises the clinical guidelines developed or endorsed by the cardiovascular national societies in the selected countries. The policy section includes more information about other national governmental initiatives related to management recommendations.

<table>
<thead>
<tr>
<th>Country</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>The French Society of Cardiology has endorsed the European Guidelines on cardiovascular disease prevention. In addition, there are national clinical recommendations developed by the government.</td>
</tr>
<tr>
<td>Spain</td>
<td>The Spanish Society of Cardiology has endorsed the European Guidelines on cardiovascular disease prevention. In addition, the Spanish Society of Cardiology has published two articles, one discussing the relevance of these guidelines for Spain and a second one translating the guidelines into Spanish.</td>
</tr>
<tr>
<td>Italy</td>
<td>The Italian Society of Cardiology has endorsed the European Guidelines on cardiovascular disease prevention.</td>
</tr>
<tr>
<td>Germany</td>
<td>The German Society of Cardiology has endorsed the European Guidelines on cardiovascular disease prevention.</td>
</tr>
</tbody>
</table>

In China, the professional societies publish guidelines and expert consensus periodically, often when American and European updates are published. The most recent guideline for secondary prevention was published in 2011 and was based on the American guidelines.3

Australia has developed specific national guidelines for cardiovascular secondary prevention.4

The USA has developed specific national guidelines for secondary cardiovascular disease prevention.5

At the time of writing this report, Brazil has not developed a specific national guideline for cardiovascular secondary prevention. According to a leading national cardiologist, both the American and European guidelines for cardiovascular secondary prevention are followed in Brazil.

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3 Guidelines and Expert Consensus for the Prevention and Control of Coronary Heart Disease, by the Chinese Cardiology Society.