WORLD HEART FEDERATION
ROADMAP FOR SECONDARY PREVENTION OF CVD – UPDATE

Informing health systems approaches to CVD by prioritizing practical, proven, cost-effective action
Cardiovascular disease (CVD) is the world’s main killer, causing 20.5 million deaths each year. Within CVD, atherosclerotic cardiovascular diseases (ASCVD), which develops silently throughout life until they present suddenly – often with fatal consequences – is the major causes of premature death, disability, and healthcare expenditure globally.\(^{(1-4)}\)

Today, there is substantial evidence to guide how ASCVD can be prevented and treated and a strong evidence-base to support the implementation of secondary prevention interventions.\(^{(5-8)}\) Yet, despite this large body of evidence, implementation remains inadequate.

**ABOUT SECONDARY PREVENTION**

Secondary cardiovascular prevention can be defined as a strategy aimed to reduce the probability of a recurrent cardiovascular event in patients with known atherosclerotic cardiovascular disease, including coronary artery disease, cerebrovascular artery disease, peripheral artery disease, and atherosclerotic aortic disease. Secondary prevention thus refers to counselling and drug therapy for individuals with known atherosclerotic CVD that is evidenced to prevent subsequent heart attacks and strokes.

Secondary prevention interventions include lifestyle behaviour change interventions (smoking cessation, physical activity, healthy diet); medication therapies (mainly aspirin, statins, angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARB) and beta blockers) as well as cardiac rehabilitation. Even though these interventions can significantly reduce the incidence of repeat cardiovascular events and death, the proportion of individuals who receive and adhere to recommended secondary prevention interventions remains low and inequitable, particularly in LMIC.

This present update to the first WHF Roadmap for the Secondary Prevention of CVD\(^{(9)}\) sets out a conceptual framework for policymakers, healthcare systems and healthcare professionals to address barriers to the implementation of secondary prevention interventions and to develop “sustainable” and “scalable” solutions to overcome these barriers.

**PATIENT TESTIMONY**

“My life took an unexpected turn when I was diagnosed with atherosclerotic cardiovascular disease. At first, I had a hard time accepting that I would have to take medications long-term, and to change my lifestyle, especially my diet. Fortunately, my medical team was very supportive and helped me understand how important these changes were.

Now I realise that the prescribed medications have helped manage my condition, reduce the risk of future cardiac events, and restore my confidence. In addition to medication, adopting a healthier lifestyle has helped me a lot. Regular exercise, a balanced diet, and stress management techniques have not only improved my cardiovascular health but also given me more energy.

Through my secondary prevention programme, I have discovered the power of self-care and prioritizing my health. I am grateful for the guidance and support provided by the medical team and encourage others who have experienced a cardiac event to consider joining a similar programme.”
## Identifying Roadblocks — Developing Actionable Solutions

Roadblocks to implementing CVD prevention interventions are contextual, affected by geography, economic status of countries, health system organization, and sociocultural factors. They hinder optimal implementation at three different levels: Individual, Healthcare providers, and Healthcare system and policy. The update to the original WHF Roadmap for secondary prevention of CVD highlights major roadblocks and identifies actionable solutions to overcome them. Roadblocks and actionable solutions spelled out in this Roadmap are the result of an extensive literature review combined with a global survey of WHF member organisations, which generated 268 responses from 60 countries.

### Individual Level

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<tr>
<th>Roadblocks</th>
<th>Actionable solutions</th>
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| Lack of support from family and friends, beliefs about lifestyle, competing demands, and mental health problems like depression and anxiety lead to poor adherence to lifestyle recommendations | • Improve health literacy  
• Foster self-management to support lifestyle behaviour change and medication adherence  
• Guarantee availability, accessibility and affordability of existing secondary prevention medications through full prescription coverage, generic medications and reduction of co-payments |
| Out-of-pocket costs of medications, forgetfulness, beliefs that medication is unnecessary or causes side effects, inadequate risk perception, and low health literacy, self-efficacy and social support lead to non-adherence to cardiovascular medications |  
• Improve access and use of secondary prevention medicines at hospital discharge after an acute cardiovascular event by prescribing the recommended lifestyle behaviour changes and medications, focusing on long-term maintenance, as well as by increasing systematic referral of patients to cardiac rehabilitation  
• Improve access and use of secondary prevention medicines at the cardiac rehabilitation programme, for example by using care coordinators or restructuring the medical provider decision pathway from opt-in to “opt-out” options  
• Guarantee availability, accessibility and affordability of existing secondary prevention medications through generic medications, full prescription coverage of reduction of co-payments |
| Out-of-pocket costs, language barriers, as well as difficulty accessing cardiac rehabilitation centres lead to poor participation in cardiac rehabilitation programmes |  
• Gaps in healthcare providers’ knowledge, attitudes and behaviours lead to clinical inertia and low implementation of secondary prevention guidelines  
• Strengthen secondary prevention services delivery by  
  o Empowering all healthcare professionals with training, time and resources to provide compassionate and sustained support for behavioural modification, self-management, and medication adherence  
  o training healthcare providers, including primary healthcare clinicians  
  o fostering alternate models of care, better integrating community and hospital, involving a multidisciplinary approach, and supporting community health workers and non-health workers |

### Healthcare Level

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<tr>
<td>Uneven distribution of health care providers between urban and rural locations, insufficient availability and affordability of lifestyle intervention programmes and priority medications lead to inequities in access to cardiovascular care and medicines</td>
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  o training healthcare providers, including primary healthcare clinicians  
  o fostering alternate models of care, better integrating community and hospital, involving a multidisciplinary approach, and supporting community health workers and non-health workers |
| Limited availability of local evidence-based guidelines for CVD prevention leads to major gaps in the implementation of secondary prevention interventions |  
• Strengthen secondary prevention services delivery by ensuring the dissemination of evidence-based guidelines |
### HEALTHCARE SYSTEM AND POLICY LEVEL

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<td>• Despite the crucial role of primary care in secondary CVD prevention, there is a lack of investments in primary care</td>
<td>• Guarantee availability and accessibility of existing secondary prevention medications through full prescription coverage, generic medications and reduction of co-payments</td>
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<td>• Lack of supportive built environments hinders physical activity and healthy eating and are known barriers to healthy lifestyles</td>
<td>• Address the secondary prevention of CVD in the frame of a national health policy</td>
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Generally speaking, structural bias also represents barriers to optimal implementation of secondary prevention interventions: in secondary CVD prevention, there are well-documented ethnicity and gender disparities, and sparse evidence for LGBTQI+ people (Lesbian, Gay, Bisexual, Transgender, Queer and Intersex).

### FIGURES SURVEY

**60 COUNTRIES**

**268 RESPONSES**

- Around 1 in 4 patients do not adhere to ACE inhibitors treatment,
- **1 in 5** to statins and beta-blockers
- 1 in 4 patients do not adhere
- **60%** do not adhere to physical activity guidelines
- 50% of individuals persist in smoking and
- Around 6 months post-event, around
In our WHF survey, only 7% of the respondents felt that more than 75% of their patients adhered to their physical activity programmes.

In our WHF survey, only 3% felt that more than 75% of their patients adhered to a healthy diet.

In our WHF survey, over 60% of the respondents reported that polypills were only “sometimes” or “rarely affordable, and

Across all country income levels, 52% of respondents acknowledged the lack of availability of priority lifestyle intervention programmes as a roadblock.

In our WHF survey, 48% of the respondents from Low-income countries perceived the lack of affordability of priority medications (aspirin, beta blockers, ACE inhibitors, statins) as a barrier.

In our WHF survey, 13% that they were “never” affordable.

In our WHF survey, 40% of the respondents from Low-income and Lower-middle income countries agreed with the statement that healthcare professionals are not aware of guidelines.

In our WHF survey, 52% of respondents from Low-income and Lower-middle income countries perceived lack of access to the healthcare system for patients with known CVD as a barrier.

In our WHF survey, 62.78% of all respondents reported that localized guidelines were in place in their country, with a strong gradient across country-income levels (44% in low-income countries vs 90% in high-income countries).

In our WHF survey, 1 in 2 respondents from Low-income and Lower-middle income countries perceived lack of access to the healthcare system for patients with known CVD as a barrier.

In our WHF survey, of all respondents reported that localized guidelines were in place in their country, with a strong gradient across country-income levels (44% in low-income countries vs 90% in high-income countries).

In our WHF survey, of respondents acknowledged the lack of availability of priority lifestyle intervention programmes as a roadblock.

In our WHF survey, 1 in 4 respondents did not know whether an excise tax was in place for e-cigarettes, a figure that amounted to more than 1 in 3 for other unhealthy commodities.

Only 1/3rd of patients with CVD seems to attend some form of secondary prevention programme.
FOCUS:
RECENT IMPLEMENTATION STRATEGIES FOR SECONDARY PREVENTION

Various secondary prevention interventions have gained traction in recent years and need to be considered in policy and guideline development. They include:

**Digital health**
Digital health can play a key role in improving the secondary prevention of CVD. It can be used to support long-term risk factor management; to support patients’ adherence to their medication and to a healthy lifestyle, to support healthcare providers in their work, or to deliver cardiac rehabilitation in a more accessible manner.

**Fixed-dose combination therapy**
Fixed-dose combination therapies are medications that combine multiple active pharmaceutical ingredients. Because they simplify patients’ therapeutic schemes by reducing the number of tablets needed per day, they have been shown to promote medication adherence and treatment efficacy.

**Innovative medical treatments**
In recent years a range of novel medical strategies have been examined with respect to CVD secondary prevention including anticoagulants, novel lipid modifying agents, newer anti-diabetes agents (SGLT-2 inhibitors and GLP-1 agonists) and anti-inflammatory medicines.

**Influenza vaccine**
Recent studies have shown increasing evidence that influenza vaccine improves cardiovascular outcomes in people with cardiovascular disease.
TAKING ACTION

ADAPTING THE ROADMAP FOR THE SECONDARY PREVENTION OF CVD TO LOCAL NEEDS ACROSS THE WORLD

A global framework for regional and national action, WHF Roadmaps can also be used to convene country-specific Roundtables through WHF and our Members. They allow key stakeholders to come together to identify obstacles and potential solutions that are relevant to their settings and produce national plans. Both India and Australia have held a national stakeholder discussion and used the WHF Roadmap for secondary prevention of CVD as a framework. Results from a survey to WHF members showed that 15 additional countries have used this Roadmap as a framework for discussion and meetings at national level.

USE OF WHF ROADMAP TO GUIDE NATIONAL DISCUSSIONS/MEETING AGENDAS
Secondary prevention of cardiovascular disease has been an area of increasing focus for Australian researchers, clinicians, policy-makers and stakeholders. The original World Heart Federation (WHF) Roadmap for secondary prevention provided a platform for national reform and unity. The Australian team held a Roundtable led to a programme to modernise secondary prevention care for people with heart disease. The SOLVE-CHD programme currently includes 18 collaborative projects aiming to deliver innovation in secondary prevention and supports a multidisciplinary network of 300 people from 20+ countries. The Australian ACS Guidelines now incorporate more detailed content on secondary prevention and the concept of a secondary prevention is now included as a National ACS Clinical Care Standard and a Position Statement about exercise prescription in cardiac rehabilitation was issued.

Secondary prevention is a “low-hanging fruit” in the whole field of prevention. Individuals after an atherosclerotic cardiovascular disease event are at the highest risk of recurrences, they are already identified (so we do not need to screen the population to find them), given their previous disease experience they are more willing to care for themselves, and we have simple tools to reduce their risk by three quarters. However, only a small proportion of our patients receive appropriate pharmacological treatment after an initial cardiovascular event, and even fewer reach the desired healthy lifestyle. If we want to reach the WHO targets in cardiovascular health, we need to improve our secondary prevention care urgently.

There is a good evidence base and understanding about secondary prevention treatments that can reduce subsequent cardiovascular events in people with known cardiovascular disease, however worldwide we have not been successful in implementing these. Our focus in coming years should be on the comprehensive implementation of secondary prevention. We must ensure that we address barriers and avoid creating more inequities.

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WORLD HEART FEDERATION
ROADMAPS

Already the world’s number one killer, deaths from cardiovascular disease (CVD) are increasing globally.

CVD and related conditions can often be prevented, but if not, can be detected early and treated cost-effectively, preventing costly hospitalizations and death. But this requires coordinated national policy and health systems responses built around evidence-based strategies. Health resources are limited and so cost-effective interventions for the prevention, detection and management of CVD must be prioritized in order to plan effective health systems responses.

WHAT ARE ROADMAPS?

WHF Roadmaps are a global framework that can be adapted and used at national or regional level.

THEIR PURPOSE IS TO:

1. Summarize current recommendations to reduce the burden of CVD that are proven, practical and cost effective
2. Highlight obstacles to implementing these recommendations
3. Propose potential solutions for overcoming these obstacles
4. Provide tools and strategies to adapt solutions to local needs.

HOW DO THEY WORK?

WHF Roadmaps offer a global framework, tools and solutions that can then be used and adapted, through stakeholder collaboration, to meet the specific needs of individual regions and nations.

This requires:

• A plan to implement and evaluate the proposed strategies

WHO ARE THEY FOR?

WHF Roadmaps empower our Members, including CVD foundations, societies and patient associations, to lead country specific, action-oriented initiatives, including Roundtables.

These involve diverse stakeholders, such as:

• Governments and policy makers
• NGOs, health activists and advocates

• Healthcare professionals
• Corporate entities
• Academic and research institutions
• Patients and patient groups

WHY ARE THEY IMPORTANT?

To trigger effective action that can measurably reduce premature deaths and the associated global economic burden caused by CVD.

We recognise Sanofi for their sponsorship of the WHF Roadmap for the Secondary Prevention of CVD – an Update, as well as Novo Nordisk and Daiichi Sankyo for the sponsorship of this summary document.

TO DOWNLOAD THE FULL ROADMAP PLEASE VISIT – CVDRoadmaps.ORG
REFERENCES


