Global CVD Roadmaps

W HF Roadmap for reducing cardiovascular premature mortality

Pablo Perel – WHF Senior Science Advisor
Outline

• Rationale
• Description
• Update on outputs/activities
• Way forward
• Access
The global burden of non-communicable diseases (NCDs) and cardiovascular disease (CVD)

Worldwide, NCDs account for two thirds of global deaths

SHIFT OF CAUSE OF DEATH IN THE LAST 20 YEARS

CVD alone causes 1 in 3 deaths globally,
A 25% relative reduction in risk of premature mortality from **cardiovascular diseases**, cancer, diabetes, or chronic respiratory diseases.
Absolute numbers are increasing but rate is decreasing

Age – standardized death rate and total deaths due to cardiovascular and circulatory diseases during 1990-2013

Trends in cardiovascular mortality

Ezzati et al. Nature Reviews Cardiology 2015
Smoking and vascular mortality

Coronary heart disease

Cerebrovascular disease

Lancet 2013; 381: 133
At middle age, a 20 mmHg difference in SBP associated with a twofold increase in CHD mortality.
Cholesterol and CHD mortality

The Lancet 2016 388, 2532-2561 DOI: (10.1016/S0140-6736(16)31357-5)
Estimated five-year incidence of a new cardiovascular disease (CVD) event by five-year

Hypertension treatment

<table>
<thead>
<tr>
<th>Studies</th>
<th>Intervention</th>
<th>Control</th>
<th>RR (95% CI) per 10mm Hg reduction in systolic blood pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major cardiovascular events</td>
<td>55</td>
<td>14068</td>
<td>+0.80 (0.77-0.83)</td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td>56</td>
<td>5301</td>
<td>+0.83 (0.78-0.88)</td>
</tr>
<tr>
<td>Stroke</td>
<td>54</td>
<td>5378</td>
<td>+0.73 (0.68-0.77)</td>
</tr>
<tr>
<td>Heart failure</td>
<td>43</td>
<td>3760</td>
<td>+0.72 (0.67-0.78)</td>
</tr>
<tr>
<td>Renal failure</td>
<td>16</td>
<td>834</td>
<td>+0.95 (0.84-1.07)</td>
</tr>
<tr>
<td>All-cause mortality</td>
<td>57</td>
<td>9998</td>
<td>+0.87 (0.84-0.91)</td>
</tr>
</tbody>
</table>

RR per 10mm Hg reduction in systolic blood pressure

Favours intervention  Favours control

Ethetad LANCET 2016
### Effect of statins

<table>
<thead>
<tr>
<th></th>
<th>Events (% per annum)</th>
<th>RR (CI) per 1 mmol/L reduction in LDL-Cholesterol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statin or more</td>
<td>Control or less intensive</td>
</tr>
<tr>
<td></td>
<td>intensive</td>
<td>intensive</td>
</tr>
<tr>
<td><strong>Major coronary events</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>4148 (1.6%)</td>
<td>5406 (2.1%)</td>
</tr>
<tr>
<td>Women</td>
<td>1082 (1.2%)</td>
<td>1259 (1.3%)</td>
</tr>
<tr>
<td>Subtotal</td>
<td>5230 (1.5%)</td>
<td>6665 (1.9%)</td>
</tr>
<tr>
<td>Adjusted heterogeneity test* $x^2 = 2.76$ (p = 0.10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Coronary revascularisation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>4547 (1.7%)</td>
<td>5773 (2.3%)</td>
</tr>
<tr>
<td>Women</td>
<td>922 (1.0%)</td>
<td>1137 (1.2%)</td>
</tr>
<tr>
<td>Subtotal</td>
<td>5469 (1.5%)</td>
<td>6910 (2.0%)</td>
</tr>
<tr>
<td>Adjusted heterogeneity test* $x^2 = 2.07$ (p = 0.15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stroke</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>1747 (0.7%)</td>
<td>2060 (0.8%)</td>
</tr>
<tr>
<td>Women</td>
<td>667 (0.7%)</td>
<td>739 (0.8%)</td>
</tr>
<tr>
<td>Subtotal</td>
<td>2414 (0.7%)</td>
<td>2799 (0.8%)</td>
</tr>
<tr>
<td>Adjusted heterogeneity test* $x^2 = 1.02$ (p = 0.31)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Adjusted heterogeneity test* $x^2$ is used to assess the variability in the data.
## Secondary Prevention Treatments

<table>
<thead>
<tr>
<th></th>
<th>RRR</th>
<th>Event rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td>8%</td>
</tr>
<tr>
<td>ASA</td>
<td>25%</td>
<td>6%</td>
</tr>
<tr>
<td>Blockers</td>
<td>25%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Lipid lowering</td>
<td>30%</td>
<td>3.0%</td>
</tr>
<tr>
<td>ACE-inhibitors</td>
<td>25%</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

**CUMULATIVE BENEFITS 75% RRR**

Yusuf LANCET 2002
Trend is going down

We know the causes of CVD

We know how to treat these causes

So....?
Premature mortality

5.9 MILLION
2013

7.8 MILLION
2025

Roth et al. Circulation, 015.
Low- and middle-income countries (LMICs) are most affected – 80% of CVD deaths take place in LMICs
Probability of premature CVD mortality

WHO 2012
Probability of premature CVD in men

High income countries versus South Asia

(1990 to 2025)
Annualized Case Fatality Rates after Specific Cardiovascular Events.

Lack of development funding

Source: Global Burden of Disease Study 2010 (GBD 2010)
I'M TERRIBLY SORRY, BUT THERE'S NOTHING I CAN DO ABOUT YOUR DIABETES... IF ONLY YOU HAD AIDS OR TUBERCULOSIS, IT WOULD BE A DIFFERENT STORY...
W HF Roadmaps

✓ Focussed on easy identifiable causes of major cardiovascular events

✓ Cost effective, feasible and acceptable interventions

✓ Identify gaps and roadblocks for implementation

✓ Propose potential solutions

✓ Provide a process for adaptation

✓ Global space to update and learn about initiatives towards 25 by 25
“Getting what works to happen”

WHF Roadmap

Local Experts
Patients
WHF members

Understand patient journey

Primary resources
Systematic reviews
Consensus

Identify roadblocks

Proposed solutions to roadblocks

Primary resources
Systematic reviews
Consensus

WHF Roadmaps
WHF Roadmaps

• Published
  ✓ Hypertension
  ✓ Secondary Prevention
  ✓ Tobacco
  ✓ Atrial Fibrillation
  ✓ Rheumatic Heart Disease

• In press
  ✓ Cholesterol
Understanding patients’ pathways

- Health care system is accessible to patients
- Clinical guidelines recommending priority interventions are available
- Health care professionals to prescribe recommendations
- Priority interventions are available
- Priority interventions are affordable
- Health care system is organized to ensure adequate follow-up of patients with CVD
- Patients adhere to recommendations
Roadblocks and possible solutions

Patients with known cardiovascular disease do not have access to the health care system

- Strengthen the role of the primary care health system level for cardiovascular secondary prevention
- Increase opening times of clinics, and locate them close to communities in rural areas
- Integrate cardiovascular secondary prevention with management of other chronic conditions (i.e. HIV, TB)
- Integrate secondary prevention interventions in simple cardiac rehabilitation programmes
Lack of health care professionals to prescribe priority interventions

Shift roles of health care professionals towards allowing non-specialized workers to prescribe priority interventions
Guidelines are not available or recommendations are too complex

- Develop simple and locally applicable guidelines
- Simplify multiple drugs by fixed dose combinations
Health care professionals are aware but do not follow guidelines.

- Local opinion leader
- Decision support systems
- Incentives (e.g., financial)
Priority interventions are not affordable

- Promote the use of good quality and safe generic medications
- Promote local manufacturing, bulk purchasing and/or efficient system to streamline medication supply
- Provide financial and social support for patients to purchase priority interventions, or provide them free of cost (or at very low cost)
Summary of key recommendations

1. Build coalitions and partnerships across health disciplines, non-medical and medical organisations, and governments

2. Strengthen the role of the primary care providers for cardiovascular prevention

3. Share roles of health care professionals with trained non-physician health workers by allowing non specialized workers to prescribe priority interventions

4. Develop simple and practical guidelines

5. Provide opportunistic screening so individuals become aware of their blood pressure status

6. Use fixed dose combinations of key priority interventions to simplify treatment and increase adherence

7. Integrate strategies to strengthen health systems to provide support smoking cessation
Summary of key recommendations

8. Ensure that priority interventions are available at the secondary, primary, and community level.

9. Promote the use of good quality and low cost and affordable generic medications.

10. Provide financial and social support for patients to purchase priority interventions.

11. Use information and communication technology to support clinical decision and to increase patients adherence.

12. Develop simple, acceptable, representative, and timely information systems.

13. Establish accountable governance structures from ministerial to the primary healthcare level (including national plans for CVD).
Adaptation at national level

- Situation Analysis
- Policy dialogues
- CVD Roadmaps
- Implementation of selected tailored solutions
Roadmap adaptation

✓ Detailed handbook for situation analysis
✓ Policy dialogues guidelines

• Piloted tools in Brazil and India
  – Multi-stakeholders meetings
  – Situation analysis
  – Policy dialogues
Moving forward

- Roadmap website
- Convening
- Global facilitator
- Engaging with members
- Aligning with EL
- Aligning and supporting WHO HEARTS Package
Access to care

a multidimensional concept based on the interaction between health care systems and individuals, in which the dimensions of availability, affordability, and acceptability interact to affect people’s empowerment

McIntyre D et al 2009
Access to health care

**Availability**
the availability of good health services within reasonable reach of those who need them

**Affordability**
a measure of people’s ability to pay for services without financial hardship

**Acceptability**
fit between provider and patient’s attitudes toward and expectation of each other
Access to health care

**Availability**
- Manufacturing
- Forecasting
- Procurement
- Distribution
- Delivery

**Affordability**
- Government
- Non Government Agencies
- End-user

**Acceptability**
- Global adoption
- National adoption
- Provider adoption
- End user adoption
Thank You!
Universal Declaration of Human Rights
1948

Everyone has the right to a standard of living adequate for the health….. including…. medical care

Alma-Ata 1978

“..essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals”
Universal Health Coverage

Universal health coverage (UHC) is the goal that all people obtain the health services they need without risking financial hardship.

UHC is attained when people actually obtain the health services they need and benefit from financial risk protection.

Access, on the other hand, is the opportunity or ability to do both of these things.