

WHF/AHA/ACCF/EHN/ESC PRESIDENTIAL ADVISORY

Our Time: A Call to Save Preventable Death From Cardiovascular Disease (Heart Disease and Stroke)

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Worldwide, the aging population, globalization, rapid urbanization, and population growth have fundamentally changed disease patterns. Noncommunicable diseases (NCDs), of which cardiovascular disease (CVD) accounts for nearly half, have overtaken communicable diseases as the world's major disease burden. CVD remains the No. 1 global cause of death, accounting for 17.3 million deaths per year, a number that is expected to grow to >23.6 million by 2030. Increasingly, the populations affected are those in low- and middle-income

countries, where 80% of these deaths occur, usually at younger ages than in higher-income countries, and where the human and financial resources to address them are most limited [1].

The epidemiological transition occurring is exacerbated by the lack of vital investment in sustainable health policies to address and curtail the risk factors associated with CVD and NCDs. Recognizing the profound mismatch between the need for investment in the prevention and control of CVD at the global and national level and the actual resources allocated,

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the international CVD community, under the umbrella of the World Heart Federation, joined the NCD community to call for a United Nations (UN) High-level Meeting on Non-communicable Diseases, held in September 2011. At this meeting, heads of state signed a Political Declaration that committed governments to the development of 4 specific measures to address the NCD burden in a specific timeline: (1) Recommendations for a global monitoring framework that included NCD targets to be completed by the end of 2012; (2) development of a plan for an effective multisector partnership by the end of 2012; (3) national NCD plans by 2013; and (4) a comprehensive review to evaluate progress, to take place in 2014 [2].

CELEBRATING THE 2025 GLOBAL NCD MORTALITY TARGET

Celebrating the 1-year anniversary of the passage of the UN Political Declaration, it is timely that our respective organizations speak with a single voice to advocate for a set of public health interventions that have the potential to mitigate and reverse the rising rates of CVD and NCDs. In May 2012, during the World Health Assembly, Ministers of Health took the first critical step by agreeing to adopt a global target to reduce premature NCD mortality 25% by 2025, a target the global CVD community has been advocating since the UN High-level Meeting on Non-communicable Diseases [3]. We applaud the World Health Assembly for reaching a consensus on this bold goal.

The UN Political Declaration on NCDs and the recent resolution to reduce premature NCD deaths by 25% are landmark achievements for the health and CVD community. For the first time in history, NCDs have been recognized as a development issue. These targets and indicators have the potential to address longstanding health challenges, including the fragmentation of health funding, gaps in the healthcare infrastructure, and the lack of local and reliable data, and will address the growing demand for integrated disease management. As the Millennium Development Goals come to a close in 2015, the CVD community is set to ensure that the single largest cause of death—CVD—is addressed. As such, all relevant stakeholders need to be part of the process, putting optimal health at the cornerstone of development.

It is our desire to see heart disease and stroke receive the attention they deserve. We recognize

that the process is complex and the time is short, but we have an opportunity to ensure that the commitments made in September 2011 translate into real global, and thus national, action for years to come. Collaboration among appropriate stakeholders will be necessary to address this emerging 21st century global health priority and begin to reverse the devastating toll of CVD and NCDs in our communities.

MAINTAINING THE MOMENTUM TO ADDRESS OTHER TARGETS

A first step toward global action has been the passage of the global mortality target, which will provide a shared vision on NCDs for all stakeholders and ensure that all targets are appropriately developed to achieve this overarching goal. As the leading organizations that represent thousands of members in nearly every country, and for the millions of individuals with, or at risk of CVD, we are aligning with the broader NCD community in support of a comprehensive set of additional targets that will ensure this global reduction is achieved.

The challenge faced by countries will be to reach agreement concerning the additional targets and indicators to be part of the comprehensive monitoring framework to achieve the overarching global mortality target. In the summer of 2010, a World Health Organization (WHO) technical working group developed 10 proposed global targets (Appendix A), which remained virtually unchanged until the spring of 2012 [4]. At that time, Member States, civil society organizations, and other relevant stakeholders were asked to comment on and make specific recommendations regarding the global monitoring framework for NCDs and the specific targets and indicators that would be used to guide countries and measure progress. The original set of 10 targets was reduced before completion of regional consultations and with limited input of Member States (Appendix B) [5]. Calls to action from the CVD, NCD, and specific risk-factor communities did, however, lead to positive changes within this reduced set of targets and included the insertion of a new target on physical activity. The inclusion of this target in the list of recommendations was a milestone in NCD advocacy efforts, ensuring that each of the major risk factors leading to NCDs was addressed. With the release of the third WHO discussion paper [6], the NCD community's advocacy efforts

are to be noted as the list of recommended targets for adoption includes 10 strong, evidence-based strategies. Together, the Global Cardiovascular Disease Taskforce calls on the CVD community to endorse and support the top 4 widely supported exposure targets (Table 1) on physical inactivity, hypertension/blood pressure, dietary salt intake, and tobacco as those required to achieve the overarching goal of a 25% reduction in premature mortality by 2025.

Other, originally proposed targets to address NCDs that were dropped in the second WHO discussion paper include evidence-based targets on obesity, *trans* fat/fat intake, alcohol, and multidrug therapy to prevent and treat CVD (Table 2) [7]. Although these targets have been included in the most recent discussion paper, they have been identified as having limited support and will need further advocacy to ensure their adoption [7]. In addition to supporting the NCD community in their call for Member States to agree on this global set of 10 voluntary targets, we also explicitly call for Member States to be ambitious and ensure that they address those persons at highest risk now by adopting the additional exposure and health systems targets currently under consideration.

To halt and reverse the NCD epidemic, it is paramount that the CVD burden be adequately addressed, which requires that those living with CVD and at highest risk of developing CVD have access to treatment and care. The 2011 report by the WHO, *Scaling Up Action Against Noncommunicable Diseases: How Much Will It Cost?*, details a core set of low-cost strategies, identified as “Best Buys” that all countries can implement to prevent and treat NCDs. This list includes population-based measures to address risk factors and specific individual-based interventions, including a multidrug therapy regimen of aspirin, a statin, and blood pressure-lowering agents to prevent heart disease and

stroke and to treat those with, or at highest risk of, heart disease and stroke [8]. As Member States determine how best to achieve this global target, the global CVD community looks to this package of the WHO’s “Best Buys” as a critical way forward.

CVD AND THE WHO BEST BUYS

With CVD as the largest single contributor to global mortality, accounting for nearly half of the 36 million NCD deaths, and with a global cost of nearly US \$863 billion, achieving the global target to reduce premature NCD deaths by 25% requires that CVD and its risk factors be adequately addressed [9]. The Global Cardiovascular Taskforce supports the set of recommendations identified by the WHO as “Best Buys,” feasible and cost-effective interventions that can be undertaken regardless of the income level of a country. This core set of interventions are recommended at 2 levels—population-wide measures to reduce exposure to risk factors and interventions targeting individuals who already have NCDs or are at high risk of developing them—and are implemented through a systematic layered approach. Regarding population-wide risk factor measures, the WHO has identified “Best Buys” in the areas of tobacco use, harmful use of alcohol, salt intake, physical activity, and replacement of *trans* fat with polyunsaturated fat. Interventions targeting individuals include evidence-based, cost-effective medical therapies alongside counseling, as well as aspirin therapy for acute myocardial infarction [10].

On the occasion of the UN High-level Meeting in September 2011, the WHO introduced a tool for low-, middle-, and high-income countries to guide and estimate the feasibility of the implementation of this core set of NCD interventions [8]. The cost of the interventions is <US\$11.4 billion per year in low- and middle-income settings. Yearly, per

Table 1. Suggested Global Targets to Address NCDs With Wide Support (See Appendix C)

Proposed Target	Best Buy	Recommendation to Member States
1 Physical inactivity: 10% Relative reduction in prevalence of insufficient physical activity	✓	Adopt
2 Raised blood pressure: 25% Relative reduction in prevalence of raised blood pressure	✓	Adopt
3 Salt/sodium intake: 30% Relative reduction in mean population intake of salt, with aim of achieving recommended level of <5 g/d (2000 mg of sodium)	✓	Adopt
4 Tobacco: 30% Relative reduction in prevalence of current tobacco smoking	✓	Adopt

NCDs indicate noncommunicable diseases.

Table 2. Proposed Targets and Indicators to Address NCDs With Some Support (See Appendix C)

Proposed Target	Best Buy	Recommendation to Member States
5 Saturated fat intake: 15% Relative reduction in mean proportion of total energy intake from saturated fatty acids (SFA), with aim of achieving a recommended level of <10% of total energy intake	✓	Adopt with modification
6 Obesity: Halt the rise in obesity prevalence		Adopt
7 Alcohol: 10% Relative reduction in overall alcohol consumption (<i>especially hazardous, excessive, and harmful drinking</i>)	✓	Adopt with modification
8 Raised cholesterol: 20% Relative reduction in prevalence of raised total cholesterol		Adopt
9 Drug therapy to prevent heart attacks and strokes: 50% Of eligible people receive drug therapy to prevent heart attacks and strokes, and counseling	✓	Adopt
10 Essential NCD medicines and basic technologies to treat major NCDs: 80% Availability of basic technologies and generic essential medicines required to treat major NCDs in both public and private facilities		Adopt

NCDs indicate noncommunicable diseases.

person, this translates to <US\$1 a day (US\$0.43-US\$0.90) across low-income countries and <US\$3 a day (US\$0.54-US\$2.93) across middle-income countries [11].

Several of the 10 targets being supported by the NCD community have been identified within this core set of “Best Buy” interventions and are at risk of failing to be adopted as global targets, including the evidence-based drug therapy regimen to address those at highest risk for developing CVD. Studies have indicated that nearly 17.9 million deaths could be averted over a 10-year period with the implementation of multidrug therapy [11]. The cost would amount to just over US\$1 a day annually. Beyond the lives saved and the life-years extended, reducing the mortality rate for ischemic heart disease and stroke by 10% would also reduce economic losses in low- and middle-income countries by an estimated US\$25 billion per year [12]. Drug therapy, singly or in combination with multiple drugs, is documented to be a concrete investment and should be a target to be accomplished.

As Member States look to finalize targets in the coming months, doubt regarding country-level compliance in the implementation of NCD interventions, as a result of underdeveloped monitoring and surveillance systems, must not overshadow the real, cost-effective, and feasible solutions offered by the WHO “Best Buys.” Collection of data, for all targets, remains a critical issue that can, and should, be addressed through the Global Monitoring Framework. It is recognized that target levels

may vary slightly in different regions of the world. As such, when considering national NCD action plans, all targets will require adequate and well-developed indicators that encourage the improvement of data at the country level and provide an impetus to countries that have the tools to collect and monitor data. Moreover, improved healthcare delivery and an expanded health workforce with coordination of local and national approaches are paramount in building comprehensive health systems to achieve this end.

GLOBAL CARDIOVASCULAR TASKFORCE SUMMARY POSITION: PREVENTION, RISK FACTORS, AND TREATMENT

Member States have taken the first step and set a bold overarching goal of reducing mortality from NCDs by 25% by 2025. We now have the opportunity to make meaningful changes in our countries by adopting evidence-based targets and implementing tactics that will guide health policy, chronic disease plans and, ultimately, resources for national public health interventions. Many of these are feasible and cost-effective. Reducing NCDs are central to a country's economic growth. As such, we respectfully request Member States to consider our recommendations and adopt the evidence-based targets to address CVD and NCDs and avert millions of deaths by 2025.

DISCLOSURES

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Writing Group Member	Employment	Research Grant	Other Research Support	Speakers' Bureau/Honoraria	Expert Witness	Ownership Interest	Consultant/Advisory Board	Other
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This table represents the relationships of writing group members that may be perceived as actual or reasonably perceived conflicts of interest as reported on the Disclosure Questionnaire, which all members of the writing group are required to complete and submit. A relationship is considered to be "significant" if (1) the person receives \$10 000 or more during any 12-month period, or 5% or more of the person's gross income; or (2) the person owns 5% or more of the voting stock or share of the entity, or owns \$10 000 or more of the fair market value of the entity. A relationship is considered to be "modest" if it is less than "significant" under the preceding definition.

* Modest.
[†] Significant.

APPENDIX A. ORIGINAL SET OF TARGETS

Outcome Targets	Indicator	Source
Premature mortality from NCDs 25% Relative reduction in overall mortality from CVD, cancer, diabetes, or chronic respiratory disease	Unconditional probability of dying between ages 30 and 70 y from CVD, cancer, diabetes, or chronic respiratory disease	Civil registration system, with medical certification of cause of death, or survey with verbal autopsy
Diabetes 10% Relative reduction in the prevalence of diabetes mellitus (elevated blood glucose level ≥ 7.0 mmol/L [26 mg/dL] or on treatment for diabetes)	Age-standardized prevalence of diabetes mellitus among persons age ≥ 25 y (defined as fasting plasma glucose ≥ 7.0 mmol/L [126 mg/dL] or on treatment for diabetes)	National survey (with measurement)
Exposure Targets		
Tobacco smoking 40% Relative reduction in prevalence of current tobacco smoking	Age-standardized prevalence of current tobacco smoking among persons age ≥ 15 y	National survey
Alcohol 10% Relative reduction in alcohol per capita consumption among persons age ≥ 15 y	Per capita consumption of pure liters of alcohol among persons age ≥ 15 y	Official statistics and reporting systems for production, import, export, and sale or taxation data and national survey
Dietary salt intake Mean adult population intake of salt < 5 g/d (2000 mg of sodium)	Age-standardized mean population intake of salt per day in grams	National survey (with measurement)
Blood pressure/hypertension 25% Relative reduction in the prevalence of elevated blood pressure (defined as systolic blood pressure ≥ 140 mm Hg and/or diastolic blood pressure ≥ 90 mm Hg)		National survey (with measurement)
Obesity No increase in obesity prevalence	Age-standardized prevalence of obesity (defined as BMI ≥ 30 kg/m ²) in persons age ≥ 25 y	National survey (with measurement)
Prevention of heart attack and stroke 80% Coverage of multidrug therapy (including glycemic control) for people age ≥ 30 y with a 10-y risk of heart attack or stroke $\geq 30\%$, or existing CVD	Percentage of people age ≥ 30 y with a 10-y risk of heart attack or stroke $\geq 30\%$, or existing CVD who are currently on multidrug therapy (including glycemic control)	National survey (with measurement)
Cervical cancer screening 80% Of women between ages 30 and 49 y screened for cervical cancer at least once	Prevalence of women between ages 30 and 49 y screened for cervical cancer at least once	National survey; health facility data
Elimination of industrially produced <i>trans</i> fatty acids (PHVO) from the food supply	Adoption of national policies that eliminate PHVOs in the food supply	Policy review

NCDs indicate noncommunicable diseases; CVD, cardiovascular disease; BMI, body mass index; and PHVO, partially hydrogenated vegetable oil.

APPENDIX B. REDUCED LIST OF TARGETS

Outcome Targets	Indicator	Data Source(s)
Mortality from NCDs 25% Relative reduction in overall mortality from CVD, cancer, diabetes, or chronic respiratory disease	Unconditional probability of dying between ages 30 and 70 y from CVD, cancer, diabetes, or chronic respiratory disease	Civil registration system, with medical certification of cause of death, or survey with verbal autopsy
Blood pressure/hypertension 25% Relative reduction in the prevalence of elevated blood pressure (defined as systolic blood pressure ≥ 140 mm Hg and/or diastolic blood pressure ≥ 90 mm Hg)	25% relative reduction in the prevalence of elevated blood pressure (defined as systolic blood pressure ≥ 140 mm Hg and/or diastolic blood pressure ≥ 90 mm Hg)	National survey (with measurement)
Tobacco smoking 40% Relative reduction in prevalence of current tobacco smoking	Age-standardized prevalence of current tobacco smoking among persons age ≥ 15 y	National survey
Dietary salt intake Mean adult population intake of salt < 5 g/d (2000 mg of sodium)	Age-standardized mean population intake of salt per day in grams	National survey (with measurement)
Physical inactivity 10% Relative reduction in prevalence of insufficient physical activity in adults aged ≥ 18 y	Age-standardized prevalence of obesity (defined as BMI ≥ 30 kg/m ²) in persons age ≥ 25 y	National survey

NCDs indicate noncommunicable diseases; CVD, cardiovascular disease; and BMI, body mass index.

APPENDIX C. CURRENT SET OF TARGETS

Outcome Targets	Indicator	Data Source(s)
Premature mortality from NCDs 25% Relative reduction in overall mortality from CVD, cancer, diabetes, or chronic respiratory disease	Unconditional probability of dying between ages 30-70 y from CVD, cancer, diabetes, or chronic respiratory disease	Civil registration system, with medical certification of cause of death, or survey with verbal autopsy
Exposure Targets		
Alcohol 10% Relative reduction in overall alcohol consumption (including hazardous and harmful drinking)	Total (recorded and unrecorded) alcohol per capita (≥ 15 y) consumption within a calendar year in liters of pure alcohol	Official statistics and reporting systems for production, import, export, and sales or taxation data
Fat intake 15% Relative reduction in mean proportion of total energy intake from saturated fatty acids (SFA), with aim of achieving recommended level of $< 10\%$ of total energy intake	Age-standardized mean proportion of total energy intake from saturated fatty acids (SFA) in adults aged ≥ 18 y	National survey
Obesity Halt the rise in obesity prevalence	Age-standardized prevalence of obesity among adults aged ≥ 18 y	National survey (with measurement)
Physical inactivity 10% Relative reduction in prevalence of insufficient physical activity	Age-standardized prevalence of insufficient physical activity in adults aged ≥ 18 y	National survey

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Outcome Targets	Indicator	Data Source(s)
Raised blood pressure 25% Relative reduction in prevalence of raised blood pressure	Age-standardized prevalence of raised blood pressure among adults aged ≥ 18 y	National survey (with measurement)
Raised cholesterol 20% Relative reduction in prevalence of raised total cholesterol	Age-standardized prevalence of raised total cholesterol among adults aged ≥ 18 y	National survey (with measurement)
Salt/sodium intake 30% Relative reduction in mean population intake of salt, with aim of achieving recommended level of <5 g/d (2000 mg of sodium)	Age-standardized mean adult (aged ≥ 18 y) population intake of salt per day	National survey (with measurement)
Tobacco 30% Relative reduction in prevalence of current tobacco smoking	Age-standardized prevalence of current tobacco smoking among persons aged ≥ 15 y	National survey
Health Systems Response Targets		
Drug therapy to prevent heart attacks and strokes 50% Of eligible people receive drug therapy to prevent heart attacks and strokes, and counseling	Drug therapy to prevent heart attacks and strokes (including glycemic control), and counseling for people aged ≥ 40 y with a 10-year cardiovascular risk $\geq 30\%$ (includes those with existing cardiovascular disease)	National survey
Essential NCD medicines and basic technologies to treat major NCDs 80% Availability of basic technologies and generic essential medicines required to treat major NCDs in both public and private facilities	Availability of basic technologies and generic essential medicines required to treat major NCDs in public and private sector facilities, including primary care facilities	Facility data
NCDs indicate noncommunicable diseases; CVD, cardiovascular disease.		

REFERENCES

- World Health Organization, World Heart Federation, World Stroke Organization. Global atlas on cardiovascular disease prevention and control: policies, strategies, and interventions. Published 2011. Available at: http://www.who.int/cardiovascular_diseases/publications/atlas_cvd/en/. Accessed August 7, 2012.
- United Nations General Assembly. Resolution adopted by the General Assembly: 66/2: Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases. Adopted September 19, 2011; published January 24, 2012. Available at: http://www.who.int/nmh/events/un_ncd_summit2011/political_declaration_en.pdf. Accessed June 26, 2012.
- World Health Organization. 65th World Health Assembly document A65/54: Second report of Committee A. Published May 25, 2012. Available at: http://apps.who.int/gb/ebwha/pdf_files/WHA65/A65_54-en.pdf. Accessed August 7, 2012.
- World Health Organization. WHO discussion paper: a comprehensive global monitoring framework and voluntary global targets for the prevention and control of NCDs. Updated December 21, 2011. Available at: http://www.who.int/nmh/events/2011/consultation_dec_2011/WHO_Discussion_Paper_FINAL.pdf. Accessed August 7, 2012.
- World Health Organization. WHO discussion paper: summary of feedback from member states on the first discussion paper on the proposed global monitoring framework and indicators and targets for the prevention and control of noncommunicable diseases. Published March 22, 2012. Available at: http://www.who.int/nmh/events/2012/targets_feedback_summary_22032012.pdf. Accessed August 7, 2012.
- World Health Organization. Revised [third] WHO discussion paper on the development of a comprehensive global monitoring framework, including indicators, and a set of voluntary global targets for the prevention and control of NCDs. Published July 2012. Available at: http://www.who.int/nmh/events/2012/ncd_discussion_paper/en/index.html. Accessed July 25, 2012.
- World Health Organization. Second WHO discussion paper: a comprehensive global monitoring framework including indicators and a set of voluntary global targets for the prevention and control of noncommunicable diseases. Published March 22, 2012. Available at: http://www.who.int/nmh/events/2012/discussion_paper_en_20120322.pdf. Accessed August 7, 2012.

8. World Health Organization, 2011. Scaling up action against noncommunicable diseases: how much will it cost? Published September 2011. Available at: http://www.who.int/nmh/publications/cost_of_inaction/en/. Accessed August 7, 2012.
9. Bloom DE, Cafiero ET, Jané-Llopis E, Abrahams-Gessel S, Bloom LR, Fathima S, Feigl AB, Gaziano T, Mowafi M, Pandya A, Prettner K, Rosenberg L, Seligman B, Stein AZ, Weinstein C. The Global Economic Burden of Non-communicable Diseases. Geneva, Switzerland: World Economic Forum; 2011.
10. World Health Organization. Global status report on noncommunicable diseases 2010. Published April 2011. Available at: http://www.who.int/nmh/publications/ncd_report2010/en/. Accessed August 7, 2012.
11. World Economic Forum and World Health Organization. From burden to "best buys": reducing the economic impact of non-communicable diseases in low- and middle-income countries. Published September 2011. Available at: http://www.who.int/nmh/publications/best_buys_summary/en/index.html. Accessed August 7, 2012.
12. Lim SS, Gaziano TA, Gakidou E, Reddy KS, Farzadfar F, Lozano R, Rodgers A. Prevention of cardiovascular disease in high-risk individuals in low-income and middle-income countries: health effects and costs. *Lancet* 2007;370:2054-62.