## Priorities for cardiovascular health in the Americas

KEY MESSAGES FOR POLICYMAKERS



PAN AMERICAN HEALTH ORGANIZATION
REGIONAL OFFICE OF THE WORLD HEALTH ORGANIZATION

#### PAHO HQ Library Cataloguing-in-Publication

Pan American Health Organization. "Regional Consultation: Priorities for Cardiovascular Health in the Americas. Key Messages for Policymakers" Washington, D.C.: PAHO, © 2011

ISBN: 978-92-75-13226-5

I. Title

- 1. CARDIOVASCULAR DISEASES prevention & control
- 2. NATIONAL HEALTH SURVEILLANCE SYSTEM
- 3. NUTRITION PROGRAMS POLICIES
- 4. HEALTH PROMOTION standards
- 5. CHRONIC DISEASE prevention & control
- 6. DELIVERY OF HEALTH CARE, INTEGRATED
- 7. AMERICAS

NLM WG 120.DA1

The Pan American Health Organization welcomes requests for permission to reproduce or translate its publications, in part or in full. Applications and inquiries should be addressed to Editorial Services, Area of Knowledge Management and Communications (KMC), Pan American Health Organization, Washington, D.C., U.S.A., which will be glad to provide the latest information on any changes made to the text, plans for new editions, and reprints and translations already available.

©Pan American Health Organization, 2011. All rights reserved.

Publications of the Pan American Health Organization enjoy copyright protection in accordance with the provisions of Protocol 2 of the Universal Copyright Convention. All rights are reserved.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the Pan American Health Organization concerning the status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the Pan American Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters. All reasonable precautions have been taken by the Pan American Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the Pan American Health Organization be liable for damages arising from its use.

Suggested citation: Pan American Health Organization. Regional consultation: priorities for cardiovascular health in the Americas. Key messages for policymakers. Ordúñez-García P, Campillo-Artero C, eds. Washington, D.C.: PAHO; 2011.

REGIONAL CONSULTATION

## Priorities for cardiovascular health in the Americas

KEY MESSAGES FOR POLICYMAKERS

EDITORS: PEDRO ORDÚÑEZ GARCÍA AND CARLOS CAMPILLO ARTERO



I

6	Foreword	12	Public policy and advocacy	19	Surveillance
		13	Multisectoral action and social determinants	20	Integration of information systems
				21	Mortality records
		15	Universal coverage and equitable access to health services		and risk factor surveillance
			•	22	Health services performance
		16	Integration and sustainability of interventions		and economic assessments
				23	Information-sharing
				23	Technical capacity

II

#### III

- 24 Health promotion and disease prevention

Tobacco

- 27 Salt intake
- 28 Healthy diet
- 32 Physical activity
- 33 Alcohol

#### IV

- 34 Integrated control of chronic diseases and their risk factors
- 35 Competencies of health personnel
- 36 Primary care, population risk stratification, and integrated health services networks
- 39 Chronic care model
- 40 Hypertension and individual total cardiovascular disease risk
- 42 Quality and efficiency of clinical services
- 44 Acute coronary syndrome and stroke

- 49 Bibliography
- 68 Appendix
- 69 Consultation participants
- 74 Summary of priorities and checklist

#### Cardiovascular health situation in the Region of the Americas

Cardiovascular disease, cancer, diabetes, and chronic respiratory diseases combined are the leading causes of death and disability in the world (responsible for 60% of all deaths and 44% of premature deaths). Cardiovascular disease accounts for 30% of the total annual deaths worldwide. An estimated 18.1 million people died from these causes in 2010, 80% of whom lived in low- and middle-income countries. Stroke, the second leading cause of death and the leading cause of acquired disability in the world, was responsible for 5.7 million deaths, 85% of them in developing countries.

An aging population, tobacco use, unhealthy diet, and physical inactivity, primarily, in the context of globalization and often unplanned urban growth, explain the high prevalence of hypertension, hypercholesterolemia, diabetes, and obesity that makes cardiovascular disease the leading cause of death. The number of smokers has reached 1.3 billion worldwide, while 600 million people suffer from hypertension, and 220 million are living with diabetes. This means that 2 billion people are at risk of heart disease, cerebrovascular disease, or a health problem related to these conditions.

In 2007, I.5 million people died of cardiovascular disease in this Region (30% of deaths from all causes), 662,0II people had ischemic heart disease (299,4I5 women and 362,596 men), and 336,809 had cerebrovascular disease (I83,689 women and I53,I20 men). This is a highly complex issue in Latin America and the Caribbean, where approximately 40% of the deaths occur prematurely at the most productive stage of life when the economic and social impact is considerably higher, and the resulting disability rate imposes an inordinately heavy burden on individuals, families, and health systems.

While hypertension, hypercholesterolemia, and smoking together account for over 80% of cardiovascular disease, hypertension is the greatest risk factor and is associated with 62% of strokes and 49% of ischemic heart disease. High blood pressure is uncommon in societies where salt intake does not exceed 50 mmol/day, and there is scientific evidence that total salt intake is the principal factor in high blood pressure in populations.

The epidemic of obesity, a condition that often begins in early childhood, has intensified throughout the world. The Region had 176 million obese people (103 million women and 73 million men) in 2005, and this number could reach 289 million (164 million women and 125 million men) by 2015. If more data were available, it would likely show that the situation is

even worse than it appears. Additionally, the situation is more complicated in certain social strata. Living in poor neighborhoods can increase the risk of obesity, since residents usually have little access to nutritious food sources and safe places for physical activity, and may lack social attitudes that place a high value on a healthy diet and physical activity.

According to recent data, 18% of the adult population in seven Latin American countries suffers from hypertension, 14% has high cholesterol, 7% is living with diabetes, 23% is obese, and 30% smokes. Based on the Region's epidemiological profile, a high percentage of the adult population under 70 years of age is at risk of suffering a cardiovascular event in the next 10 years: as much as 41% of men and 18% of women in countries with very low infant and adult mortality rates (for example, Canada, Cuba, and the United States), up to 25% of men and 17% of women in countries with low infant and adult mortality rates (Argentina, Barbados, and Chile), and up to 8% of men and 6% of women in countries with very high infant and adult mortality rates (Bolivia and Ecuador).

Women that experience acute myocardial infarction (AMI) delay longer than men in seeking emergency services, and physicians take longer to diagnose the disease in them. Women are less likely than men to be diagnosed and treated appropriately

following an AMI and therefore have a higher rate of complications and death. The survival gap one year after a cardiovascular episode is widening, and this has been detrimental to women, who are less represented than men in clinical trials to evaluate new treatments. Cardiovascular disease is also more common and serious among blacks compared to their white counterparts, and this is particularly true among young adults. The discrepancy narrows with each passing decade and becomes very slight among people 65-74 years of age. Premature mortality is twice as high among blacks as whites.

Cardiovascular disease is unevenly distributed, is found more often among the poor, and has a catastrophic impact on government and household economies due to treatment costs and the loss of potential years of life and productivity caused by premature death and disability. These diseases undercut poverty reduction efforts and contribute to widening health disparities.

#### The regional consultation

In 2006, the Directing Council of the Pan American Health Organization (PAHO) adopted the resolution Regional Strategy and Plan of Action on an Integrated Approach to the Prevention and Control of Chronic Diseases, including Diet, Physical Activity, and Health (henceforth, Regional Strategy). In 2010,

that same body examined the progress made in implementing the Regional Strategy and requested PAHO and the Member States to continue collaborating on an integrated approach to the prevention and control of chronic diseases.

In light of the situation described above and realizing that there were many opportunities for improvement, PAHO launched a regional consultation process in mid-2010 at the request of its Member States. The purpose of the consultation was to identify cardiovascular health priorities in this Region based on the best available scientific evidence and the criteria of cost-effectiveness, social value, and equity, which would enable Member States to prioritize activities for the prevention and control of cardiovascular disease in their national health plans and galvanize implementation of the Regional Strategy.

This document, which summarizes cardiovascular health priorities, is the result of a far-reaching consultation process focused on prevention at the population level, integrated risk and disease control, and health services organization. The priorities were grouped around the Regional Strategy's four lines of action: a) public policy and advocacy, b) surveillance, c) health promotion and disease prevention, and d) integrated control of chronic diseases and risk factors. These priorities are also consistent with the Health Agenda for the Americas and the WHO Plan

of Action for the Global Strategy for the Prevention and Control of Noncommunicable Diseases, approved in 2008.

A wide array of experts, professional and academic institutions, civil society organizations, and ministries of health of the Region participated in the consultation. A number of PAHO advisors representing different technical areas focused on the Health Agenda for the Americas and agreed on the definition of these priorities.

This document was prepared primarily with health policymakers in mind. For this reason, it is very important to reiterate one of the critical messages that came out of this consultation: since cardiovascular diseases (ischemic heart and cerebrovascular diseases) are the leading cause of mortality and premature mortality in most countries of the Region and share determinants, risk factors, and service needs with other chronic diseases, prioritizing the cardiovascular health actions identified here will directly benefit the prevention and control of diabetes, chronic respiratory disease, and cancer, as well as other cardiovascular diseases and obesity.

The main focus of both the consultation and this report were cardiovascular diseases (CVDs) due to atherosclerosis and their major risk factors. However, there are four groups of other important cardiovascular diseases for prevention and control purposes that deserve special attention in some countries. First, cardiac arrhythmias, such as atrial fibrillation, which increases with age, and accounts for about on fifth of all strokes in the elderly. Second, congenital heart disease, which can be prevented by public health measures such as rubella vaccination, promotion of universal use of salt fortified with iodine, and promotion of staple food fortified with folic acid. In addition, two neglected diseases of the poor such as rheumatic heart disease, which continues to disproportionately impact on children and young adults living in low-income countries, and Chagas disease, which has a high potential for elimination in the Americas through alleviation of poverty and improvement of living conditions.

A checklist organized on the basis of the four lines of action and priorities is included at the end of this report to facilitate monitoring of the action taken in each country within the framework of the Strategy and to view their implementation status at a glance.

Finally, this report should by no means be construed as a prescription, but rather as a menu of policy options that should be evaluated prior to their application and tailored to the economic, political, and social context in each country.

## Priorities for cardiovascular health in the Americas

- I Public policy and advocacy
- II Surveillance
- III Health promotion and disease prevention
- IV Integrated control of chronic diseases and their risk factors

### I Public policy and advocacy

PUBLIC POLICY AND ADVOCACY

#### Multisectoral action and social determinants

I. ESTABLISH A HIGH-LEVEL MULTISECTORAL MECHANISM AT THE NATIONAL AND SUBNATIONAL LEVELS TO COORDINATE POPULATION-BASED ACTIVITIES FOR THE PREVENTION OF CARDIOVASCULAR DISEASE (CVDs) AND OTHER NONCOMMUNICABLE DISEASES FROM THE STANDPOINT OF THE SOCIAL DETERMINANTS OF HEALTH.

The prevention and control of CVDs requires political will on the part of governments, a harmonious and systematic effort by broad sectors of society (civil society, private enterprise, and academia), and high-level regional, subregional, and national mechanisms to coordinate a comprehensive and sustainable response.

Effective public policy-making for the prevention and control of non-communicable diseases has been directly associated with scientific and technical advances, critical thinking about public health, the maturity of governments, the effectiveness of their regulatory systems, and the ability to transcend those areas and place themselves in a dynamic and participatory way at the heart of the public debate.

In light of the overlap among activities for the prevention and control of CVDs and among their determinants, the ability of countries to fulfill this mission is contingent on their ability to vigorously and efficiently coordinate not only their public health and health services systems, but other relevant sectors of government and society.

2. Ensure that one of the specific objectives of a plan for the prevention and control of CVDs is to reduce inequalities in the distribution of risks, and the burden of disease.

The risk of having a CVD is highly and inversely correlated with socioeconomic status. Reducing inequalities and the burden of CVDs is largely dependent on addressing the factors associated with widening socioeconomic disparities in the population. CVDs and their risk factors are at once a cause and a consequence of poverty. 3. STRENGTHEN THE WORK OF REGIONAL AND SUBREGIONAL NETWORKS AND SHARE BEST PRACTICES DERIVED FROM CVD PREVENTION AND CONTROL POLICIES.

Working through networks, whether in the framework of the country's national economic and political integration mechanisms, specialized agencies, or academic and research institutes at the international, regional, subregional, national, or subnational levels, fosters the sharing of the cumulative experience acquired in the prevention and control of CVDs and other noncommunicable diseases. It also helps to improve communication and coordination among countries, standardize evaluation, select best practices, allocate resources more effectively, encourage innovation, disseminate knowledge, establish and strengthen ties between the various agents, and coordinate food, trade, fiscal, and health policies.

PUBLIC POLICY AND ADVOCACY

#### Universal coverage and equitable access to health services

4. Progress in the direction of universal coverage and equitable access to health services, recognizing that promotion, prevention, and skilled and efficient treatment of patients with CVDs are an integral part of the right to health.

Significant disparities in the burden of disease, the prevalence of risk factors, and health services coverage and access are observed in every country.

Health systems that organize their services around the principle of universal coverage, promote actions at the primary care level that target the entire spectrum of social determinants, balance prevention and promotion with curative interventions, and emphasize the first level of care with appropriate coordination mechanisms have proven most effective in improving population health and equity.

5. INTEGRATE EVIDENCE-BASED INTERVENTIONS FOR THE PRE-VENTION AND CONTROL OF RISK FACTORS AND CVDs INTO EXISTING SOCIAL HEALTH PROTECTION SYSTEMS.

Evidence-based interventions for the prevention and control of risk factors and CVDs are still not integrated into the existing social health protection systems of many countries of the Region.

Universal social health protection systems are associated with a healthier population and lower mortality among older people and the most disadvantaged social groups.

POPULATIONS.

### 6. Ensure the availability and accessibility of medicines and other essential technologies, including laboratory tests, paying particular attention to disadvantaged

In some countries of the Region, out-of-pocket expenditures account for up to 78% of spending on medicines, and this can be catastrophic for low-income families and populations.

CVDs have the heaviest impact on middle- and low-income populations and countries. They are largely the result of social inequities and at the same time, a powerful perpetuator of such disparities. Their catastrophic consequences undercut poverty reduction efforts.

#### Integration and sustainability of interventions

7. An essential strategic element of this type of Plan should be to connect all of the recommended actions in a coherent set of interwoven interventions revolving around a single focus and avoid their disaggregation.

A plan aimed at the prevention and control of this group of ailments would directly benefit the prevention and control of other CVDs, diabetes, chronic respiratory diseases, cancer, and obesity.

Scientific evidence suggests that it is the cumulative and synergistic effect of coordinated interventions, rather than the individual effect of each of them, that explains the impact that a plan of action with these characteristics can have. If they are to be effective, cardiovascular health policies must address a number of different areas at once (funding, trade, legislation, promotion, prevention, management of the supply and demand for services, regulation of prices and medical technologies, information management, education, etc.).

The best results have been obtained in countries where health services financing reforms have been linked to the strengthening of prevention and self-care and to improving integration and coordination among the different levels of care, community participation, and appropriate use of information technology.

PUBLIC POLICY AND ADVOCACY

8. PRIORITIZE THE IMPLEMENTATION OF POPULATION-WIDE AND HIGH-RISK POLICIES TO CREATE ENVIRONMENTS THAT ELIMINATE SMOKING AND PROMOTE A HEALTHY DIET, PHYSICAL ACTIVITY, AND CONTROL OF BODY WEIGHT, BLOOD PRESSURE, BLOOD SUGAR, AND CHOLESTEROL LEVELS.

Up to 75% of ischemic heart disease and strokes can be prevented through management of the available scientific knowledge about the prevention and control of their risk factors (tobacco use, physical inactivity, unhealthy diet, overweight and obesity, hypertension, diabetes, high cholesterol).

Cardiovascular risk reduction entails combining population-wide and high-risk strategies with the strengthening and reorientation of health systems and services delivery. 9. Ensure institutional support and long-term funding for a CVD plan by allocating a specific budget based on the burden and impact of CVDs, the cost-effectiveness of technologies and interventions relative to their social value, their budgetary impact, and the principle of equity. Periodically adjust the health services portfolio on the basis of these criteria.

The expenditures required for the care of CVDs can reach catastrophic levels for individuals, families, communities, and health systems and can become such an enormous social and economic burden that they jeopardize the sustainability of care.

There are affordable cost-effective preventive interventions that reduce the burden of cardio- and cerebrovascular diseases, even in low-income populations.

IO. PROVIDE TECHNICAL RESOURCES AND ADOPT MEASURES TO PROJECT, MONITOR, EVALUATE, AND OVERSEE RESOURCE UTILIZATION AND HEALTH EXPENDITURES SPECIFICALLY FOR PEOPLE WITH CVDs and other Chronic diseases.

The subgroup of people who suffer from more than two chronic diseases and take more than two medicines already accounts for 10% of all patients in some countries, nearly 45% of hospital stays, and 30% of visits to primary health care facilities. Health expenditures for this subgroup account for nearly 50% of overall health expenditure and 5% of GDP. The savings derived from replacing existing acute care models with a chronic care model are substantial.

### II Surveillance



#### Integration of information systems

II. INTEGRATE CVD SURVEILLANCE INTO EXISTING HEALTH INFORMATION SYSTEMS, MAKE SURE THAT IT REMAINS OPERATIONAL, AND INCLUDE ITS FUNCTIONS IN REGULAR HEALTH SYSTEM BUDGETS.

Numerous experiences from countries that have good CVD surveillance systems in place indicate that the first decisive steps in developing a comprehensive and reliable surveillance system—one that elicits pertinent and timely information and provides de facto support for the proper coordination of the activities of subcenters or subnational surveillance units—are to prioritize the surveillance component, provide the necessary technical resources and, just as importantly, ensure that it is standardized and integrated into the health information system. The indicators should facilitate feedback among levels of care and make it possible to draw comparisons between different time periods in a single country and between countries.

Active and sustained technical and financial support for CVD surveillance systems has been shown to be critical in improving cardiovascular health in countries with the most experience with surveillance. In particular, it supports the collection, analysis, and dissemination of information on the causes, prevention, detection, and treatment of CVDs, intervention outcomes, and the evaluation of disparities.

#### Mortality data and risk factor surveillance

#### **12.** Improve the coverage and quality of CVD mortality data.

Comprehensive mortality records that contain reliable data, are constantly updated, and include basic public health and health services information must be available to ensure adequate planning, monitoring, and evaluation of the effectiveness and efficiency of the plans, strategies, programs, and activities undertaken to improve the care of people at risk for, or suffering from CVDs.

13. Improve the quality of surveillance of the selected protective factors, risk factors and factors in cardio-vascular morbidity, using insofar as possible the available instruments developed by PAHO/WHO.

Improvements in knowledge about CVD risk factors and their determinants; health systems and services planning; the appropriateness, effectiveness, safety, and efficiency of interventions for their prevention and control; and about the degree to which good management has been achieved and policies designed and applied, are largely contingent on the rigorousness and scope of research and evaluations conducted in the context of the surveillance of these diseases.

Surveillance of risk factors, protective factors, and cardiovascular morbidity and mortality, disaggregated by sex, age, ethnicity, geographical distribution, and socioeconomic profile, not only elicits information on the trends and evolution of cardiovascular risk and the burden of disease attributable to CVDs, but provides information that is essential for monitoring and evaluating the effectiveness and efficiency of actions, introducing improvements, and disseminating the information to all agents (regulators, financiers, suppliers) as well as the general public.

#### Health services performance and economic assessments

I4. CREATE A BASIC SET OF INDICATORS ON HEALTH SERVICES COVERAGE, ACCESS, AND PERFORMANCE, QUALITY OF CARE, COST AND EFFICIENCY OF INTERVENTIONS, APPROPRIATE USE OF MEDICINES AND OTHER MEDICAL TECHNOLOGIES, POST-MARKETING SAFETY OF MEDICINES AND DEVICES, AND PROGRESS IN THE APPLICATION OF NATIONAL PLANS THAT ELICITS SUFFICIENT INFORMATION FOR PLANNING, IMPLEMENTING, AND EVALUATING POLICIES, STRATEGIES, SERVICES, TECHNOLOGIES, AND INTERVENTIONS.

In order to obtain the basic information necessary for ascertaining the progress of national CVD plans, a small set of basic, valid, reliable, and consensus-based indicators must be available for all of the areas mentioned, based on the systematized compilation of predetermined standardized data that are integrated into health information systems and subject to periodic quality reviews using the guidelines established for purging records. Before designing a new system, it is useful to study sets of indicators with proven high performance levels that are being used in other countries.

15. Invest in research, including economic assessments, on the effectiveness of intersectoral models for the prevention of CVDs.

Many of the activities vital to reducing the burden of CVDs fall outside the control and purview of the ministries of health. The ability to reach the priority targets set for CVDs is influenced in large measure by decision-making and action taken through close intersectoral collaboration, rather than the exclusive regulation of the health sector.

#### Information-sharing

I6. PERIODICALLY DISSEMINATE SURVEILLANCE INFORMATION IN A TIMELY MANNER AND SUPPORT LOCAL INITIATIVES TO STRENGTHEN THEIR CAPACITY. SHARE THE RESPONSIBILITIES OF INFORMATION GATHERING AND ANALYSIS BY DISSEMINATING REPORTS THAT INCLUDE POLICY RECOMMENDATIONS FOR IMPROVEMENTS AND INNOVATIONS IN THIS AREA.

An ongoing system for information dissemination and feedback between financiers and providers, based on the principles of good governance, is critical for reducing asymmetries in the information held by different agents in the health system and contributes to achieving the desired levels of effectiveness and efficiency of activities, interventions, and technologies.

Meeting the targets and goals set in plans and programs for the prevention and control of CVDs is largely contingent first, on having reliable and timely information from surveillance programs available, and second, on making sure that the information is accompanied by accurate analyses and interpretations and evidence-based policy recommendations.

#### Technical capability

17. STRENGTHEN THE TECHNICAL AND MANAGERIAL CAPABILITIES OF HUMAN RESOURCES FOR CVD SURVEILLANCE.

Due to the complexity of surveillance information systems, it is important to have multidisciplinary technical assistance on hand that includes, at a minimum, highly trained professionals in clinical areas, computer sciences, demographics, statistics, epidemiology, services management, and health economics.

## Health promotion and disease prevention

#### **Tobacco**

#### **18.** Ratify the WHO Framework Convention on Tobacco Control (FCTC).

The FCTC includes a series of evidence-based, high-impact, and extremely cost-effective measures (some of which actually lower costs) for reducing tobacco use and discouraging first-time smoking and provides a legal framework and tools for international cooperation to control smoking.

#### 19. CREATE 100% SMOKE-FREE ENVIRONMENTS IN ALL ENCLOSED PUBLIC SPACES AND PRIVATE SPACES WITH PUBLIC ACCESS.

The reduction of tobacco use is more pronounced when 100% smokefree environments are established, as opposed to partial restrictions on such environments. This measure is cost-effective and inexpensive and improves health indicators related to smoking.

#### **20.** Raise taxes on tobacco and the retail price of cigarettes.

Scientific evidence suggests that, when sustained over time, this is the most cost-effective independent measure for reducing tobacco use, encouraging smoking cessation, and discouraging first-time smoking. It also reduces health expenditure and is easily implemented.

#### **21.** Impose a complete ban on the advertising, promotion, and sponsorship of products containing tobacco.

Numerous scientific studies have shown that a total (not partial) ban on these activities is a cost-effective way of reducing tobacco use and discouraging first-time smoking.



**22.** Include health warnings on the packaging of all to-Bacco products with images of the harm caused by smok-Ing and exposure to smoke, following FCTC guidelines.

In addition to being easily implemented, this measure has proven very cost-effective in raising awareness about the risks of smoking, encouraging smoking cessation, and discouraging first-time smoking.

**23.** Make treatment for smoking cessation available to anyone who seeks it.

Highly effective smoking cessation treatments are cost-effective when they are offered free of charge, and with universal coverage, and the social and health impact of quitting is very high. **24.** SET UP SURVEILLANCE SYSTEMS TO MONITOR THE TREND IN THE SMOKING EPIDEMIC AND EVALUATE THE EFFICIENCY OF THE MEASURES IMPLEMENTED.

Active surveillance systems on smoking prevalence and the scope of tobacco control activities are the main source of data for ascertaining the degree to which the established objectives have been met and the effectiveness of tobacco control policies. This system should be an integral part of surveillance systems for noncommunicable diseases.

#### Salt intake

25. SET UP SUSTAINABLE, WELL-FUNDED, EVIDENCE-BASED SALT INTAKE REDUCTION PROGRAMS THAT ARE INTEGRATED WITH OTHER DIETARY, NUTRITION, AND HEALTH EDUCATION PROGRAMS AND TARGET THE ENTIRE POPULATION, ESPECIALLY CHILDREN.

Reducing salt intake in the population is one of the most cost-effective (and expenditure-cutting) measures available to improve health and is associated with reductions in the incidence and mortality of illnesses caused by high salt intake.

26. REGULATE FISCAL POLICIES AND ECONOMIC INCENTIVES, CLOSELY SUPERVISE THE ESTABLISHMENT OF GRADUAL TARGETS AND TIMETABLES FOR REDUCING THE SALT CONTENT OF ALL FOODS BY LOCAL FOOD INDUSTRIES, AND DEVELOP A POLICY MANDATING THAT ALL GOVERNMENT-FUNDED FOOD PURCHASES COMPLY WITH RECOMMENDED SALT LEVELS.

A population-wide decrease in systolic blood pressure has been observed in countries that have reduced the salt content of foods through agreements with the industry or legislation.

27. EXPAND CODEX ALIMENTARIUS BACKING FOR THE MANDATORY LABELING OF FOOD PRODUCTS CONTAINING SALT OR SODIUM. IN ADDITION, ADOPT REGULATIONS ON THE PUBLIC DECLARATION AND REGULAR, STANDARDIZED UPDATING OF THE NUTRITIONAL CONTENT OF ALL MANUFACTURED FOODS.

When well-designed to inform the lay public, the information on food labels and the warnings that should accompany it are a critical additional piece of public health education campaigns.

28. Inform the general public about the health risks associated with a high-salt diet and ways to reduce salt intake, and encourage the role of civil society, particularly consumer groups, in promoting compliance with commitments and regulations.

Public education about these risks and how to reduce them are two cornerstones of effective policies to reduce salt intake and the risks associated with high intake levels.



29. IMPLEMENT A NATIONAL SURVEILLANCE SYSTEM TO IDENTIFY THE SALT CONTENT OF FOODS AND ITS MAIN SOURCES; ASSESS THE DEGREE TO WHICH CONTRACTUAL COMMITMENTS, THE INTERNATIONALLY RECOMMENDED SALT INTAKE TARGET (WHO: < 5G/DAY/PERSON), AND TARGETS SET BY NATIONAL SALT REDUCTION POLICIES ARE BEING MET; AND ESTIMATE THE HEALTH AND ECONOMIC IMPACT OF A DIET HIGH IN SALT CONTENT.

Active surveillance systems on the development and scope of actions to reduce salt intake are the main source of data for ascertaining the degree to which established objectives have been met and the effectiveness of salt intake reduction policies.

30. MONITOR THE POTENTIAL ADVERSE EFFECTS OF REDUCING THE SODIUM CONTENT OF FOODS.

A reduction in the sodium content of foods is sometimes accompanied by its substitution with fatty additives and other harmful compounds. A poorly planned intervention can reduce iodine intake.

#### Healthy diet

**31.** PROMOTE A SUSTAINABLE AGRICULTURAL POLICY TO BOOST THE PRODUCTION, SUPPLY, ACCESSIBILITY, AND ACCEPTANCE OF HEALTHY FOODS.

Ascertain whether the domestic market supply and over-consumption of fats, calories, and foods detrimental to health are influenced by agricultural policies and the supply chain as a whole, and estimate the potential for boosting the production, supply, accessibility, and acceptance of healthy foods.

Certain agricultural policies have been shown to be associated with changes in the prices and availability of foods that, together with the regulation of their nutritional content, influence food production models. The experiences of several countries have shown that agricultural promotion, production, and research policies can be interwoven in ways that improve the cardiovascular health of the population.

32. PROMOTE AND CONSOLIDATE ENVIRONMENTS IN THE COM-MUNITY THAT FACILITATE ACCESS TO A HEALTHY DIET, WITH AN EMPHASIS ON THE PROMOTION OF EXCLUSIVE BREAST-FEEDING, OPTIMAL DIETS FOR INFANTS AND CHILDREN, AND THE AVAIL-ABILITY OF HEALTHY FOODS AND BEVERAGES IN SCHOOLS.

Access to fresh, healthy foods is associated with behaviors in the population that reduce the risk and improve control of CVDs.

Governments have efficient mechanisms available to them to regulate the supply and sale of healthy foods and compliance with regulations governing all food products, and most importantly, to increase the availability of healthy foods in schools where children and adolescents spend most of their time. 33. STRENGTHEN EFFICIENT EVIDENCE-BASED POLICIES ON COMMERCIAL TRANSACTIONS, PRICE-SETTING, AND FINANCIAL INCENTIVES FOR THE PRODUCTION, MARKETING, AND SALE OF HEALTHY FOODS.

Some public interventions suggest that governments can adopt fiscal and financial incentives for the production, marketing, and sale of healthy foods that are consistent with evidence-based strategies for the prevention of overweight and obesity.

Diets can be improved by increasing and diversifying local food production and exports, reducing their prices, and introducing tax incentives for the consumption of healthy foods through agriculture and food policies.

To be effective, such interventions must complement recommendations on the availability and sale of foods and include contingency plans to counteract any opposition that they might trigger.



34. FORM A WORKING GROUP TO IDENTIFY POLICIES TO REGULATE THE PROMOTION AND MARKETING OF FOOD TO CHILDREN AND ADOLESCENTS; SET TARGETS FOR REDUCING THEIR EXPOSURE TO IT; DECIDE WHICH FOODS, COMMUNICATION CHANNELS, AND MARKETING TECHNIQUES SHOULD BE REGULATED; AND IDENTIFY WAYS OF IMPLEMENTING AND ASSESSING COMPLIANCE WITH THOSE POLICIES.

Numerous scientific studies have shown that marketing and advertising to promote the consumption of unhealthy foods clearly influence preferences, demands, and harmful food consumption patterns in children and adolescents, who are particularly susceptible to it, especially in countries with limited regulatory mechanisms in place.

The effect of television advertising on children's diets is independent of other influences. Children exposed to such advertising are at significantly higher risk of harmful food consumption and, ultimately, of the attendant cardiovascular risk factors.

35. DECIDE WHETHER VOLUNTARY SELF-REGULATION PROPOSALS AND COMMITMENTS ON THE PART OF NATIONAL AND MULTINATIONAL FOOD CORPORATIONS ARE SUFFICIENT TO ENSURE COMPLIANCE WITH HEALTH PROMOTION POLICIES OR WHETHER MANDATORY REGULATORY MEASURES ARE NECESSARY.

Working through their national regulatory agencies, several countries have successfully boosted compliance with agricultural, production, distribution, marketing, and food advertising policies by corporations that fail to keep their self-regulation commitments.

36. IMPROVE COMPLIANCE WITH THE WHO CODE OF MARKETING OF BREAST-MILK SUBSTITUTES. IN ADDITION, BAN THE
ADVERTISING OF SUGARY BEVERAGES AND FOODS WITH LOW NUTRITIONAL VALUE, PARTICULARLY WHEN IT TARGETS CHILDREN
AND ADOLESCENTS; STRENGTHEN REGULATIONS MANDATING
THE PUBLIC DECLARATION AND REGULAR UPDATING OF NUTRIENT LEVELS FOR ALL MANUFACTURED FOOD PRODUCTS; AND
ENSURE THAT THE REGULATIONS ADOPTED INCLUDE PENALTIES
FOR NONCOMPLIANCE AND ARE TIED TO CONSUMER AND CHILD
PROTECTION LAWS.

Numerous scientific studies have shown the association between advertising and food consumption, the greater vulnerability of children and adolescents in countries with little capacity to regulate exposure to misleading advertising, and the effectiveness of different regulatory mechanisms in helping to prevent childhood obesity.

37. PROHIBIT THE MARKETING AND THE SALE OF SUGARY BEVERAGES AND FOODS WITH HIGH FAT AND SODIUM CONTENT AND LOW NUTRITIONAL VALUE IN SCHOOLS.

Various studies and interventions have clearly demonstrated the association between the consumption of these harmful foods, overweight, and obesity; market competitiveness and the effects of substituting these food products with healthy ones; the feasibility of prohibiting the supply of the former and creating incentives for promoting the latter; and the viability of activating government regulatory mechanisms when corporations fail to fulfill their self-regulation commitments.

**38.** Raise taxes on sugary beverages and energy-dense foods.

Price increases for these food products are associated with lower consumption and reductions in the incidence of the diseases whose risk they increase and the negative externalities of obesity. The income generated by these tax increases can be invested in the adoption of other complementary measures that have been proven to be effective.



#### Physical activity

39. ADOPT SUSTAINABLE URBAN PLANNING, TRANSPORTATION, AND SAFETY POLICIES TO CREATE AN ENVIRONMENT CONDUCIVE TO THE ENJOYMENT OF A PHYSICALLY HEALTHY, ACTIVE, AND SAFE LIFESTYLE.

The provision of community resources that enable citizens to engage in physical activities such as walking, exercising, and bike-riding has a beneficial effect in terms of the prevention and control of hypertension, obesity, and diabetes.

The creation of spaces such as parks and green and recreational areas, accompanied by appropriate promotional campaigns, has been associated with an increase in physical exercise among the population in many cities around the world.

The construction and gradual expansion of pedestrian areas and safe bicycle paths and the public supply of low-cost bicycle rentals in cities have also been associated with an increase in physical activity among the population.

40. PROMOTE COMPREHENSIVE, EFFECTIVE INTERVENTIONS
THAT REDUCE SEDENTARY LIFESTYLES AND ENCOURAGE PHYSICAL
ACTIVITY AMONG ALL AGE GROUPS, AND ARE TAILORED TO URBAN
SETTINGS, WORKPLACE CONDITIONS, AND THE SOCIOCULTURAL
CHARACTERISTICS OF THE POPULATION.

Regular physical activity (120 minutes a week of moderate to vigorous physical activity) is an independent factor that reduces the risk of several chronic diseases as well as a sedentary lifestyle, which is an independent risk factor for heart disease.

**41.** Include 50 minutes a day of moderate physical activity in the school curriculum.

The obesity epidemic, which often begins in early childhood, has intensified throughout the world. In some countries, as many as one-fifth of the children are obese or overweight.

Schools—which the vast majority of children attend and where they spend a good part of their day—are usually safe places for physical activity. Schools and teachers can help to instill social attitudes that value a healthy diet and physical activity.

### **42.** COLLABORATE CLOSELY WITH THE MEDIA TO PROMOTE THE DISSEMINATION OF ACCURATE, EVIDENCE-BASED INFORMATION TO THE GENERAL PUBLIC ABOUT THE BENEFITS OF PHYSICAL ACTIVITY IN THE PREVENTION AND CONTROL OF CVDs.

Providing the general public with accurate, clear, evidence-based information about the benefits of appropriate, periodic, guided physical activity is a critical factor in the effectiveness of policies for the prevention and control of CVDs.

#### **43.** Encourage the education of professionals and research on the promotion of physical activity.

The proposed interventions can be diversified and improved by the findings of well-thought-out implementation and impact studies, when they are accompanied by evidence-based promotion activities carried out by properly trained personnel.

#### Alcohol

44. IMPLEMENT THE WHO GLOBAL STRATEGY TO REDUCE THE HARMFUL USE OF ALCOHOL ADOPTED BY THE WORLD HEALTH ASSEMBLY IN 2010.

The harmful use of alcohol has a serious effect on public health and is considered one of the main risk factors at the global level.

The harmful use of alcohol contributes significantly to the global burden of diseases, and, specifically, to hypertension, and it is one of the main risk factors for premature mortality and of disability.

Numerous scientific evidences on the effectiveness and the efficiency of strategies and interventions are available in order to prevent and reduce the harmful use of alcohol. However, these actions are often fragmented and do not always correspond with the magnitude of the impact that the harmful use of alcohol has on health and social development.

# Integrated control of chronic diseases and their risk factors

#### Competencies of health personnel

45. Ensure that the health system, and particularly the first level of care, has a sufficient number of competent, motivated, and stable human resources in place; operates through multidisciplinary teams; clearly defines the roles of physicians and nursing staff at all levels of care; and evaluates its performance.

Having the right number of properly trained human resources and the right amount of material resources is necessary to ensure that the supply of services is equipped to efficiently and sustainably meet the real care needs posed by this enormous challenge.

The quality of medical care is largely contingent on educating health personnel (especially at the primary care level) to provide continuous comprehensive care that is rooted in the concepts of the chronic care model and promotes self-management, adherence to clinical practice guidelines, and the reduction of unwarranted variability in medical practice.

46. DEVELOP COMPREHENSIVE, SUSTAINABLE CONTINUING EDUCATION STRATEGIES GEARED ESPECIALLY TO PRIMARY CARE WORKERS, REINFORCE THE CVD PREVENTION AND CONTROL COMPONENT, AND, WHERE NECESSARY, MODIFY ACADEMIC PROGRAMS TO MEET THIS OBJECTIVE.

Given the incidence of social, demographic, epidemiological, and technological changes in CVDs, undergraduate and graduate curricula must be periodically reoriented in keeping with the educational needs of each country.

In order to ensure proper implementation of comprehensive models for the prevention and control of risks and chronic diseases, the current curricula must be revised and must include continuing education and accreditation, the basic coursework, information and communications technology, evidence-based medicine, planning, services management, and clinical management.



#### Primary care, population risk stratification, and integrated health services networks

47. STRENGTHEN HEALTH SYSTEMS BASED ON PRIMARY CARE AND ORGANIZED AS INTEGRATED SERVICES NETWORKS, PAYING SPECIAL ATTENTION TO THE THREE BASIC FUNCTIONS OF THE FIRST LEVEL OF CARE IN REGARD TO CVDs: ACT AS THE GATEKEEPER TO THE SYSTEM, ENSURE COORDINATION AND CONTINUITY OF CARE, AND INTEGRATE USER INFORMATION.

CVD prevention and control will improve if health systems are geared to full implementation of the primary care strategy and if care is organized around integrated health services networks.

Access to clinical prevention provided through comprehensive health care services yields significant economic, social, and health benefits since CVDs share risk factors with other chronic diseases.

The fragmentation of care leads to a lack of adherence to international standards that leads to suboptimal treatment and an increase in recurrences and complications.

48. IDENTIFY THE HEALTH CARE NEEDS OF PATIENTS WITH CVDS AND OTHER CHRONIC DISEASES IN GENERAL, AND THOSE WITH THE MOST DELICATE OR COMPLICATED CASES IN PARTICULAR, BY STRATIFYING THESE PATIENTS BASED ON THEIR RISK AND CHRONIC MORBIDITY, HOSPITALIZATION, AND RESOURCE UTILIZATION PROFILE, SO THAT RESOURCES AND CARE CIRCUITS CAN BE BETTER TAILORED TO EACH GROUP.

The chronic patient population can be stratified by different types of risk, such as death, severe complications, hospital admissions and re-admissions, reduced function, resource utilization, and health care costs. The burden of disease has consistently been shown to be a key factor in population risk stratification.

Cost is a useful variable in determining the complexity of chronic patients and identifying those with a high risk of health resources utilization.

Health costs are highly concentrated and persistent in a small subgroup of patients with CVDs and other chronic diseases.

49. Increase health system effectiveness and efficiency by tailoring health interventions and resources to the complexity levels of the diseases requiring care and to the resource utilization risk stratification of the population of patients with CVDs and other chronic diseases.

Various models have been developed to predict health resource utilization based on the chronic illness requiring care and previous use of general health resources (hospitalization, pharmacy expenditure, outpatient prescription for outpatient dispensing) or particular services (emergency re-hospitalization). Some examples are the model developed by Kaiser Permanente or the PARR (Patients at Risk of Re-hospitalization) model developed by the King's Fund.

Some models are useful for the service provider (predictive models) inasmuch as they predict which patients are at high risk for disease and for very high health resource utilization (frequentation, hospitalization, readmissions, and medicines). Others are useful for the financier (risk-adjustment models), since they are used to adjust estimates of service quality and efficiency and payments to providers based on risk.

More advanced and complex predictive models, such as the Archimedes model, predict the risk of morbidity and health resource utilization with a high degree of validity based on physiological and biological variables, risk factors, signs and symptoms, diagnostic tests, treatments, complications, death, medical care processes, and the type and volume of health system resources.



**50.** Ensure that the primary care level has the necessary technology, tools, and services it requires for efficient assessment and control of cardiovascular risk.

The proper integration of network services and the system's overall efficiency and quality are achieved in part by ensuring that primary care is equipped with the most cost-effective technology that improves treatment outcomes at that level of care.

These technologies include standards and protocols, referral and transfer criteria, risk prediction tables, basic laboratory tests, essential medicines, simplified clinical records or histories, patient self-care support programs, and family and community education.

51. APPLY CRITERIA FOR PATIENT REFERRAL FROM THE FIRST LEVEL OF CARE TO OTHER CARE ENVIRONMENTS IN THE HEALTH SYSTEM THAT ADDRESS COORDINATION PROBLEMS BETWEEN LEVELS OF CARE AND ARE BASED ON THE EFFECTIVENESS OF THE SERVICES PROVIDED AT EACH LEVEL AND THE SYSTEM'S OVERALL EFFICIENCY.

Providing care at the appropriate level for people with risk factors and CVDs is a prerequisite for quality in the system. It reduces delays in diagnosis and treatment, duplicate or inappropriate diagnostic testing, and induced prescription, and, in short, maximizes treatment outcomes and efficiency at each level.

#### Chronic care model

**52.** ACCELERATE IMPLEMENTATION OF THE INTEGRATED CHRONIC CARE MODEL IN HEALTH SERVICES. IN THIS REGARD, IT IS CRITICAL TO PROMOTE SELF-CARE AND REDEFINE THE ROLES AND RESPONSIBILITIES OF PHYSICIANS, NURSING STAFF, AND COMMUNITY WORKERS.

The fragmentation of services, including preventive services, reduces treatment effectiveness and increases the incidence of complications and preventable deaths, as well as the inefficiency of primary and specialized care services.

Implementation of the integrated chronic care model can lead to more comprehensive and sustainable cardiovascular care, strengthen patient self-care, and improve coordination between levels of care.

Studies have shown that better clinical outcomes can be obtained in patients with CVDs and other noncommunicable diseases by a change in the interconnected elements of the service delivery model as a whole than by any single component of the chronic care model. 53. STRENGTHEN THE ACTIVE ROLE, ACCOUNTABILITY, AND AUTONOMY OF PEOPLE WITH RISK FACTORS OR CVDS, AND ESPECIALLY THOSE WITH DIABETES AND HYPERTENSION, BY DEVELOPING THE SKILLS AND RESOURCES THEY NEED TO MAXIMIZE THEIR SELF-CARE CAPABILITIES.

The risk of CVDs is reduced and their control improved when the affected individuals are informed about healthy lifestyles, risk factors, and the behavioral changes necessary to reduce them, as well as the specific steps for self-care.

Self-care implies the active participation of patients and their caregivers in their health care and informed and shared decision-making among the professional, the patient, and the caregiver. It also entails the active participation of citizens in promoting their health and preventing the emergence and development of chronic diseases. People who self-manage their illness after receiving support to do so obtain better outcomes in controlling it than those who do not.



#### Hypertension and individual total cardiovascular disease risk

54. STRENGTHEN ACTIVITIES TO IMPROVE PROFICIENCY LEVELS, TREATMENT, AND CONTROL OF HYPERTENSION (HT), WITH EMPHASIS ON EARLY DETECTION, THE APPROPRIATE SELECTION AND USE OF MEDICINES, AND THERAPEUTIC COMPLIANCE.

While hypertension, hypercholesterolemia, and smoking together account for over 80% of CVDs, hypertension is the biggest risk factor and is associated with 62% of strokes and 49% of ischemic heart disease. HT treatment and control is therefore a core strategy in the care of CVDs.

Many of those who suffer from hypertension do not realize they are hypertensive, and a significant proportion of those treated do not reach the control target (< 140/90 mmHg).

Detection intervention coverage is enhanced through the promotion of screening performed by non-physician health personnel, especially trained certified nurses, and in nontraditional locations such as the workplace.

HT is relatively easy to diagnose and the treatment is inexpensive.

55. PROMOTE INDIVIDUAL TOTAL CARDIOVASCULAR RISK ASSESS-MENT IN PREVENTIVE CLINICAL SERVICES, WITH EMPHASIS ON THE TREATMENT OF PATIENTS AT HIGH RISK OF CARDIOVASCULAR DISEASE.

The best evidence-based clinical approach for CVDs in low-income and middle-income countries is a multidrug combination (aspirin, two types of antihypertensive drugs, and statins) for people identified opportunistically in primary care as being at high risk of cardiovascular disease, or for patients who have already had a clinical event.

WHO has produced risk assessment charts that can be further simplified by removal of the need for a blood sample.

Scale-up of this intervention would, over 10 years, avert 18 million deaths from cardiovascular disease in 23 high-burden low-income and middle-income countries at a cost of about US\$1.08 per person per year.

## 56. Strengthen early detection and treatment of chronic kidney disease in people with hypertension and diabetes.

The combination of HT and diabetes markedly increases the risk of cardiovascular events and chronic kidney disease, which means that in diabetic patients should be treated aggressively until it has been controlled. The high prevalence of HT and signs that diabetes is reaching epidemic proportions reinforce the need to be prepared to confront this public health challenge.

Significant gaps in the diagnosis and treatment of hypertension and diabetes hamper efforts to reduce the incidence of chronic kidney disease as far as possible, and it is therefore advisable to detect kidney disease early in the primary health care setting (by measuring levels of albuminuria and creatinine), particularly in at-risk populations, paying particular attention to people with hypertension and diabetes.

57. MONITOR HYPERTENSION CONTROL IN THE POPULATION ON THE NATIONAL AND LOCAL LEVELS, ESPECIALLY AMONG VULNERABLE GROUPS.

Cases of uncontrolled hypertension are common even though many patients visit their doctors regularly.

The rate of hypertension control in the population is a component of program effectiveness and a sentinel indicator of health inequalities. As such, it can be used to evaluate those inequalities and the effectiveness of the interventions designed to reduce them.



### Quality and efficiency of clinical services

58. IMPLEMENT POLICIES CONDUCIVE TO A HEALTH CARE SYSTEM THAT OPERATES WITH HIGH STANDARDS OF CLINICAL EFFICIENCY AND SAFETY. IN THIS CONTEXT, IMPLEMENT CERTIFICATION SYSTEMS AND CLINICAL AUDITS.

The accreditation and certification of health facilities and providers, as well as other auditing procedures, are useful tools for improving the quality of health services and patient safety. While legislation plays an important role in this undertaking, its success is contingent on the ability to enforce laws and respect the formal and informal rules of the game.

**59.** ESTABLISH COMPREHENSIVE CONTINUOUS QUALITY IMPROVE-MENT PROGRAMS IN ORDER TO ASSESS SERVICES RELATED TO THE CARE OF CVDs in health services units.

Efforts to improve the quality of plans, strategies, and programs for the prevention of CVDs and for the diagnosis, treatment, and rehabilitation of affected individuals, must include assessments of their effectiveness and efficiency, the detection of barriers and limitations to their progress, and the design, implementation, and reassessment of improvement measures, based on a continuous information feedback system in the framework of continuous quality assessment models.

**60.** Apply clinical practice guidelines tailored to the requirements, resources, and local culture, and define and harmonize the roles and responsibilities of all levels of the service network.

Appropriate implementation and observance of properly designed and strongly evidence-based clinical practice guidelines is a prerequisite for delivering quality care, reducing unwarranted variability, and ultimately reducing preventable morbidity and mortality, as well as costs.

61. IMPLEMENT POLICIES THAT REGULATE MEDICINES AND OTHER TECHNOLOGIES BASED ON THEIR HIGH QUALITY, RELATIVE EFFECTIVENESS, DIAGNOSTIC AND THERAPEUTIC VALUE ADDED, SOCIAL VALUE, AND SAFETY. ENSURE THAT SERVICE COVERAGE IS CONSISTENT WITH THESE PRINCIPLES AND THAT THE PRESCRIPTION OF GENERIC MEDICINES IS PROMOTED.

Higher spending on technologies for CVDs is not always associated with an increase in effective diagnosis and treatment and better clinical outcomes. The sustainability of these technologies could be jeopardized unless incremental cost-effectiveness and social value criteria are used in the selection, adoption, and dissemination of new technologies and phase-out of obsolete or less cost-effective ones.

The accessibility and availability of essential medicines and technologies and comprehensive pharmacy service delivery improve when policies are implemented that reinforce the rational use of medicines, promote the prescription of generic drugs, and include appropriate measures for price-setting and streamlining expenditures.

Cost-effective, accessible, and viable interventions and technologies are available to manage these illnesses, even in low-income settings.



#### Acute coronary syndrome and stroke

**62.** PRIORITIZE A SERIES OF KEY INTERVENTIONS TO IMPROVE THE QUALITY OF CARE OF PATIENTS WITH ACUTE CORONARY SYNDROME (ACS) AND STROKE:

62 A. IMPLEMENT A COMMUNICATIONS AND EDUCATION STRATEGY DIRECTED AT THE GENERAL PUBLIC ON THE EFFICIENT USE OF EMERGENCY SYSTEMS AND EARLY DETECTION OF SIGNS AND SYMPTOMS OF ACS, OR HEART ATTACK, AND STROKE; PROPER CARDIO-PULMONARY RESUSCITATION TECHNIQUES; AND THE CORRECT USE OF AUTOMATIC EXTERNAL DEFIBRILLATORS; IN ORDER TO TREAT PATIENTS IN A TIMELY, EFFECTIVE MANNER.

The general public lacks the knowledge it needs for early recognition of the signs and symptoms of ACS and stroke and the need to administer emergency treatment, and this contributes to poorer clinical outcomes.

Public education for early and accurate identification of the signs and symptoms of ACS and stroke to react appropriately is critical.

The general public and a segment of the medical community continue to view stroke as an untreatable, irreversible disease, which explains the passive approach to diagnosis, treatment, and rehabilitation in some areas.

Training in cardiopulmonary resuscitation should be based on current internationally recognized recommendations (ILCOR).

62 B. DEVELOP LOCAL EMERGENCY MEDICAL SERVICE (EMS)
NETWORKS IN DEFINED GEOADMINISTRATIVE AND POPULATIONAL
SPACES AND SYNCHRONIZE THEM WITH OTHER SERVICE DELIVERY
NETWORK COMPONENTS TO FACILITATE COORDINATED ACTION AND
HELP IMPROVE THE EFFICIENCY OF INTERVENTIONS.

In light of the strong association between morbidity and mortality from ACS and stroke and the time it takes to make an accurate diagnosis and administer effective revascularization treatment, the four links in the survival chain must be permanently coordinated and integrated in the emergency network: rapid access, early cardiopulmonary resuscitation, early defibrillation, and advanced life support.

Emergency medical systems play a critical role in the identification, classification, and transportation of patients during the acute phase.

The efficient organization of comprehensive health services networks is contingent in part on establishing local networks for ordinary, preferential, and urgent patient referral and emergency medical services, connecting these services to the different levels of care and tailoring them to the needs of the populations living in predefined territories.

The quality and safety of EMS are enhanced when their actions are based on rapid patient access protocols, algorithms, and prenotification systems, in keeping with the recommendations set out in current clinical practice guidelines.

Every country should have a single emergency telephone number and should conduct periodic mapping exercises to fill in any gaps in services to properly coordinate its response.



62 C. SET UP MECHANISMS TO EXPAND ACCESS TO AND COVERAGE OF EARLY REPERFUSION THERAPY FOR ACS PATIENTS WITH ST-SEGMENT ELEVATION AND STROKE WHO MEET THE CRITERIA FOR IT, EMPHASIZING THE URGENCY OF THE INTERVENTIONS (THE TIME LAPSE BETWEEN THE ONSET OF SYMPTOMS AND TREATMENT) AND THE AVAILABILITY OF BASIC TECHNOLOGIES (DRUGS, ELECTROCARDIOGRAM, HEART RATE MONITOR, AND DEFIBRILLATOR) NECESSARY FOR AN EARLY AND SAFE INTERVENTION.

Morbidity and mortality associated with ACS and stroke, the incidence of subsequent events, and the quality of life of these patients are directly and closely related to the time lapse between the onset of symptoms and the administration of revascularization treatment.

Thrombolysis in ACS with ST-segment elevation has been shown to be effective in reducing mortality and improving the quality of life when it is administered early and safely. Pre-hospital thrombolysis is an extremely cost-effective procedure in the context of a structured pre-hospital emergency care network.

The treatment of choice for ACS patients with ST-segment elevation is percutaneous coronary intervention (PCI). Designated units and facilities should be created for this purpose.

PCI is more effective and cost-effective than thrombolysis among high-risk patients with post-infarction complications. Its superior performance is contingent on how quickly it is done following the patient's admission to the hospital.

62 D. ESTABLISH CORONARY AND STROKE UNITS IN THE HEALTH SERVICES NETWORK WHOSE NUMBER, ORGANIZATION, COORDINATION, TECHNOLOGIES, AND COMPLEXITY ARE TAILORED TO THE TREATMENT NEEDS OF PATIENTS AND PRIORITIZE PATIENTS AT HIGH RISK FOR COMPLICATIONS AND DEATH.

The clinical efficacy, safety, and efficiency of care rely in part on ensuring that the location of health facilities is determined by regionalization criteria, based on their high structural and maintenance costs, ethical considerations, complexity, the volume of the services provided, and the experience and expertise of the professionals involved.

The development of specific health care systems for stroke has improved the early identification, transport, and treatment of patients. Designated treatment centers, stroke units, and protocols improve the process and quality of care, including diagnosis, access, and administration of thrombolytic treatment, and reduce hospital stays, disability, and mortality.

Patient transitions between clinical services and care centers during the various phases of stroke care are often associated with poor coordination and disoriented patients and relatives in the health system, resulting in poorer clinical outcomes.



62 E. Implement far-reaching programs of demonstrated effectiveness for the Early Rehabilitation and social reintegration of ACS and Stroke Patients.

Early, coordinated rehabilitation of ACS or stroke patients by a multidisciplinary team reduces the burden of disability, mortality, and socioeconomic impact (direct and indirect costs), facilitates reintegration into society, and improves quality of life.

In addition to improving function and reintegration into society, rehabilitation programs that include the effective control of risk factors and physical, psychological, and social reintegration are associated with a significant reduction in morbidity and mortality postacute event, as well as a better quality of life.

62 F. Expand coverage of and access to secondary prevention interventions for ACS and stroke.

The risk of ACS and stroke recurrence is much greater after the first episode and is influenced by the presence of risk factors and concomitant vascular disease.

The effectiveness of secondary ACS and stroke prevention depends largely on whether patients have equitable access to prevention services, eat a healthy diet, exercise regularly, quit smoking, control hypertension and diabetes, and maintain a high level of compliance with pharmacological treatments of demonstrated effectiveness (aspirin, beta-blockers, ACE inhibitor, and statins).

## Bibliography

- ABEGUNDE D, MATHERS C, ADAM T, ET AL. The burden and costs of chronic diseases in low-income and middle-income countries. Lancet 2007;370:1929-38.
- ALBERTI K, ECKEL RH, GRUNDY SM, ET AL. Harmonizing the metabolic syndrome. A Joint Interim Statement of the International Diabetes Federation Task Force on Epidemiology and Prevention; National Heart, Lung, and Blood Institute; American Heart Association; World Heart Federation; International Atherosclerosis Society; and International Association for the Study of Obesity. Circulation 2009;120:1640-45.
- ALBERTS MJ, LATCHAW RE, SELMAN WR, ET AL., for The Brain Attack Coalition. Recommendations for comprehensive stroke centers; a consensus statement from the Brain Attack Coalition. Stroke 2005;36;1597-618.
- **AMERICAN HEART ASSOCIATION**. Heart Disease and Stroke Statistics. [Update.] Dallas, TX: AHA; 2009.
- Anderson JL, Adams CD, Antman EM, et al. ACC/AHA 2007 guidelines for the management of patients with unstable angina/ non-ST-Elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 2002 Guidelines for the Management of Patients With Unstable Angina/Non-ST-Elevation Myocardial Infarction) developed in collaboration with the American College of Emergency Physicians, the Society for Cardiovascular Angiography and Interventions, and the Society of Thoracic Surgeons endorsed by the American Association of Cardiovascular and Pulmonary Rehabilitation and the Society for Academic Emergency Medicine. J Am Coll Cardiol 2007;50:e1-157.
- **Anonymous**. The state of health research worldwide. Lancet 2008; 372:1519.
- Antman EM, Anbe DT, Armstrong PW, Et al. ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction: A report of the American College of Cardiology/ American Heart Association Task Force on Practice Guidelines (Committee to Revise the 1999 Guidelines for the Management of Patients with Acute Myocardial Infarction). J Am Coll Cardiol 2004;44:e1-211.
- ARMSTRONG T, BONITA R. Capacity building for an integrated noncommunicable disease risk factor surveillance system in developing countries. Ethn Dis 2003;13:S13-8.

- ASARIA P, CHISHOLM D, MATHERS C, ET AL. Chronic disease prevention: health effects and financial costs of strategies to reduce salt intake and control tobacco use. Lancet 2007;370:2044-53.
- ATUN R, JONGH T, SECCI F, ET AL. Integration of targeted health interventions into health systems: a conceptual framework for analysis. Health Pol Plann 2010;25:104–11.
- AUCHINCLOSS AH, DIEZ ROUX AV, MUJAHID MS, ET AL. Neighborhood resources for physical activity and healthy foods and incidence of type 2 diabetes mellitus: the Multi-Ethnic Study of Atherosclerosis. Arch Intern Med 2009;1698:704.
- BABEY SH, JONES M, YU H, ET AL. Bubbling over: soda consumption and its link to obesity in California. Policy Brief UCLA Cent Health Policy Res 2009(PB2009-5):1-8.
- BAKRIS G, HILL M, MANCIA G, ET AL. Achieving blood pressure goals globally: five core actions for health-care professionals. A worldwide call to action. J Hum Hypertens 2008;22:63-70.
- BANATVALA N, DONALDSON L. Chronic diseases in developing countries. Lancet 2007;370:2076-8.
- BARRIA RM, AMIGO H. Nutrition transition: A review of Latin American profile. Arch Latinoam Nutr 2006;56:3-11.
- BASSAN R, GILBLER WB. Chest pain units: state of the art of the management of patients with chest pain in the emergency department. Rev Esp Cardiol 2001;54:I103-9.

- BAYÓN J, ALEGRÍA E, BOCH X, ET AL. Chest pain units. Organization and protocol for the diagnosis of acute coronary syndromes. Rev Esp Cardiol 2002;55:143-54.
- BEAGLEHOLE R, BONITA R, HORTON R, ET AL. Priority actions for the non-communicable disease crisis. Lancet 2011, doi:10.1016/S0140-6736(11)60393-0.
- BELKIC K, SCHNALL P, LANDSBERGIS P, ET AL. The workplace and cardiovascular health: conclusions and thoughts for a future agenda. Occup Med 2000;15:307-21.
- BENNETT S, ADAM T, ZAROWSKY C, ET AL. From Mexico to Mali: Progress in health policy and systems research. Lancet 2008;372:1571-8.
- BERNAL E, ORTÚN V. La calidad del Sistema Nacional de Salud: bases de su deseabilidad y sostenibilidad. Gac Sanit 2010;24:254-8.
- BIBBINS-DOMINGO K, CHERTOW GM, COXSON PG, ET AL. Projected effect of dietary salt reductions on future cardiovascular disease. NEJM 2010;362:590-9.
- **BLECHER E**. The impact of tobacco advertising bans on consumption in developing countries. J Health Econ 2008;27:930-42.
- **BODENHEIMER T, BERRY-MILLETT R.** Care management of patients with complex health care needs. San Francisco, CA: The Robert Wood Johnson Foundation; 2009.

- BONITA R, DOUGLAS K, WINKELMANN R, ET AL. The WHO STEPwise approach to surveillance (STEPS) of noncommunicable disease risk factors. In: McQueen D, Puska P, eds. Global behavioral risk factor surveillance. London: Kluwer Academic/Plenum; 2003:9-22.
- BONITA R. Strengthening NCD prevention through risk factor surveillance. Global Health Action. 2009(Suppl. 1), doi:0.3402/gha. v2i0.2086.
- Brainin M, Olsen T, Chamorro A, et al. Organization of stroke care: Education, referral, emergency management and imaging, stroke units and rehabilitation. For the EUSI Executive Committee and the EUSI Writing Committee. Cerebrovasc Dis 2004;17(Suppl. 2):1-14.
- **Braveman P**. A health disparities perspective on obesity research. Prev Chronic Dis 2009;6:A91.
- BROWN IJ, TZOULAKI I, CANDEIAS V, ET AL. Salt intakes around the world: implications for public health. Int J Epidemiol 2009;38:791-813.
- Brownell KD, Schwartz MB, Puhl RM, et al. The need for bold action to prevent adolescent obesity. J Adolescent Health 2009;45:S8-17.
- BROWNELL KD, WARNER KE. The perils of ignoring history: Big tobacco played dirty and millions died. How similar is big food? The Milbank Quarterly 2009;87:259-94.

- BUCHAN J, CALMAN L. Skill-mix and policy change in the health workforce: Nurses in advanced roles. Paris: Organisation for Economic Cooperation and Development; 2005.
- BULUGAHAPITIYA U, SIYAMBALAPITIYA S, SITHOLE J, ET AL. Is diabetes a coronary risk equivalent? A systematic review and meta-analysis. Diabetic Med 2009;26:142-8.
- BURLING TA, SINGLETON EG, BIGELOW GE, ET AL. Smoking following myocardial infarction: a critical review of the literature. Health Psychol 1984;3:83-96.
- CAIRNS G, ANGUS K, HASTINGS G. The extent, nature and effects of food promotion to children: a review of the evidence to December 2008. Geneva: WHO; 2009.
- Callinan JE, Clarke A, Doherty K, et al. Legislative smoking bans for reducing secondhand smoke exposure, smoking prevalence and tobacco consumption. Cochrane Database Syst Rev 2010, Apr 14;4:CD005992.
- CAMPILLO C. Integration of information for health interventions: from data to information and from information to action. Report of the Spanish Society of Public Health. Gac Sanit 2008;22(Supl I):14-8.
- CAMPBELL N, LEGOWSKI, B, LEGETIC, ET AL. PAHO/WHO Regional Expert Group Policy Statement Preventing cardiovascular disease in the Americas by reducing dietary salt intake population-wide. CVD Prevention and Contol. 2010;189-91.

- **CARDIOVASCULAR HEALTH CRISIS.** Editorial. Lancet 2010; 376(4):1874.
- **CARICOM (CARIBBEAN COMMUNITY)** Heads of Government. Declaration of Port-of-Spain: Uniting to stop ncds; 2007.
- **CAWLEY J**. Markets and childhood obesity policy. The future of children 2006;16:69-88.
- CENTERS FOR DISEASE CONTROL AND PREVENTION. Healthy People 2010: Section 12: Heart disease and stroke. Atlanta, GA: CDC; 2010.
- CLARKE D, MCKENZIE T. Legislative interventions to prevent and decrease obesity in Pacific Island countries: Report prepared for WHO Western Pacific Regional Office. Geneva: WHO; 2007.
- CLAXTON K, BRIGGS A, BUXTON MJ, ET AL. Value based pricing for NHS drugs: an opportunity not to be missed? BMJ 2008;336:251-4.
- COCHRANE DATABASE SYSTEMATIC REVIEWS. Competitions and incentives for smoking cessation. Cochrane Database Syst Rev 2005, Apr 18;2:CD004307. Review. 2008;(3):CD004ematic 307.
- COOPER A, SKINNER J, NHERERA L, ET AL. Clinical Guidelines and Evidence Review for Post Myocardial Infarction: Secondary prevention in primary and secondary care for patients following a myocardial infarction. London: National Collaborating Centre for Primary Care and Royal College of General Practitioners; 2007:I-23I.

- CORBIN DOC, PODDAR V, HENNIS A, ET AL. Incidence and case fatality rates of first-ever stroke in a black Caribbean population: The Barbados Register of Strokes. Stroke 2004;35:1254.
- **CURRY N, HAM C**. Clinical and service integration. The route to improve outcomes. London: The King's Fund; 2010.
- CUTLER JA, FOLLMANN D, ALLENDER PS. Randomized trials of sodium reduction: An overview. Am J Clin Nutr 1997;65(2 Suppl):643S-651.
- CUTLER JA, SORLIE PD, WOLZ M, ET AL. Trends in hypertension prevalence, awareness, treatment, and control rates in United States adults between 1988-1994 and 1999-2004. Hypertension 2008;52:818-27.
- CUTLER DM, LONG G, BERNDT ER, ET AL. The value of antihypertensive drugs: A perspective on medical innovation. Health Aff 2007;26:97-110.
- CHEN ZM, JIANG LX, CHEN YP, ET AL. Addition of clopidogrel to aspirin in 45,852 patients with acute myocardial infarction: randomised placebo controlled trial. Lancet 2005;366:1607-21.
- **CHIONG JR**. Controlling hypertension from a public health perspective. Int J Cardiol 2008;127:151-6.
- CHOBANIAN AV, BAKRIS GL, BLACK HR, ET AL. The Seventh Report of The Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: The JNC 7 Report. JAMA 2003;289:2560-72.

- CHOBANIAN AV. Shattuck Lecture. The hypertension paradoxmore uncontrolled disease despite improved therapy. NEJM 2009;361:878-87.
- DAAR A, SINGER P, LEAH PERSAD D, ET AL. Grand challenges in chronic non-communicable diseases. The top 20 policy and research priorities for conditions such as diabetes, stroke and heart disease. Nature 2007;450:494-6.
- DECLARATION OF COMMITMENT OF PORT OF SPAIN: SECURING OUR CITIZENS' FUTURE BY PROMOTING HUMAN PROSPERITY, ENERGY SECURITY, AND ENVIRONMENTAL SUSTAINABILITY.

  Port of Spain, Trinidad and Tobago: Fifth Summit of the Americas; 2009.
- DE LORGERIL M, SALEN P, MARTIN JL, ET AL. Mediterranean diet, traditional risk factors, and the rate of cardiovascular complications after myocardial infarction: final report of the Lyon Diet Heart Study. Circulation 1999;99:779-85.
- DEPARTMENT OF HEALTH AND HUMAN SERVICES, AGENCY FOR HEALTHCARE RESEARCH AND QUALITY. AHRQ Quality indicators. Washington, DC: AHQR; 2010.
- **DIETZ WH, BENKEN DE, HUNTER AS.** Public health law and the prevention and control of obesity. The Milbank Quarterly 2009;87:215-27.
- **DÍEZ E, FUENTES B**. Acute care of brain infarction. Do stroke units make difference? Cerebrovasc Dis 2001;11:31-9.

- **DIEZ ROUX AV, MAIR C**. Neighborhoods and health. Ann NY Acad Sci 2010;1186:125-45.
- DORN J, NAUGHTON J, IMAMURA D, ET AL. Results of a multicenter randomized clinical trial of exercise and long-term survival in myocardial infarction patients: the National Exercise and Heart Disease Project (NEHDP). Circulation 1999;100:1764-9.
- **DUBOIS CA, SINGH D, JIWANI I**. The human resource challenge in chronic care. 2008. In: Nolte E, McKee M, eds. Caring for people with chronic conditions: A health system perspective. Maidenhead: Open University Press:143–71.
- **EBRAHIM S, SMITH GD.** Lowering blood pressure: a systematic review of sustained effects of non-pharmacological interventions. J Public Health Med 1998;20:441-8.
- **EDDY DM, SCHLESSINGER L**. Validation of the Archimedes diabetes model. Diabetes Care 2003;26:2102-10
- EDDY DM, SCHLESSINGER L, KAHN R. Clinical outcomes and costeffectiveness of strategies for managing people at high risk for diabetes. Ann Intern Med 2005;143:251-64.
- Editorial. **Hypertension: uncontrolled and conquering THE WORLD**. Lancet 2007;370:539.
- EICHLER HG, BLOECHL-DAUM B, ABADIE E, ET AL. Relative efficacy of drugs: an emerging issue between regulatory agencies and third-party payers. Nature Revs 2010;9:277-91.
- **EPPING-JORDAN J ET AL**. Improving the quality of care for chronic conditions. Qual Safety Health Care 2004;13:299–305.

- EYRE H, KAHN R, ROBERTSON RM AND THE ACS/ADA/AHA
  COLLABORATIVE WRITING COMMITTEE. Preventing Cancer,
  Cardiovascular Disease, and Diabetes. A Common Agenda for the
  American Cancer Society, the American Diabetes Association, and
  the American Heart Association. Circulation 2004;109:3244-55.
- EZZATI M, LOPEZ AD, RODGERS A, ET AL. Comparative Risk Assessment Collaborating Group. Selected major risk factors and global and regional burden of disease. Lancet 2002;360:1347-60.
- FALASCHETTI E, CHAUDHURY M, MINDELL J, ET AL. Continued improvement in hypertension management in England: results from the Health Survey for England 2006. Hypertension 2009;53:480-6.
- FLEISCHER NL, DIEZ ROUX AV, ALAZRAQUI M, ET AL. Social patterning of chronic disease risk factors in a Latin American city. J Urban Health 2008;85:923-37.
- FLEISCHER NL, DIEZ ROUX A, ALAZRAQUI M, ET AL. Socioeconomic gradients in chronic disease risk factors in middle income countries: evidence of effect modification by urbanicity in Argentina. Am J Public Health 2011;101:294-301.
- FREEMANTLE N, CLELAND J, YOUNG P, ET AL. Beta blockade after myocardial infarction: systematic review and meta regression analysis. BMJ 1999;318:1730-7.
- FRIEL S, CHOPRA M, SATCHER D. Unequal weight: equity oriented policy responses to the global obesity epidemic. BMJ 2007;335:1241-3.

- GABRIELLI L, CASTRO P, VERDEJO H, ET AL. Predictores del síndrome coronario agudo sin supradesnivel ST y estratificación de riesgo en la unidad de dolor torácico. Experiencia en 1.168 pacientes. Rev Med Chile 2008;136:442-50.
- GENEAU R, STUCKLER D, STACHENKO S, ET AL. Raising the priority of preventing chronic diseases: a political process. Lancet 2010; 376:1689-98.
- **GIBBON** W. Medical schools for the health-care needs of the 21st century. Lancet 2007;369:2211-3.
- GIBBONS RJ, CHATTERJEE K, DALEY J, ET AL. ACC/AHA/ACP-ASIM guidelines for the management of patients with chronic stable angina: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee on Management of Patients With Chronic Stable Angina). J Am Coll Cardiol 1999;33:2092-197.
- GILSON L, RAPHAELY N. The terrain of health policy analysis in low and middle income countries: A review of published literature 1994-2007. Health Pol Plan 2008;23:294-307.
- GOLDMAN DP, JOYCE GF, ZHENG Y. Prescription drug cost sharing: Associations with medication and medical utilization and spending and health. JAMA 2007;298:61-9.
- GOMEZ LF, PARRA D, LOBELO F, ET AL. Television viewing and its association with overweight in Colombian children: Results from the 2005 National Nutrition Survey: A cross sectional study Int J Behav Nutr Phys Act 2007;4.

- GOMEZ LF, PARRA D, BUCHNER D, ET AL. Built environment attributes and walking patterns among the elderly population in Bogotá. Am J Prev Med 2010;30:592-9.
- GOMEZ LF, SARMIENTO OL, PARRA D, ET AL. Characteristics of the built environment associated with leisure-time physical activity among adults in Bogota, Colombia: A Multilevel Study. J Phys Activ Health 2010;7:S182-5.
- GONZALEZ-ZAPATA LI, ALVAREZ-DARDET C, MILLSTONE E, ET AL. The potential role of taxes and subsidies on food in the prevention of obesity in Europe. J Epidemiol Comm Health 2010;64:696-704.
- GOODACRE S, ANGELINI JA, REVILL S, ET AL. Clinical predictors of acute coronary syndromes in patients with undifferentiated chest pain. Q J Med 2003;96:893-8.
- GOODACRE S, NICHOLL J, DIXON S. Randomized controlled trial and economic evaluation of a chest pain observation unit compared with routine care. BMJ 2004;328:254-7.
- GORDON-LARSEN P, NELSON MC, PAGE P, ET AL. Inequality in the built environment underlies key health disparities in physical activity and obesity. Pediatrics 2006;117:417–24.

- Graham I, Atar D, Borch-Johnsen K, et al. European Guidelines on Cardiovascular Disease Prevention in Clinical Practice: Fourth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Prevention in Clinical Practice (constituted by representatives of nine societies and by invited experts). Eur J Cardiovasc Prev Rehabil 2007;14(Suppl. 2):SI-II3.
- Grimshaw JM , Thomas RE, MacLennan G, et al. Effectiveness and efficiency of guideline dissemination and implementation strategies. Health Technol Assess 2004;8(6).
- GRUPO DE TRABAJO DE LA SOCIEDAD EUROPEA DE CARDIOLOGÍA SOBRE MANEJO DEL INFARTO AGUDO CON ELEVACIÓN DEL SEGMENTO ST. Guías de práctica clínica de la Sociedad Europea de Cardiología sobre el manejo del infarto agudo del miocardio con elevación del segmento ST. Rev Esp Cardiol 2009;62:e7-47.
- HACHINSKI V, DONNAN GA, GORELICK PB, ET AL. Stroke: working towards a prioritized world agenda. Stroke 2010;41:1084-99.
- **HAM C**. The ten characteristics of the high-performing chronic care system. Health Econ Pol Law 2010;5:71-90.
- HAMMOND D, FONG GT, BORLAND R, ET AL. Text and graphic warnings on cigarette packages: Findings from the international tobacco control four country study. Am J Prev Med 2007;32:202-9.
- Hammond D. Tobacco labelling toolkit: Implementation. In: Hammond D, ed. Tobacco Labeling and Packaging Toolkit: a guide to FCTC article II. Waterloo: University of Waterloo; 2008.

- HASTINGS G, STEAD M, McDermott L, et al. Review of research on the effects of food promotion to children. London: Food Standards Agency; 2003.
- **HAWKES C.** Agricultural and food policy for cardiovascular health in Latin America. Prev Control 2006;2:137-47.
- **HAWKES** C. Agricultural and food policy for cardiovascular health in Latin America. Prevention and Control. J World Heart Fed 2007;2:137-47.
- **HAWKES** C. Promoting health diets and tackling obesity and dietrelated chronic diseases: What are the agricultural policy levers? Food Nutr Bull 2007;20:S312-22.
- **HAWKES C**. Regulating food marketing to young people worldwide: Trends and policy drivers. Am J Public Health 2007;97:1962-73.
- HAWKES C, THOW AM. The implications of the Central American Free Trade Agreement (CAFTA) for the nutrition transition in Central America. Pan Am J Public Health 2008;24:345-60.
- **HAWKES C, BLOUIN C, HENSON S, ET AL**, eds. Trade, Food, Diet and Health: Perspectives and Policy Options. Oxford: Wiley Blackwell; 2010.
- HE FJ, MACGREGOR GA. Effect of longer-term modest salt reduction on blood pressure. The Cochrane Database of Systematic Reviews. 2004;1-64.
- HENNEY JE, TAYLOR CL, BOON CS, ET AL. Strategies to reduce sodium intake in the United States. Washington, DC: The National Academies Press; 2010.

- HODGE JG, GARCIA AM, SHAH S. Legal themes concerning obesity regulation in the United States: Theory and practice. Aust New Zealand Health Pol 2008;5:14.
- HOEHNER CM, SOARES J, PEREZ DP, ET AL. Physical activity interventions in Latin America: a systematic review. Am J Prev Med 2008;34:224-33.
- HOOPER L, BARTLETT C, SMITH GD, ET AL. Systematic review of long term effects of advice to reduce dietary salt in adults. BMJ 2002;325:628-37.
- HYMAN DJ, PAVLIK VN. Characteristics of patients with uncontrolled hypertension in the United States. NEJM 2001;345:479-86.
- INSTITUTE FOR HEALTH METRICS AND EVALUATION. Financing Global Health 2010: Development assistance and country spending in economic uncertainty. Seattle, WA: IHME, 2010.
- **INSTITUTE OF MEDICINE**. Dietary reference intakes: Water, potassium, sodium, chloride, and sulfate. Washington, DC: The National Academy Press; 2004.
- Institute of Medicine. Promoting Cardiovascular Health in the Developing World: A Critical Challenge to Achieve Global Health. Fuster V, Kelly BB, eds. Committee on Preventing the Global Epidemic of Cardiovascular Disease: Meeting the Challenges in Developing Countries. Washington DC: National Academies of Science; 2010.

- ISIS-4 (FOURTH INTERNATIONAL STUDY OF INFARCT SURVIVAL) COLLABORATIVE GROUP. A randomized factorial trial assessing early captopril, oral mononitrate and intravenous magnesium sulphate in 58.050 patients with suspected acute myocardial infarction. Lancet 1995;345:669-85.
- JACKSON P, ROMO M, CASTILLO M, ET AL. Junk food consumption and child nutrition in Chile. Rev Med Chile 2004;132:1235-42.
- JACOBSON M. Liquid candy: How soft drinks are harming American's health. Washington, DC: Center for Science in The Public Interest; 2005.
- **JEAN MC, ST-PIERRE** L. Applicability of the success factors for intersectoriality in developing countries. France: IUHPE. 2009.
- **JHA P**. Curbing the epidemic: governments and the economics of tobacco control: development in practice; Washington, DC: World Bank; 1999.
- KACZYNSKI AT, POTWARKA LR, SAELENS BE. Association of park size, distance, and features with physical activity in neighborhood parks. Am J Public Health 2008;98:1451–6.
- KAHN EB, RAMSEY LT, BROWNSON RC, ET AL. The effectiveness of interventions to increase physical activity. A systematic review. Am J Prev Med 2002;22( Suppl. 4):73-107.
- KAIN J, UAUY R, VIO F, ET AL. Trends in overweight and obesity prevalence in Chilean children: Comparison of three definitions. Eur J Clin Nutr 2002; 56:200-4.

- KAPER J, WAGENA EJ, SEVERENS JL, ET AL. Healthcare financing systems for increasing the use of tobacco dependence treatment. Cochrane Database Syst Rev. 2005, Jan 25;I:CD004305. Review. Update in: Cochrane Database Syst Rev 2009;2:CD004305.
- **KEAMEY A, WHELTON M, REYNOLDS K, ET AL**. Global burden of hypertension: analysis of worldwide data. Lancet 2005;365:217-23.
- KEELEY EC, BOURA JA, GRINES CL. Primary angioplasty versus intravenous thrombolytic therapy for acute myocardial infarction: a quantitative review of 23 randomised trials. Lancet 2003;36I:I3–20.
- KILGORE ML, GOLDMAN DP. Drug costs and out-of-pocket spending in cancer clinical trials. Contemporary Clin Trial 2008;29:1-8.
- KNOOPS KT, DE GROOT LC, KROMHOUT D, ET AL. Mediterranean diet, lifestyle factors, and 10-year mortality in elderly European men and women: the HALE project. JAMA 2004;292:1433-39.
- **Kreatsoulas C, Anand SS**. The impact of social determinants on cardiovascular disease. Can J Cardiol 2010(Suppl. C):8C-13.
- **KROUSEL-WOOD MA, MUNTNER P, ISLAM T, ET AL.** Barriers to and determinants of medication adherence in hypertension management: perspective of the cohort study of medication adherence among older adults. Med Clin North Am 2009;93:753-69.

#### Krumholz HM, Anderson JL, Bachelder BL, et al. ACC/

AHA 2008 performance measures for adults with ST-elevation and non-ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to develop performance measures for ST-elevation and non-ST-elevation myocardial infarction): developed in collaboration with the American Academy of Family Physicians and the American College of Emergency Physicians: endorsed by the American Association of Cardiovascular and Pulmonary Rehabilitation, Society for Cardiovascular Angiography and Interventions, and Society of Hospital Medicine. Circulation 2008;118:2596-2648.

- LAMONTAGNE AD, KEEGEL T, LOUIE AM, ET AL. A systematic review of the job-stress intervention evaluation literature, 1990-2005. Int J Occup Environ Health 2007;13:268-80.
- LATINI R, TOGNONI G, MAGGIONI AP, ET AL. Clinical effects of early angiotensin-converting enzyme inhibitor treatment for acute myocardial infarction are similar in the presence and absence of aspirin: systematic overview of individual data from 96.712 randomized patients. Angiotensin-converting Enzyme Inhibitor Myocardial Infarction Collaborative Group. J Am Coll Cardiol 2000;35:1801-7.

- LATTIMORE SSU, CHALELA J, DAVIS L, ET AL. Impact of establishing a primary stroke center at a community hospital on the use of thrombolytic therapy: the NINDS suburban hospital stroke center experience. Stroke 2003;34;e55-57.
- LAVADOS PM, ANSELM JMH, FERNANDES JG, ET AL. Stroke epidemiology, prevention, and management strategies at a regional level: Latin America and the Caribbean. Lancet Neurol 2007;6:362-72.
- LAWES CM, VANDER HOORN S, LAW MR, ET AL. Blood pressure and the global burden of disease 2000. Part II: estimates of attributable burden. J Hypertens 2006;24:423-30.
- **LEEDER S, ET AL.** Race against time: The Challenge of Cardiovascular Disease in Developing Economies. New York: Trustees of Columbia University; 2004.
- **LEWIS WR, AMSTERDAM EA**. Defining the role of chestpain units. J Am Coll Cardiol 2001;37:2050-2.
- LIBURD LC, JACK L, WILLIAMS S, TUCKER P. Intervening on the Social Determinants of Cardiovascular Disease and Diabetes. Am J Prev Med 2005;29:18–24
- **LIGHTWOOD JM, GLANTZ SA**. Declines in acute myocardial infarction after smoke-free laws and individual risk attributable to secondhand smoke. Circulation 2009;120:1373-9.

- LIM SS, GAZIANO TA, GAKIDOU E, ET AL. Prevention of cardiovascular disease in high risk individuals in low-income and middle-income countries: health effects and costs. Lancet 2007;370:2054–62.
- LINDSAY P, BAYLEY M, McDonald A, ET al. Toward a more effective approach to stroke: Canadian Best Practice Recommendations for Stroke Care. CMAJ 2008;178:1418–25.
- LLOYD-JONES D, ADAMS R, CARNETHON M, ET AL. Heart disease and stroke statistics-2009 update: A report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Circulation 2009;119:480-6.
- LOPEZ A, MATHERS C, EZZATI M, ET AL. Global and regional burden of disease and risk factors, 2001: systematic analysis of population health data. Lancet 2006;367:1747-57.
- LOZADA M, SANCHEZ-CASTILLO CP, CABRERA GA, ET AL. School food in Mexican children. Public Health Nutr 2008;11:924-33.
- MAIR JS, PIERCE MW, TERET SP. The use of zoning to restrict fast food outlets: a potential strategy to combat obesity. Baltimore, MD: The Johns Hopkins & Georgetown Universities, The Center for Law and the Public's Health at Johns Hopkins & Georgetown Universities; 2005.

- MARCUS BH, WILLIAMS DM, DUBBERT PM, ET AL. Physical activity intervention studies: what we know and what we need to know: a scientific statement from the American Heart Association Council on Nutrition, Physical Activity, and Metabolism (Subcommittee on Physical Activity); Council on Cardiovascular Disease in the Young; and the Interdisciplinary Working Group on Quality of Care and Outcomes Research. Circulation 2006;114:2739-52.
- MÁRQUEZ-CALDERÓN S, JIMÉNEZ A, PEREA-MILLA E, ET AL., por el Grupo de Variaciones en la Práctica Médica en el Sistema Nacional de Salud (Grupo VPM-SNS). Variaciones en la hospitalización por problemas y procedimientos cardiovasculares en el Sistema Nacional de Salud. Atas Var Pract Med Sist Nac Salud 2007;2.
- McGinnis JM, Gootman JA, Kraak VI, eds. Food marketing to children and youth: threat or opportunity? Washington, DC: Institute of Medicine, National Academies Press; 2006.
- MEYERS DG, NEUBERG JS, HE J. Cardiovascular effect of bans on smoking in public places: a systematic review and meta-analysis. J Am Coll Cardiol 2009;54:1249-55.
- MINISTERIO DE SANIDAD Y POLÍTICA SOCIAL. Estrategia en ictus del Sistema Nacional de Salud. Madrid: MSPS; 2009.
- MORROW DA, ANTMAN EM, CHARLESWORTH A, ET AL. TIMI risk score for ST-elevation myocardial infarction: A convenient, bedside, clinical score for risk assessment at presentation: An intravenous nPA for treatment of infarcting myocardium early II trial substudy. Circulation 2000;102:2031-7.

- MORROW DA, ANTMAN EM, GIUGLIANO RP, ET AL. A simple risk index for rapid initial triage of patients with ST-elevation myocardial infarction: an InTIME II substudy. Lancet 2001;358:1571-5.
- MUJAHID MS, DIEZ ROUX AV, MORENOFF JD, ET AL. Neighborhood characteristics and hypertension. Epidemiol 2008;19:590-8.
- MUJAHID MS, DIEZ ROUX AV, SHEN M, ET AL. Relation between neighborhood environments and obesity in the Multi-Ethnic Study of Atherosclerosis. Am J Epidemiol 2008;167:1349-57.
- MYTTON O, GRAY A, RAYNER M, ET AL. Could targeted food taxes improve health? J Epidemiol Comm Health 2007;61:689-94.
- NATHAN DM, BUSE JB, DAVIDSON MB, ET AL. Management of hyperglycemia in type 2 diabetes: a consensus algorithm for the initiation and adjustment of therapy: a consensus statement from the American Diabetes Association and the European Association for the Study of Diabetes. Diabetes Care 2006;29:1963–72.
- NATIONAL INSTITUTE FOR HEALTH AND OF CLINICAL EXCE-LLENCE. Secondary prevention in primary and secondary care for patients following a myocardial infarction. London: NICE; 2007.
- NATIONAL INSTITUTE FOR HEALTH AND OF CLINICAL EXCE-LLENCE. Chest pain of recent onset. Assessment and diagnosis of recent onset chest pain or discomfort of suspected cardiac origin. London: NICE; 2010.
- NATIONAL INSTITUTE FOR HEALTH AND OF CLINICAL EXCELLENCE. Unstable angina and NSTEMI. London: NICE; 2010.

- NG N, MINH HV, JUVEKAR S, ET AL. Using the INDEPTH HDSS to build capacity for chronic non-communicable disease risk factor surveillance in low and middle-income countries. Global Health Action 2009;2(Suppl. 1), doi:10.3402/gha.v2i0.198.
- **NOLTE E, MCKEE M.** Integration and chronic care: A review. In: Nolte E, McKee M, eds. Caring for people with chronic conditions: A health system perspective. Maidenhead: Open University Press; 2008:64–91.
- O'DONNELL MJ, XAVIER D, LISHENG L, ET AL. Risk factors for ischaemic and intercerebral haemorrhagic stroke in 22 countries (The INTERSTROKE study): a case-control study. Lancet 2010;376:112-23.
- OKONOFUA EC, SIMPSON KN, JESRI A, ET AL. Therapeutic inertia is an impediment to achieving the Healthy People 2010 blood pressure control goals. Hypertension 2006;47:345-51.
- ONG MK, GLANTZ SA. Free nicotine replacement therapy programs vs implementing smoke-free workplaces: A cost-effectiveness comparison. Am J Public Health 2005;95:969-75.
- ORDUÑEZ P, MUNOZ J, PEDRAZA D, ET AL. Success in control of hypertension in a low-resource setting: the Cuban experience. J Hypertens 2006;24:845-9.
- ORDUÑEZ P, BARCELO A, BERNAL JL, ET AL. Risk factors associated with uncontrolled hypertension: Findings from the baseline CARMEN survey in Cienfuegos, Cuba. J Hypertens 2008;26:663–71.

- PALAR K, STURM R. Potential societal savings from reduced sodium consumption in the U.S. adult population. Am J Health Prom 2009;24:49-57.
- PAN AMERICAN HEALTH ORGANIZATION. Tobacco industry activities to market cigarettes and undermine public health in Latin America and the Caribbean. Washington, DC: PAHO; 2002.
- PAN AMERICAN HEALTH ORGANIZATION. Renewing primary health care in the Americas. Washington, DC: PAHO; 2007.
- PAN AMERICAN HEALTH ORGANIZATION. Health Agenda for the Americas. 2008-2017. Washington, DC: PAHO; 2007.
- PAN AMERICAN HEALTH ORGANIZATION, World Health Organization Task Force. Trans fat free Americas: Conclusions and recommendations. Washington, DC: PAHO; 2007.
- PAN AMERICAN HEALTH ORGANIZATION. Regional strategy and plan of action on an integrated approach to the prevention and control of chronic diseases. Washington, DC: PAHO; 2007.
- PAN AMERICAN HEALTH ORGANIZATION. Trans fat free Americas: Declaration of Rio de Janeiro. Rio de Janeiro, Brazil: PAHO; 2008.
- PAN AMERICAN HEALTH ORGANIZATION. Integrated health service delivery networks. Concepts, policy options, and a road map for implementation in the Americas. Washington, DC: PAHO; 2011.

- PAN AMERICAN HEALTH ORGANIZATION, World Health Organization Task Force. Trans fat free Americas: Conclusions and recommendations. Washington, DC: PAHO; 2007.
- PAN AMERICAN HEALTH ORGANIZATION. Regional strategy and plan of action on an integrated approach to the prevention and control of chronic diseases. Washington, DC: PAHO; 2007.
- PAN AMERICAN HEALTH ORGANIZATION. Trans fat free Americas: Declaration of Rio de Janeiro. Rio de Janeiro, Brazil: PAHO; 2008.
- PAN AMERICAN HEALTH ORGANIZATION. STRATEGY AND PLAN OF ACTION FOR CHAGAS DISEASE PREVENTION, CONTROL, AND CARE. The 50th Directing Council. Resolution CD50.R17. Washington, DC: PAHO; 2010.
- PANJU AA, HEMMELGARN BR, GUYATT GH, ET AL. The rational clinical examination. Is this patient having a myocardial infarction? JAMA 1998;280:1256-63.
- PARRA D, GOMEZ LF, PRATT M, ET AL. Policy and built environment changes in Bogotá and their importance in health promotion. Indoor Built Environ 2007;16:344-8.
- PARRA D, LOBELO F, GOMEZ LF, ET AL. Household Motor vehicle use and weight status among Colombian Adults: Are we driving our way towards obesity? Prev Med 2009;49:179-83.
- PASTOR LF, PAVÓN R, REINA M. Chest pain unit: one-year follow-up. Rev Esp Cardiol 2002;55:1021-7.

- **PEÑA M, BACALLAO J**. Obesity and poverty: a new public challenge. Washington, DC: PAHO; 2000.
- Pereira M, Lunet N, Azevedo A, et al. Differences in prevalence, awareness, treatment and control of hypertension between developing and developed countries. J Hypertens 2009;27:963-75.
- PEREZ DE ARENAZA D, TANEJA AK, FLATHER M. Long distance transport for primary angioplasty vs immediate thrombolysis in acute myocardial infarction (PRAGUE-2 trial). Eur Heart J 2003;24:1798.
- PERMANYER-MIRALDA G, FERREIRA-GONZALEZ I, RIBERA A. Optimal therapy for acute coronary syndromes: the more the better? Circulation 2004;110:e52.
- PHILLIPS LS, TWOMBLY JG. It's time to overcome clinical inertia. Ann Intern Med 2008;148:783-5.
- **POWELL LM, CHALOUPKA FJ.** Food prices and obesity: Evidence and policy implications for taxes and subsidies. The Milbank Quarterly 2009;87:229-57.
- **PSATY B, LUMLEY T, FURBERG C, ET AL**. Health outcomes associated with various antihypertensive therapies used as first-line agents. A network meta-analysis. JAMA 2003;289:2534-44.
- **Puig-Junoy J, Peiró S**. De la utilidad de los medicamentos al valor terapéutico añadido y a la relación coste-efectividad incremental. Rev Esp Salud Pública 2009;83:59-70.
- QUAM L, SMITH R, YACH D. Rising to the global challenge of the chronic disease epidemic. Lancet 2006;368:1221-3.

- RICE VH, STEAD LF. Nursing interventions for smoking cessation. Cochrane Database Syst Rev 2004;(1):CD001188.
- RUBINSTEIN A, GARCIA MARTI S, SOUTO A, ET AL. Generalized cost-effectiveness analysis of a package of interventions to reduce cardiovascular disease in Argentina. Cost Eff Resour Alloc 2009;7:10.
- **RUSSELL LB**. Preventing chronic disease: An important investment, but don't count on cost savings. Health Aff 2009;28:42-5.
- SABATINE MS, CANNON CP, GIBSON CM, ET AL. Addition of clopidogrel to aspirin and fibrinolytic theraphy for myocardial infarction with ST segment elevation. NEJM 2005;352:1179-89.
- SAELENS BE, SALLIS JF, BLACK JB, ET AL. Neighborhood-based differences in physical activity: an environment scale evaluation. Am J Public Health 2003;93:1552–8.
- SALLIS JF, CERVERO R, ASCHER WW, ET AL. An ecological approach to creating active living communities. Annu Rev Public Health 2006;27:297-322.
- SCHARGRODSKY H, ET AL. for the CARMELA Study Investigators. CARMELA: Assessment of Cardiovascular Risk in Seven Latin American Cities. Am J Med 2008; 121:58-65.
- SCHWAMM LH, AUDEBERT H, AMARENCO P. Recommendations for implementation of telemedicine within strokes systems of care. A policy statement from the American Heart Association. Stroke 2009;40:2635-60.

- SCHWAMM LH, FAYAD P, ACKER JE, ET AL. Translating evidence into practice: A decade of efforts by the American Heart Association/American Stroke Association to reduce death and disability due to stroke. Stroke 2010;41:1051-65.
- SEBRIE E, BARNOYA J, PEREZ-STABLE E, ET AL. Tobacco industry successfully prevented tobacco control legislation in Argentina. Tobacco Control 2005; 14:e2.
- SHAKARISHVILI G.: Building on Health Systems Frameworks for Developing a Common Approach to Health Systems Strengthening. World Bank, The Global Fund and The GAVI Alliance. Technical Workshop on Health Systems Strengthening. Washington, DC, June 25-27, 2009. Washington, DC: The World Bank; 2009.
- SILVA H, HERNANDEZ-HERNANDEZ R, VINUEZA R, ET AL., on behalf of the CARMELA Study Investigators. Cardiovascular risk awareness, treatment, and control in urban Latin America. Am J Ther 2010;17:159-66.
- SINGH GK, KOGAN MD, VAN DYCK PC. Changes in state-specific childhood obesity and overweight prevalence in the United States from 2003 to 2007. Arch Pediatr Adolescent Med 2010;164:598-607.
- SMITH-SPANGLER CM, JUUSOLA JL, ENNS EA, ET AL. Population strategies to decrease sodium intake and the burden of cardio-vascular disease: A cost-effectiveness analysis. Ann Intern Med 2010;152:481-7.
- **SODIUM WORKING GROUP**. Sodium reduction strategy for Canada. Ottawa: Health Canada; 2010.

- **STEAD LF, LANCASTER T**. Group behaviour therapy programmes for smoking cessation. Cochrane Database Syst Rev. 2005, Apr 18;2:CD001007.
- STEG PG, BONNEFOYE E, CHABAUD S, ET AL. Impact of time to treatment on mortality after prehospital fibrinolysis or primary angioplasty: data from the CAPTIM Randomized Clinical Trial. Circulation 2003;108:2851–6.
- **STERN M, WILLIAMS K, EDDY D, ET AL**. Validation of prediction of diabetes by the Archimedes Model and comparison with other predicting models. Diabetes Care 2008;31:1670-1.
- STURM R, POWELL LM, CHRIQUI JF, ET AL. Soda taxes, soft drink consumption, and children's body mass index. Health Aff 2010;29:1052-8.
- SUHRCKE M, NUGENT RA, STUCKLER D, ET AL. Chronic Disease: An economic perspective. London: Oxford Health Alliance 2006.
- TAYLOR RS, BROWN A, EBRAHIM S, ET AL. Exercise-based rehabilitation for patients with coronary heart disease: systematic review and meta-analysis of randomized controlled trials. Am J Med 2004;I16:682-92.
- THE CANADIAN HEART HEALTH STRATEGY ACTION PLAN STEERING COMMITTEE. The Canadian Heart Health Strategy Action Plan. Otawa, Ontario: CHHAP Steering Committee; 2009.

- THE TASK FORCE FOR THE MANAGEMENT OF ARTERIAL HYPERTENSION OF THE EUROPEAN SOCIETY OF HYPERTENSION (ESH), AND THE EUROPEAN SOCIETY OF CARDIOLOGY (ESC). 2007 Guidelines for the management of arterial hypertension. Eur Heart J 2007;28:1462-1536.
- **THOW AM, HAWKES C**. The implications of trade liberalization for diet and health: a case study from Central America. Globalization Health 2009;5:5.
- Torgerson, RC. Interprofessional education. Health Policy Monitor, 6, October 2005. Auckland: University of Auckland, Centre for Health Services Research and Policy; 2005.
- TROWBRIDGE R, WEINGARTEN S. Educational Techniques used in changing provider behavior. In: Shojania KG, Duncan BW, McDonald KM, et al., eds. Making Health Care Safer: A Critical Analysis of Patient Safety Practices. Evidence Report/Technology Assessment No. 43 (Prepared by the University of California at San Francisco-Stanford Evidence-based Practice Center under Contract No. 290-97-0013), AHRQ Publication No. 01-E058. Rockville, MD: Agency for Healthcare Research and Quality;2001:595-9.
- **TSENG CW, BROOK RH, KEELER E, ET AL.** Cost-lowering strategies used by Medicare beneficiaries who exceed drug benefit caps and have a gap in drug coverage. JAMA 2004;292:952-60.
- United States Department of Health and Human Services.
  Physical Activity Guidelines Advisory Committee. Physical Activity Guidelines Advisory Committee Report, 2008. Washington,

- DC: U.S. Department of Health and Human Services; 2008.
- UNITED STATES PUBLIC HEALTH SERVICE. A clinical practice guideline for treating tobacco use and dependence: 2008 update. A U.S. Public Health Service report. AM J Prev Med 2008;35:158-76.
- United States Surgeon General's Report 2006. Health consequences of involuntary exposure to tobacco smoke. Rockville, MD: Department of Health and Human Services; 2006.
- United States Task Force on Community Preventive Services.

  Recommendations to increase physical activity in communities.

  Am J Prev Med 2002;22(Suppl. 4):67-72.
- VAN MOURIK MSM, CAMERON A, EWEN M, ET AL. Availability, price and affordability of cardiovascular medicines: A comparison across 36 countries using WHO/HAI data. BMC Cardiovascular disorders 2010;10:25.
- VARGAS RB, MANGIONE CM, ASCH S, ET AL. Can a chronic care model collaborative reduce heart disease risk in patients with diabetes? J Gen Intern Med 2007;22:215–22.
- VASAN RS, BEISER A, SESHADRI S, ET AL. Residual lifetime risk for developing hypertension in middle-aged women and men: The Framingham Heart Study. JAMA 2002;287:1003-10.
- Von Korff M, Schaefer J, Davis C, et al. Twelve evidence-based principles for implementing self-management support in primary care. Jt Comm J Qual Patient Safety 2010;36:561-70.
- **WACHTER RM**. Safety at ten: unmistakable progress, troubling gaps. Health Aff 2010;21:1-9.

- WAGNER E, AUSTIN B, VON KORFF M. Organizing care for patients with chronic illness. The Milbank Quarterly 1996;74:511-44.
- WAGNER EH, GLASGOW RE, DAVIS C, ET AL. Quality Improvement in Chronic Illness Care: A Collaborative Approach. Jt Comm J Qual Improv 2001;27:63-80.
- WANG TJ, VASAN RS. Epidemiology of uncontrolled hypertension in the United States. Circulation 2005;112:1651-62.
- **WANG Y, LOBSTEIN T.** Worldwide trends in childhood overweight and obesity. Int J Pediatr Obesity 2006;I:II-25.
- WARD S, LLOYD JM, PANDOR A, ET AL. A systematic review and economic evaluation of statins for the prevention of coronary events. Health Technol Assess 2007;II:I-160.
- WESTERN PACIFIC REGIONAL ACTION PLAN FOR NONCOMMUNI-CABLE DISEASES. Geneva: World Health Organization; 2009.
- WILLIAMS PT. Physical fitness and activity as separate heart disease risk factors: a meta-analysis. Med Sci Sports Exerc 2001;33:754-61.
- **WORLD ALLIANCE FOR PATIENT SAFETY.** Summary of the evidence on patient safety: implications for research. Geneva: WHO; 2008.
- **WORLD BANK**. Brazil: Addressing the challenge of non-communicable diseases in Brazil. Washington, DC: World Bank; 2005.
- **WORLD HEALTH ORGANIZATION**. The world health report 2002. Reducing risks, promoting healthy life. WHO: Geneva; 2002.
- WORLD HEALTH ORGANIZATION, Nutrition and Food Security Programme. Food based dietary guidelines in the WHO European Region. Copenhagen: WHO; 2003.

- World Health Organization. Diet, nutrition and the prevention of chronic diseases, Report of a Joint WHO/FAO Expert Consultation. Geneva: WHO; 2003. Technical Report 916.
- **WORLD HEALTH ORGANIZATION**. WHO framework convention on tobacco control. Geneva: WHO; 2003.
- WORLD HEALTH ORGANIZATION. Equitable access to essential medicines: a framework for collective action. WHO Policy Perspectives on Medicines No. 8. Geneva: WHO; 2004.
- **WORLD HEALTH ORGANIZATION**. Preventing chronic diseases: a vital investment. Geneva: WHO; 2005.
- **WORLD HEALTH ORGANIZATION**. Tobacco warning labels. Geneva: Framework Convention Alliance for Tobacco Control, WHO; 2005.
- **WORLD HEALTH ORGANIZATION**. Health and the Millennium Development Goals. Geneva: WHO; 2005.
- **WORLD HEALTH ORGANIZATION**. WHO operational package for assessing, monitoring and evaluation country pharmaceutical situations. Geneva: WHO; 2006.
- WORLD HEALTH ORGANIZATION. International trade and health. In: 59th World Health Assembly Resolution WHA59.26, Agenda item II.IO 27. Geneva: WHO; 2006.
- World Health Organization. Reducing salt intake in populations: Report of a WHO Forum and Technical Meeting 5-7 October, 2006 Paris, France. Geneva: WHO; 2007.
- **WORLD HEALTH ORGANIZATION**. Policy recommendations on protection from exposure to second-hand tobacco. Geneva: WHO; 2007.

- World Health Organization. Prevention of cardiovascular disease. Guidelines for assessment and management of cardiovascular risk. Geneva: WHO; 2007.
- **WORLD HEALTH ORGANIZATION**. 2008-2013 action plan for global strategy for the prevention and control of noncommunicable diseases: prevent and control cardiovascular diseases, cancers, chronic respiratory diseases and diabetes. Geneva: WHO; 2008.
- **WORLD HEALTH ORGANIZATION**. The World Health Report 2008. Primary Care. Now more than ever. Geneva: WHO; 2008.
- **WORLD HEALTH ORGANIZATION**. WHO Report on the global tobacco epidemic, 2008: The MPOWER package. Geneva: WHO; 2008.
- WORLD HEALTH ORGANIZATION, Commission on Social Determinants of Health. Closing the gap in a generation: Health equity through action on the Social Determinants of Health. Final Report of the Commission on Social Determinants of Health. Geneva: WHO; 2008.
- World Health Organization. Global health risks: Mortality and burden of disease attributable to selected major risks. Geneva: WHO; 2009.
- World Health Organization. WHO Report on the Global Tobacco Epidemic, 2009: Implementing smoke-free environments. Geneva: WHO; 2009.
- **WORLD HEALTH ORGANIZATION**. Global strategy to reduce the harmful use of alcohol. Geneva: WHO; 2010.

- World Health Organization. Set of recommendations on the marketing of foods and non-alcoholic beverages to children. Geneva: WHO; 2010.
- **WORLD HEALTH ORGANIZATION**. Package of essential noncommunicable (PEN) disease interventions for primary health care in low-resource settings. Geneva: World Health Organization; 2010.
- **WORLD HEART FEDERATION**. State of the Heart. Cardiovascular Disease Report 2010.Geneva: WHF; 2010.
- YUSUF S, HAWKEN S, OUNPUU S, ET AL. Effect of potentially modifiable risk factors associated with myocardial infraction in 52 countries (the INTERHEART study): a case- control study. Lancet 2004;364:937-52.
- ZALENSKY RJ, SELKER HP, CANNON CP, ET AL. National Heart Attack Alert Program position paper: chest pain centers and programs for the evaluation of acute cardiac ischemia. Ann Emerg Med 2000;35:462-71.
- ZIRABA AK, FOTSO JC, OCHAKO R. Overweight and obesity in urban Africa: A problem of the rich or the poor? BMC Public Health 2009;9:465.

# Appendix

Consultation participants
Summary of priorities and checklist

CECILIA ACUÑA, MD,

Pan American Health Organization, Washington, DC, United States of America

CLOER ALVES, MD, MBA,

Pontificia Universidad Católica do Rio Grande do Sul, Rio Grande do Sul, Brazil

Norma Astudillo, MD,

Ministerio de Salud de Panamá, Cuidad de Panamá, Panama

ALBERTO BARCELÓ, MD, MPH,

Pan American Health Organization, Washington, DC, United States of America

SIMÓN BARQUERA, MD, MPH, PhD,

Instituto Nacional de Salud Pública, México, DF, Mexico

M. J. Armando Barriguete, MD, PhD, FAED,

Consejo Nacional para la Prevención de las Enfermedades Crónicas, México, DF, Mexico

Luis Beingolea, MD,

Organismo Andino de Salud, Convenio Hipólito Unanue, Lima, Peru

ADRIANA BLANCO, MD, MA,

Pan American Health Organization, Washington, DC, United States of America

CARLOS BOISSONET, MD, MCE,

Centro de Educación Médica e Investigaciones Clínicas, Buenos Aires, Argentina Dora Caballero, MD, MPH,

Pan American Health Organization, La Paz, Bolivia

José Enrique Cabrera, MD, MGC,

Pan American Health Organization, Washington, DC, United States of America

NORM CAMPBELL, MD,

University of Calgary, Calgary, Alberta, Canada

CARLOS CAMPILLO ARTERO, MD, MPH, PhD,

Servicio de Salud de las Islas Baleares, Palma de Mallorca, Spain

RICARDO CAÑIZARES, MD,

Organismo Andino de Salud, Convenio Hipólito Unanue, Lima, Peru

José L. Castro, MD,

Pan American Health Organization, Washington, DC, United States of America

María Teresa Cerqueira, MS, PhD,

Pan American Health Organization, El Paso, TX, United States of America

RICHARD COOPER, MD,

Loyola University School of Medicine, Maywood, IL, Estados Unidos de America

DAVID CORBIN, MA, MB, MRCP, FRCP,

Queen Elizabeth Hospital, Bridgetown, Barbados

#### CONSULTATION PARTICIPANTS

SALVADOR CRUZ FLORES, MD, MPH,

Souers Stroke Institute, St. Louis, MO,

United States of America

GERARDO DE COSÍO, MD, MPH,

Pan American Health Organization, Washington, DC,

United States of America

BEATRIZ CHAMPAGNE, PhD,

Interamerican Hearth Foundation, Dallas, Texas,

United States of America.

POL DE VOS, MD, PhD,

Institute of Tropical Medicine in Antwerp, Amberes, Belgium

ROBERTO DEL ÁGUILA, MD, MPH,

Pan American Health Organization, Santiago de Chile, Chile

SANTOS DEPINE, MD, MCO,

Fundación Vida Saludable, Buenos Aires, Argentina

Ana Victoria Díez Roux, MD, MPH, PhD,

University of Michigan, Ann Arbor, MI,

United States of America

SAUL DRAJER, MD,

International Liaison Committee on Resuscitation,

Buenos Aires, Argentina

María C. Escobar, MD, MPH,

Ministerio de Salud de Chile, Santiago de Chile, Chile

Alfredo Darío Espinosa Brito, MD, PhD,

Sociedad Latinoamericana de Medicina Interna, Cienfuegos, Cuba

NICOLE FEDDER WENDE, MBA, BSN,

Alexian Brothers Health System, Arlington Heights, IL,

Estados Unidos de America

Daniel Ferrante, MD, MCE,

Fundación Grupo de Estudio en Investigación Clínica

en Argentina, Buenos Aires, Argentina

Eleazar García, MD,

Sociedad Venezolana de Cardiología, Caracas, Venezuela

Hamilton García, MD, MPH,

Ministerio de Salud de Perú, Lima, Peru

Jaime Goich Tirado, MD,

Sociedad Interamericana de Cardiología, Santiago de Chile, Chile

Luis F. Gómez, MD, MSP,

Fundación FES Social, Bogotá, Colombia

Rubén Grajeda, MD, MSc,

Pan American Health Organization, Washington, DC,

United States of America

Hugo Omar Grancelli, MD,

Universidad de Buenos Aires, Buenos Aires, Argentina

GUILLERMO GUIBOVICH, MD, MPH,

Pan American Health Organization, Bogotá, Colombia

TREVOR HASSELL, GCM, MBBS, FRCP, FACC,

University of West Indies, Cave Hill, Barbados

CORINNA HAWKES, BsC, PhD,

University of São Paulo, São Paulo, Brazil

Blanca Hernández, MD, MPH,

Ministerio de la Protección Social de Colombia, Bogotá, Colombia

MAURICIO HERNÁNDEZ, MD, MPH,

Ministerio de Salud, México, DF, Mexico

BEATRIZ HEYERMANN, MD, MPH,

Ministerio de Salud, Santiago de Chile, Chile

REYNALDO HOLDER, MD, MPH,

Pan American Health Organization, Washington, DC, United States of America

JAMES C. HOSPEDALES, MD, MPH,

Pan American Health Organization, Washington, DC, United States of America

JUDY IRIGOYEN, MD, MPH,

Ministerio de Salud de Ecuador, Quito, Ecuador

ENRIQUE JACOBY, MD, MPH,

Pan American Health Organization, Washington, DC, United States of America

WISTERMUNDO JONES, MD,

Sociedad Interamericana de Cardiología, San Juan, Puerto Rico

Tomo Kanda, MD,

Pan American Health Organization, Bridgetown, Barbados

BEATRIZ LAROCCA, MD,

Ministerio del Poder Popular para la Salud de la Republica Bolivariana de Venezuela, Caracas, Venezuela Branka Legetic, MD, MPH, PhD,

Pan American Health Organization, Washington, DC, United States of America

HUBERT LINDERS, BS,

Consumers International, Santiago de Chile, Chile

M. Patrice Lindsay, PhD, MED, BScN, RN,

Canadian Stroke Network, Ontario, Canada

SILVANA LUCIANI, MHSC

Pan American Health Organization, Washington, DC, United States of America

DIEGO IVÁN LUCUMÍ CUESTA, MD, MPH, PhD,

Fundación FES Social, Bogotá, Colombia

Washington Lum, MD, MPH,

Pan American Health Organization, Caracas, Venezuela

LORENZO LLERENA ROJAS, MD,

Instituto de Cardiología y Cirugía Cardiovascular, La Habana, Cuba

MATILDE MADALENO, MD, MPH,

Pan American Health Organization, Washington, DC, United States of America

MIGUEL MALO, MD, MPH,

Pan American Health Organization, Lima, Peru

Nelly Marín, MPH, MGD,

Pan American Health Organization, Washington, DC, United States of America

### CONSULTATION PARTICIPANTS

FÁTIMA MARINHO, MD, MPH, PhD,

Pan American Health Organization, Washington, DC, United States of America

José Alejandro Martínez, MD,

Universidad Católica de Chile, Santiago de Chile, Chile

RAMÓN MARTÍNEZ, MD, MSc,

Pan American Health Organization, Washington, DC, United States of America

MICHELINE MEINERS, MPHARM,

Pan American Health Organization, Brasilia, Brazil

SHANTHI MENDIS, MBBS, MD, FRCP, FACC,

Organización Mundial de la Salud, Ginebra, Switzerland

Jaime Miranda, MB, MD, MSc, PhD,

Universidad Peruana Cayetano Heredia, Lima, Peru

ROLANDO MIYAR, MD, MPH,

Pan American Health Organization, la Habana, Cuba

MARÍA D. MONTSERRAT CAPELLA, MD, MPH,

Pan American Health Organization, Washington, DC, United States of America

MARCIA MOREIRA, MD, MPH,

Pan American Health Organization, Buenos Aires, Argentina

Víctor R. Navarro, MD, PhD,

Hospital Gustavo Aldereguía, Cienfuegos, Cuba

PEDRO ORDÚÑEZ GARCÍA, MD, MPH, PhD,

Pan American Health Organization, Washington, DC, United States of America

ABSALÓN PACHECO, MD,

Ministerio de Salud y Deportes de Bolivia, La Paz, Bolivia

Antonio Palandri Chagas, MD, PhD, FACC, FESC,

Sociedade Brasileira de Cardiologia, São Paulo, Brazil

MANUEL PEÑA, MD, PhD, Pan American Health Organization, Ciudad de Panamá, Panama

ENRIQUE PÉREZ FLORES, MD, MPH,

Pan American Health Organization, Washington, DC, United States of America

María E. Pérez, MD,

Pan American Health Organization, Washington, DC, United States of America

Mario Pichardo Díaz, MD, MPH

Pan American Health Organization, La Habana, Cuba

MARCO PINEL, MD, MPH,

Pan American Health Organization, Quito, Ecuador

José D. Piñeiro, MD,

Sociedad Interamericana de Cardiología, Buenos Aires, Argentina

ELISA PRIETO, MD, MPH,

Pan American Health Organization Washington, DC, United States of America

### STEPHEN PRUDHOMME, MSc,

American Stroke Association, Dallas, TX, United States of America

### CRISTINA PUENTES-MARKIDES, MA, MPH,

Pan American Health Organization, Washington, DC, United States of America

### MANUEL RAMÍREZ, MD, PhD,

Instituto de Nutrición de Centroamérica y Panamá, Ciudad de Guatemala, Guatemala

### Antonio Luis Ribeiro, MD,

Universidad Federal de Minas Gerais, Hospital das Clínicas de Belo Horizonte, Belo Horizonte, Brazil

# Francisco Rojas Ochoa, MD, MPH, PhD,

Instituto Superior de Ciencias Médicas de La Habana, La Habana, Cuba

## Martín Rosas Peralta, MD, MSc, PhD,

Universidad Autónoma de México, México, DF, Mexico

### ADOLFO LUIS RUBINSTEIN, MD, MSc, PhD,

Instituto de Efectividad Clínica y Sanitaria, Buenos Aires, Argentina

# Verónica Schoj, MD,

Fundación Interamericana del Corazón, Buenos Aires, Argentina

## Iván Sierra, MD,

Asociación Latinoamericana de Diabetes, Bogotá, Colombia

SYLVIA STACHENKO, MD, MPH, PhD,

University of Alberta, Alberta, Canada

Julio Suárez, MD, MPH,

Pan American Health Organization, Santiago de Chile

ENRIQUE VEGA GARCÍA, MD, MSc,

Pan American Health Organization, Washington, DC, United States of America

HÉCTOR O. VENTURA, MD, FACC, FACP,

Ochsner Clinic Foundation, New Orleans, LA,

United States of America

### SUMMARY OF PRIORITIES AND CHECKLIST

		Імрі	EMENTATION S	STATUS
No.	Priorities	In progress	Pending	DEEMED UNNECESSARY
I	Policy and Advocacy			
	Multisectoral action and social determinants			
1	A high-level multisectoral committee is in place to coordinate population-level prevention activities.	$\bigcirc$	$\bigcirc$	
2	One of the CVD plan's specific objectives is to reduce inequalities in the distribution of risk, the burden of disease, and prevention and control activities.			$\bigcirc$
3	Networks are in place to share best practices derived from CVD prevention and control policies.			
	Universal coverage and equitable access to health services			
4	Progress is being made toward universal coverage and equitable access to health services.			
5	Evidence-based prevention and control interventions have been integrated into existing social health protection systems.	$\bigcirc$	$\bigcirc$	
6	The most economically disadvantaged population groups have access to essential medicines and technologies.	$\bigcirc$	$\bigcirc$	

		IMPL	EMENTATION S	STATUS
No.	Priorities	In progress	Pending	DEEMED UNNECESSARY
	Integration and sustainability of interventions			
7	An essential strategic element of this type of plan should be to connect all of the recommended actions in a coherent set of interwoven interventions revolving around a single focus and avoid their disaggregation.			
8	Population-wide and high-risk policies are prioritized to create environments that facilitate healthy choices.			
9	A guaranteed budget is in place, based on the burden of CVDs, the cost-effectiveness of technologies and interventions relative to their social value, their budgetary impact, and the principle of equity. The health services portfolio is periodically adjusted in accordance with these criteria.			
10	Mechanisms are in place to predict, monitor, evaluate, and control resource utilization and health expenditures for people with CVDs and other chronic diseases.			

### SUMMARY OF PRIORITIES AND CHECKLIST

		Імрі	EMENTATION S	STATUS
No.	Priorities	In progress	Pending	DEEMED UNNECESSARY
II	Surveillance			
	Integration of information systems			
11	CVD surveillance has been integrated into the existing health information system and there is a regular budget for it.			$\bigcirc$
	Mortality data and risk factor surveillance			
12	Mortality data with good coverage and quality are available.			
13	Up-to-date information on prevalence and trends of the principal risk factors is available and disaggregated by age, sex, ethnicity, geographical distribution, and socioeconomic profile.			$\bigcirc$
	Health services performance and economic assessments			
14	A basic set of indicators is in place for health services coverage, access, performance, quality of care, intervention costs, and efficiency.	$\bigcirc$	$\bigcirc$	
15	Economic assessments of the impact of these diseases and the interventions undertaken are being conducted.	$\bigcirc$	$\bigcirc$	

		Імрі	IMPLEMENTATION STATUS		
No.	Priorities	In progress	Pending	DEEMED UNNECESSARY	
	Information sharing				
16	A system for information dissemination and feedback is in place to facilitate regular information- sharing between the general public, providers, and financiers.				
	Technical capability				
17	Sufficient human and technology resources are available.				

		Імри	EMENTATION S	STATUS
No.	Priorities	In progress	Pending	DEEMED UNNECESSARY
III	HEALTH PROMOTION AND DISEASE PREVENTION			
	Tobacco			
18	The WHO Framework Convention on Tobacco Control has been ratified by the country.			$\bigcirc$
19	Legal instruments are available that prohibit smoking in all enclosed public spaces and in private ones with public access.			$\bigcirc$
20	Taxes have been raised on tobacco and the retail price of cigarettes.			
21	Legal instruments that impose a total ban on the advertising, promotion, and sponsorship of products that contain tobacco are in place.			$\bigcirc$
22	Legal instruments are in place that mandate warning labels on packaging that comply with FCTC guidelines and include images of the harm caused by tobacco use and exposure to smoke.			
23	Smoking cessation treatment is available to anyone who seeks it.			$\bigcirc$
24	Surveillance systems are in place to monitor the trend in the tobacco epidemic and evaluate the efficiency of the measures implemented.		$\bigcirc$	$\bigcirc$

No.		Імри	PLEMENTATION STATUS		
	Priorities	In PROGRESS	Pending	DEEMED UNNECESSARY	
	Salt intake				
25	A program is in place that includes goals and indicators aimed at reducing salt intake.				
26	A regulation is in place for a gradual, sustained reduction in the salt content of all foods by the food industry and for ensuring that all government-funded food purchases comply with recommended salt levels.				
27	Instruments requiring the labeling of food products that contain salt or sodium are in place, as are regulations on the public declaration and regular, standardized updating of the nutritional content of all manufactured foods.				
28	The general public is informed about the health hazards associated with a high-salt diet and ways to reduce salt intake, and consumer associations are involved in ensuring compliance with commitments and regulations.				
29	A surveillance system is in place to identify the salt content of food products and its principal sources, and to evaluate the degree to which contracted commitments are being fulfilled.				
30	The potential adverse effects of reducing the sodium content of foods are monitored.				

### SUMMARY OF PRIORITIES AND CHECKLIST

No.		Імрі	LEMENTATION S	STATUS
	Priorities	In progress	PENDING	DEEMED UNNECESSARY
	Healthy diet			
31	An agricultural policy is in place to boost the production, supply, accessibility, and acceptance of healthy foods.		$\bigcirc$	$\bigcirc$
32	Mechanisms are in place to regulate the supply and sale of healthy foods and harmful ones and to increase the availability.			$\bigcirc$
33	Financial incentives are available for the production, marketing, and sale of healthy foods.			$\bigcirc$
34	Regulations on promotion and marketing of food to children and adolescents are in place.			
35	The adoption of voluntary self-regulation commitments by food companies is encouraged, but mechanisms to implement mandatory regulatory measures are available, if needed.			
36	Mechanisms are in place to strengthen compliance with the WHO Code on Marketing of Breast-Milk Substitutes, as are regulations to prohibit advertising of sugary beverages and food products with low nutritional value, especially to children and adolescents.			
37	There are prohibitions on the marketing and sale of sugary beverages and foods with high fat and sodium content and low nutritional value in schools.			
38	Taxes have been raised on sugary beverages and high energy-dense foods.	$\bigcirc$	$\bigcirc$	

		Імрі	EMENTATION S	STATUS
No.	Priorities	In progress	Pending	DEEMED UNNECESSARY
	Physical activity			
39	A sustainable planning, transportation, and urban safety policy is in place to create environments that facilitate the enjoyment of a physically healthy, active, and safe lifestyle.			
40	Comprehensive interventions are being implemented to reduce sedentary lifestyles and promote physical activity in all age groups tailored to urban settings, workplace conditions, and the sociocultural characteristics of the population.			
41	The school curriculum includes a mandatory 50 minutes a day, five days a week, of moderate physical activity.			
42	The communications media regularly disseminate accurate, evidence-based information on the benefits of physical activity.			
43	Incentives have been created for the education of professionals and research on the promotion of physical activity.	$\bigcirc$		
	Alcohol			
44	"The WHO Global Strategy to Reduce Harmful Consumption of Alcohol (2010) has been implemented and activities are in place.			

		Імрі	EMENTATION S	STATUS
No.	Priorities	In progress	Pending	DEEMED UNNECESSARY
IV	Integrated management of chronic diseases and their risk factors			
	Competencies of health personnel			
45	The first level of care is equipped with sufficient competent, motivated, and stable human resources that work in multidisciplinary teams.	$\bigcirc$	$\bigcirc$	
46	Comprehensive and sustainable continuing education strategies targeting primary care workers are in place, and academic programs are designed to meet current needs.		$\bigcirc$	
	Primary care, population risk stratification, integrated health services networks			
47	The health system is based on a primary care strategy, and its services are organized in integrated networks.			
48	The care needs of patients with CVDs and other chronic diseases, and particularly the most delicate among them, have been identified, and these patients have been stratified on the basis of on their risk level and their morbidity, hospitalization, and resource utilization profile.			
49	Health interventions and the attendant resources have been tailored to the complexity of the diseases requiring care and to the resource utilization risk stratification of the population of patients with CVDs and other chronic diseases.			
50	The primary care level has the technology, tools, and services it requires for the efficient control of cardiovascular risk.			
51	Criteria for patient referral from the first level of care to other areas in the health system have been established and there is close coordination among these levels.	$\bigcirc$	$\bigcirc$	

		Імрі	EMENTATION S	STATUS
No.	Priorities	In progress	Pending	Deemed unnecessary
	Chronic care model			
52	The integrated chronic care model has been implemented in health services, with emphasis on the promotion of self-care and multidisciplinary approaches.	$\bigcirc$		
53	Health services are responsible for developing the skills and resources to maximize the self-care capacity of people with risk factors or CVDs, especially diabetes and hypertension.			
	Hypertension and individual total cardiovascular disease risk			
54	Specific activities are being carried out to improve knowledge about hypertension and its treatment and control.	$\bigcirc$		
55	Individual total cardiovascular risk assessment has been adopted in preventive clinical services, with emphasis on the treatment (a multidrug combination: aspirin, two types of antihypertensive drugs, and statins) of patients at high risk of cardiovascular disease.			
56	Health services are emphasizing the early detection and treatment of chronic kidney disease in people with hypertension and diabetes.			
57	The levels of populational control of hypertension on the national and local scale, and especially in vulnerable groups, have been ascertained.	$\bigcirc$	$\bigcirc$	

		Імрі	EMENTATION S	STATUS
No.	Priorities	In progress	Pending	DEEMED UNNECESSARY
	Quality and efficiency of clinical services			
58	A quality control policy and a clinical certification and audit system are in place.			
59	Health services units have comprehensive continuous quality improvement programs in place to assess clinical benefits.			
60	Clinical practice guidelines that define and harmonize the roles and responsibilities of all levels of the services network are being used to manage acute coronary syndrome and stroke.			
61	A policy is in place that regulates the use of medicines and other technologies and promotes the use of generic medicines.			

		Імрі	EMENTATION S	STATUS
No.	Priorities	In progress	Pending	DEEMED UNNECESSARY
	Acute coronary syndrome (ACS) and stroke			
62 a	A communication and education strategy is being implemented to promote efficient public use of emergency systems and early detection of premonitory signs and symptoms of these diseases.	$\bigcirc$		
62 b	A local emergency medical services (EMS) network is in place and synchronized with the other components of the services network and it facilitates coordinated action.			
62 c	Mechanisms and resources are in place, with the relevant criteria, to expand access to and coverage of early reperfusion therapy for ACS patients with ST segment elevation and stroke patients.			
62 d	Coronary and stroke units are integrated into the health services network and their facilities and complexity are tailored to care needs.			
62 e	Far-reaching programs of demonstrated effectiveness are in place for early rehabilitation and social reintegration.			
62 f	Coverage of and access to secondary prevention interventions are being expanded.	$\bigcirc$	$\bigcirc$	$\bigcirc$



Notes	



REGIONAL CONSULTATION

# Priorities for cardiovascular health in the Americas

KEY MESSAGES FOR POLICYMAKERS

