WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR AFRICA

ORGANISATION MONDIALE DE LA SANTÉ
BUREAU RÉGIONAL DE L'AFRIQUE

ORGANIZAÇÃO MUNDIAL DE SAÚDE
ESCRITÓRIO REGIONAL AFRICANO

REGIONAL COMMITTEE FOR AFRICA **AFR/RC55/12**
17 June 2005

Fifty-fifth session
Maputo, Mozambique, 22–26 August 2005 **ORIGINAL: ENGLISH**

Provisional agenda item 8.6

CARDIOVASCULAR DISEASES IN THE AFRICAN REGION: CURRENT SITUATION AND PERSPECTIVES

Report of the Regional Director

EXECUTIVE SUMMARY

1. The burden of cardiovascular disease is increasing rapidly in Africa, and it is now a public health problem throughout the African Region. Most important are hypertension, stroke, cardiomyopathies and coronary heart disease. Rheumatic heart disease is still a major concern.

2. One of the reasons for increased cardiovascular diseases (CVDs) worldwide is the increase in aged populations. Another reason is exposure to various modifiable risk factors that are responsible for at least 75% of all the CVDs.

3. As with other noncommunicable diseases, CVDs are not often given the attention they deserve. As a result, most countries do not have national programmes or strategies to address CVDs. Likewise, surveillance systems for risk factors are almost non-existent in the Region.

4. Priority interventions aimed at reducing the burden of CVDs in the African Region include setting up national noncommunicable diseases programmes which include CVD; setting up surveillance systems based on risk factors; capacity building of health personnel; ensuring availability of cost-effective medications; implementing the Framework Convention for Tobacco Control and the Global Strategy on Diet, Physical Activity and Health; and incorporating both primary and secondary prevention of rheumatic heart disease.

5. The Regional Committee is invited to review this document and provide orientation for its implementation in Member States.

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INTRODUCTION

1. The burden of cardiovascular disease is increasing rapidly in Africa, and it is now a public health problem throughout the African Region. Cardiovascular disease has a major socioeconomic impact on individuals, families and societies in terms of health-care costs, absenteeism and national productivity. The most important cardiovascular diseases (CVDs) in the African Region are those related to atherosclerosis, cardiomyopathies and rheumatic heart disease.

2. One of the reasons for increased CVDs worldwide is the increase in aged populations. Another reason is exposure to behavioural and physiological risk factors (Figure 1) which are responsible for 75% of CVDs.[1] These risk factors have been prioritized according to their impact on mortality and morbidity, possibility of modification through primary prevention, and quantification by available easy standardized methods.

3. An important phenomenon of CVD in developing countries is the trend of complications occurring at younger ages. Thus, stroke, cardiac failure and renal failure further fuel the vicious cycle of ill-health and poverty.

4. The approach to the current situation of CVD in the African Region builds on strategies promoted by the Heads of State,[2] and the WHO strategies on noncommunicable diseases and health promotion. This document is written to raise awareness of the growing importance of CVD as a major public health problem in the African Region and to propose a set of interventions aimed at reducing the burden of CVDs.

SITUATION ANALYSIS

5. The WHO STEPwise approach to surveillance of noncommunicable diseases in general and cardiovascular disease in particular (otherwise known as STEPS) is based on community evaluation of eight risk factors (see Figure 1). Control of these risks constitutes the cornerstone of prevention of CVD.

6. Tobacco consumption is rising in the African Region and is a leading cause of heart attack, peripheral vascular disease and stroke; in addition, smoking is a main risk factor for cancer. According to data from the Global Youth Tobacco Survey and country surveys on tobacco control, the prevalence of tobacco use among teenagers aged 13 to 15 is as high as 28% in Seychelles; among males aged 20 years and older, prevalence reaches 67% in Kenya.

7. An unhealthy diet is high in calories, salt, sugar and saturated fat but low in fruits and vegetables. Poor diet increases blood cholesterol and body weight which lead to hypertension, diabetes and coronary heart disease. The African Region is facing two problems related to diet and malnutrition: (i) undernutrition which is still the main cause of infant and childhood morbidity and mortality, and (ii) obesity, which is becoming a leading risk factor for CVD and diabetes, especially in urban areas.

8. Industrialization, urbanization and mechanized transport have reduced physical activity and led to sedentary lifestyles. Worldwide, physical inactivity causes about 1.9 million deaths annually. While physical activity is still high in rural areas, it tends to decrease quickly in urban areas.

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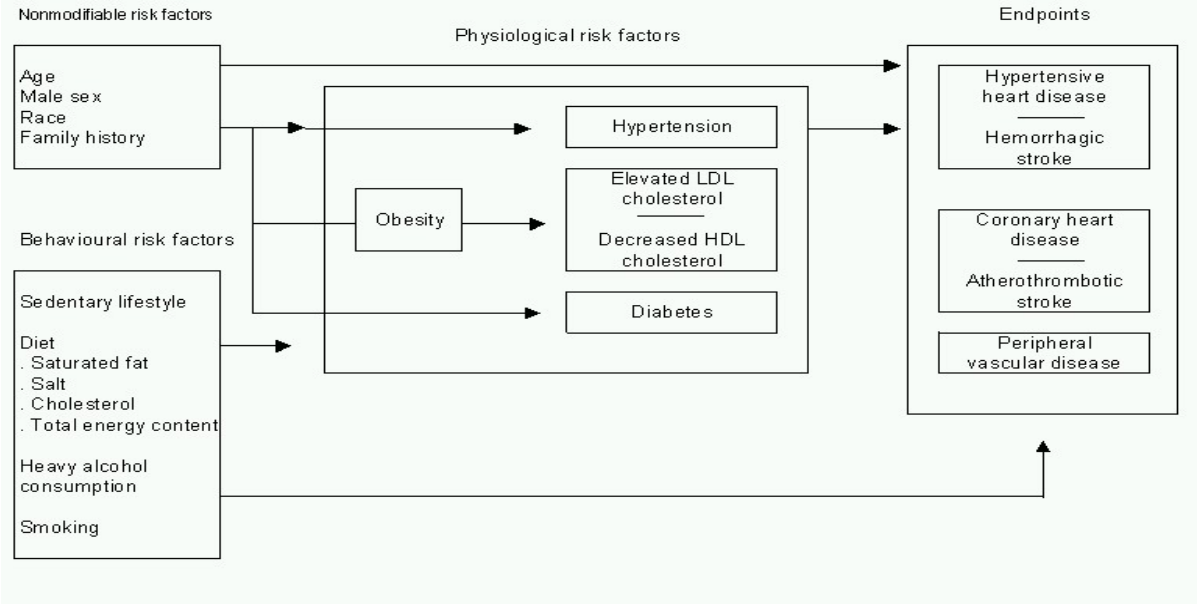
[1] WHO, *Atlas of heart disease and stroke,* Geneva, World Health Organization, 2004.

[2] Decision 179, Control of arterial hypertension in Africa, Addis Ababa, Organisation of African Unity, 2002 (AHG/Dec.179 XXXVIII).

Figure 1: Relationships between cardiovascular risk factors and diseases



Source: Wong ND, Black HR and Gardin JM, *Preventive cardiology: a practical approach,* Chicago, McGraw-Hill, 2005.

9. Heavy alcohol consumption is a risk factor for hypertension and diabetes and may also lead to degenerative changes of the heart (cardiomyopathies). Alcohol is a leading form of substance abuse in many countries and is associated with several other detrimental effects on health.

10. Obesity is a major determinant of diabetes, high cholesterol and high blood pressure. This is particularly true in urban areas. It is linked to an unhealthy diet high in sugar and saturated fats and low in fruit and vegetables as well as lack of physical activity.

11. *The world health report 2002* shows that high blood pressure is the leading cause of avoidable mortality and morbidity in all world regions. High blood pressure is a main risk factor for stroke, cardiac failure, renal failure and coronary heart disease.

12. The risk of coronary heart disease and stroke increases as the level of serum cholesterol increases. High cholesterol is responsible for one third of all CVDs in the world.[3] High blood cholesterol levels are due mainly to excessive dietary fat intake, physical inactivity, obesity and smoking.

13. Diabetes is becoming more prevalent in the African Region and is a major risk for coronary heart disease, stroke, peripheral vascular disease, cardiac failure and renal failure. The increasing prevalence of diabetes is clearly related to the worldwide obesity epidemic, unhealthy diets and physical inactivity. In Mauritius, the prevalence of diabetes reaches 23% at middle age. This situation should be taken as an alert concerning the trend of lifestyle-related risk factors in Africa.

14. The surveys undertaken in five countries in the African Region, using the STEPS approach, show generally high prevalence levels of CVD risk factors (see Table 1).

15. Cardiovascular diseases are the main noncommunicable diseases and are major public health concerns worldwide. According to *The world health report 2001*, cardiovascular diseases accounted for 9.2% of the total deaths in the African Region in 2000 compared with 8.15% in 1990. The most important CVDs are hypertension, stroke, cardiomyopathies (especially the dilated form) and rheumatic heart disease. Coronary heart disease is on the rise especially in urban areas.

[3] WHO, *Atlas of heart disease and stroke,* Geneva, World Health Organization, 2004.

16. Hypertension is a main physiological risk factor for other CVDs. It is estimated that more than 20 million people are affected in the African Region, mainly in urban areas. Prevalence ranges from 25% to 35% in adults aged 25 to 64 years. Some studies[4] reveal a clear relationship between level of blood pressure, salt and fat consumption, and body weight. Studies in Ghana, Mauritius, South Africa and Zimbabwe show an increase in stroke mortality that could be related to increasing levels of hypertension, obesity, tobacco use and diabetes.[5] Prevention and control of hypertension could avoid at least 250 000 deaths per year.

17. Stroke is a major cause of death and the biggest single cause of disability worldwide. Annually, 15 million people suffer a stroke. Of these, 5 million die and another 5 million are left permanently disabled, placing a heavy burden on individuals, families and communities. The African Region has not been spared.

18. Rheumatic heart disease is the most important form of acquired CVD in children and adolescents in Africa. Several studies show a 15–20 prevalence of rheumatic heart disease per 1000 population.[6] The impact of this disease on patients, families, health system and society is very high. Of the18 million people currently affected by rheumatic fever or rheumatic heart disease, two thirds are children between 5 and 15 years of age. There are around 300 000 deaths each year, with 2 million people requiring repeated hospitalization and 1 million likely to require surgery in the next 5 to 20 years.

19. Cardiovascular diseases can differ greatly across certain groups of the population. Special populations may be exposed differentially to risk factors, have unhealthy lifestyles, lack access to health care or be deprived in some way. Such inequalities may apply to women, migrants or other sociocultural groups.

20. The emergence of increased CVDs in Africa has not been accompanied by corresponding adjustments in health service structures and human resources. Current health care systems were developed to provide acute, episodic care; they are inadequately designed and resourced to care for people with chronic conditions such as CVD.

Table 1: Prevalence of cardiovascular disease risk factors (% of adult population at-risk)

	Mauritius (1998)	Algeria (2003)	Republic of Congo (2004)	Eritrea (2004)	Cameroon (2004)
Tobacco use	20.2	12.8	14.4	8.0	4.0
Alcohol use	15.9*	5.1	62.5	39.6	11.0
Obesity	11.5	16.4	8.6	3.3	18.0
High blood pressure	29.6	29.1	32.5	16.0	25.0
High blood sugar	19.5	2.9	-	-	6.0

* for adult men only

CHALLENGES

[4] Amoah A, Kallen C, Report of hypertensive disorders in Ghana, Accra, Ministry of Health, 2002; Kimbally Kaky G, Bolanda JD, *Hypertension arterielle et les autres facteurs derisque cardiovasculaires á Brazzaville: rapport d'enquete,* Brazzaville, World Health Organization, Regional Office for Africa, 2004.

[5] Bam WJ, Yako PM, Correlation between hypertension and cardiovascular accidents in black patients*, South African Medical Journal*, 65: 638–641, 1984; Matenga J, Kitai I and Levy L, Strokes among black people in Harare, Zimbabwe: results of computed tomography and associated risk factors, *British Medical Journal* 292(6536): 1649–1651, 1986; Nyame PK, Jumah KB and Adjei S, CT scan of the head in evaluation of stroke in Ghanaians*, East African Medical Journal*, 75(11): 637–639, 1998.

[6] Longo-Mbenza B et al. Survey of rheumatic heart disease in school children of Kinshasa Town, *International Journal of Cardiology*, 63(3): 287–294, 1998; Amoah AG, Kallen C, Aetiology of heart failure as seen from a national cardiac referral centre in Africa, *Cardiology*, 93(1-2): 11–18, 2000.

21. One of the most challenging situations in the Region is the double burden of diseases. Africa is plagued with a persistently high burden of infectious diseases while experiencing a rapid emergence of noncommunicable diseases (NCDs).

22. The actual magnitude of the health and socioeconomic dimensions of CVDs and the potential for their prevention are not known due to lack of accurate population-based data. In addition, surveillance systems for risk factors are almost non-existent in the Region.

23. There is a misconception that investing in prevention and control of cardiovascular and other noncommunicable diseases would detract from the top-priority communicable diseases in the Region. As with other NCDs, CVDs are not often given the attention they deserve as major causes of mortality and morbidity. As a result, most countries do not have national programmes or strategies to address CVDs, and health systems are inadequate to deal with chronic diseases.

OPPORTUNITIES

24. In Africa, the levels of some risk factors are low, and the challenge therefore is to maintain such low levels. For example, many people still have regular physical exercise and do not smoke.

25. Exposure to risk factors can be prevented by relatively inexpensive legislative, fiscal and other measures that can help create an enabling environment for the adoption of healthy lifestyles. This should include primary and secondary prevention of rheumatic heart disease.

26. The Declaration of Heads of State and Government of the Member States of the OAU issued in Durban, South Africa on 8 July 2002, stated that their fight against CVD in general and hypertension in particular should feature prominently in their development policies. WHO regional strategies for noncommunicable disease prevention and control (document AFR/RC50/10) and for health promotion (document AFR/RC51/12 Rev. 1) were adopted by Member States to respond to growing threats. Other interventions may impact in this effort: Framework Convention for Tobacco Control; the Global Strategy on Diet, Physical Activity and Health; and The 3 by 5 Initiative.

27. To respond to the scarcity of data on NCD and the non-existence of surveillance systems for CVD, several Member States are conducting surveys of the relevant risk factors using the WHO STEPwise approach to surveillance of NCDs (also known as STEPS).

PRIORITY INTERVENTIONS

28. The implementation of STEPS in some countries of the Region has shown that this method is feasible, affordable and easily adaptable to various country contexts. For this reason it is suggested that STEPS surveys be implemented throughout the Region. Such surveys should be repeated on a regular basis, and data should be used to inform relevant prevention and control programmes.

29. Tobacco control is central to CVD prevention and control. Implementation of the Framework Convention for Tobacco Control will be critical to national control of tobacco use. The objectives are to prevent people from starting to use tobacco, provide assistance for smoking cessation and protect non-smokers from exposure to tobacco smoke.

30. Primary prevention includes those interventions targeting people who do not have established cardiovascular disease, mainly by reducing the above-mentioned eight risk factors at community level.

31. Primary prevention of unhealthy diet includes promotion of consumption of local fruit and vegetables as well as reduction of salt, refined sugars and animal fat. Promotion of physical activity can be achieved by increasing moderate physical activity daily and reducing the proportion of inactivity. Control of diet and physical activity will result in reduction of obesity, hypertension, high cholesterol

and diabetes. It is essential that the WHA Global Strategy on Diet, Physical Activity and Health be implemented at country level in a relevant manner.

32. Hypertension is also preventable through proper diet and physical exercise. A hypertension control programme can detect non-diagnosed and unregulated hypertensive individuals and thereby significantly reduce the cases of stroke, cardiac failure, renal failure and peripheral vascular disease.

33. Primary and secondary prevention programmes are highly effective for rheumatic fever and rheumatic heart disease and should be strengthened in countries with high prevalence. Special attention should be given to the most vulnerable groups, including deprived children, children living in institutions and street children. Health workers, social workers and teachers should be trained in diagnosis and treatment. Governments should ensure a sustained supply of medicines.

34. A life-time perspective is essential for health promotion as well as the prevention and control of CVD. This approach starts with maternal health, prenatal nutrition and pregnancy outcomes, and continues with exclusive breastfeeding for six months, and child and adolescent health. Health promotion should reach school children, adults and the elderly, encouraging healthy diet and regular physical activity from youth through old age.

35. Secondary prevention comprises medical intervention and patient behaviour aimed at reducing the risk of recurrent cardiovascular events in patients with established CVD. The first objective is early diagnosis of an established CVD and a full-risk assessment of the individual. Risk-factor modification is the route by which secondary prevention is accomplished.

36. Guidelines for the prevention and control of the most prevalent and relevant CVD conditions and risk factors should be generated or adapted and regularly updated at the national level. Health professionals would then have a minimum set of procedures based on established evidence, situations and constraints in a particular country.

37. Tertiary prevention includes clinical activities that deter further deterioration or complication after a disease has been diagnosed. Due to the current situation of CVD prevention and control in the Region, primary and secondary prevention should be given priority because of their cost-effectiveness.

38. Health personnel and care providers at primary, secondary and tertiary levels should be trained or upgraded in integrated CVD prevention and care to deliver proper cardiovascular care at all health care levels. Hospitals should be strengthened technically and technologically to meet patients' needs.

39. Mechanisms should be set up to ensure the sustained availability of basic diagnostic equipment as well as affordable and cost-effective medication for the secondary prevention of life-threatening cardiovascular events and primary prevention of CVD among selected high-risk individuals. A situation analysis on the technical and technological capabilities to deal with CVD should be conducted in the Region.

40. Research should be conducted to evaluate the socioeconomic impact of cardiovascular diseases in the Region to make them relevant beyond the health sector. Operational research in the health sector is necessary to adapt, implement and evaluate cost-effective and affordable approaches for CVD prevention and control.

ROLES AND RESPONSIBILITIES

41. The roles of countries are:

(a) to set up national CVD programmes integrated in the framework of noncommunicable disease prevention and control; allocate a budget to it; and build a national, functional coalition of various stakeholders under the leadership of the Ministry of Health;

(b) to set up CVD surveillance systems as part of integrated NCD component of existing surveillance systems;

(c) to implement the Framework Convention for Tobacco Control; the Global Strategy on Diet, Physical Activity and Health; the Integrated Package for Cardiovascular Disease Management; and the rheumatic fever and rheumatic heart disease prevention and control component of Integrated Management of Childhood Illness;

(d) to ensure sustained availability of a minimum set of affordable and cost-effective medications for the management of CVD conditions, and to build capacity of health workers and non-health-care providers in CVD prevention and control.

42. The roles of WHO and partners include providing technical assistance to countries:

(a) to collect information needed to inform policy decisions for the control of CVD by governments and set up national CVD prevention and control programmes as part of integrated NCD programmes, including assistance for adapting global policy documents to national needs;

(b) implementation of priority interventions aimed at reducing the burden of CVD and source funding mechanisms for CVD prevention and control.

CONCLUSION

43. Cardiovascular diseases are a major public health concern in the African Region. They are a leading cause of mortality and morbidity in adults, and stroke is the largest single cause of disability in most African countries.

44. Key interventions need to be implemented promptly in Member States in order to curb the emerging epidemic of CVD, with high priority given to primary prevention.

45. Effective prevention and control of CVD will need strong advocacy and high political commitment at country level and adjustment of health-care services, including appropriate training of health professionals.

46. The Regional Committee is invited to review and discuss this proposed document and provide orientation for its implementation in Member States.