

# Cardiovascular diseases in poor resource settings

## A neglected disease

**Charles Agyemang**

There is an increasing awareness of the global epidemic of cardiovascular diseases (CVD), which includes hypertension, acute coronary syndrome, chronic heart failure, ischemic and hemorrhagic stroke and valvular disease. CVD is a major cause of death, disability and lost productivity in adults worldwide. In 2004, an estimated 17.1 million people died from CVD, representing 29% of all global deaths. Of these deaths, 7.2 million were due to coronary heart disease and 5.7 million to stroke.

The most important behavioural risk factors of CVD are unhealthy diet, physical inactivity and tobacco use, which are responsible for 80% of strokes and coronary heart disease. The effects of unhealthy diet and physical inactivity

may lead to hypertension, diabetes, dyslipidemia, overweight and obesity. There are also underlying determinants of CVD. These are a reflection of the major forces driving social, economic and cultural change including globalization, urbanization and the ageing population. Other determinants of CVD are poverty and stress.

In most high-income countries, CVD rates have declined progressively since the mid twentieth century, because of successful preventive strategies and improved treatment for acute CVD events. However, in many low- and middle-income countries (LMIC) CVD rates are increasing very fast and CVD is already the leading cause of death in many LMIC.

### **Epidemiology**

LMIC are disproportionately affected by CVD. In 2005, 82% of all CVD deaths occurred in these countries. In addition, the global burden of disease suggests that the problems in low resource countries will rise even more. By 2030, an estimated 23.6 million people will die from CVD annually, with approximately 85% in LMIC. The largest relative increase will occur in the Eastern Mediterranean region, the largest increase in number of deaths in South-East Asia. CVD is already the leading cause of death in China and India, the world's most populous nations. Even in countries such as South Africa, where HIV mortality still leads, the CVD mortality rate is substantial accounting for 40% among adults.

## Gross national product per capita

### Prevalence of risk factors

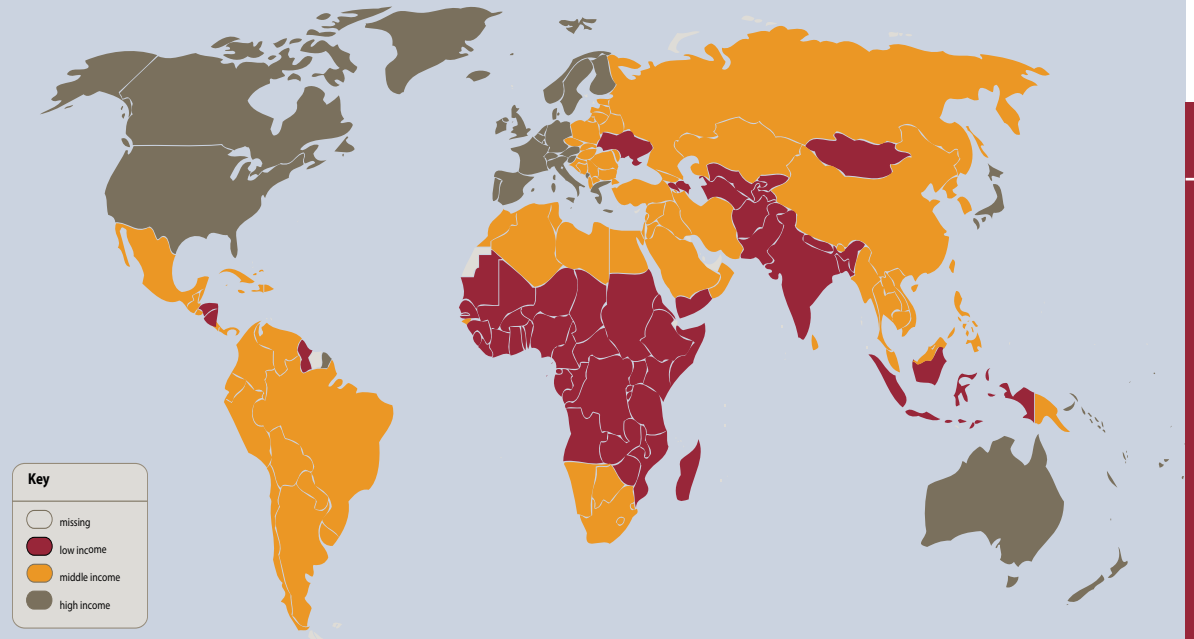
The main drivers of the rising CVD in LMIC are the increasing trends in the prevalence of risk factors such as hypertension, obesity, diabetes and tobacco smoking. Time trend analyses, for example indicate that the prevalence of obesity in urban West Africa has more than doubled over the last fifteen years. This clearly reflects the changing lifestyles in most LMIC, such as consumption of energy-dense foods and refined sugars comple-

### The prevalence of obesity in urban West Africa has more than doubled over the last fifteen years

mented by less energy-demanding jobs particularly in the urban centres. The prevalence of obesity is likely to increase as a result of the increasing number of fast-food chains. Smoking levels are also increasing in LMIC, especially among young people. This is due to tobacco firms, which are pushing into new markets with marketing tactics that are prohibited in high-income countries. The increasing burden of CVD is occurring at a time when communicable diseases are still highly prevalent, placing a great demand on the overburdened and impoverished health care systems in many countries.

### Financial burden

CVD also places a huge financial burden on individuals and their families, often leading



Data adapted from WHO

### Cardiovascular facts



> 80% of CVD deaths occur in LMIC



10-33% of men and 30-49% of women have hypertension in Sub Saharan Africa

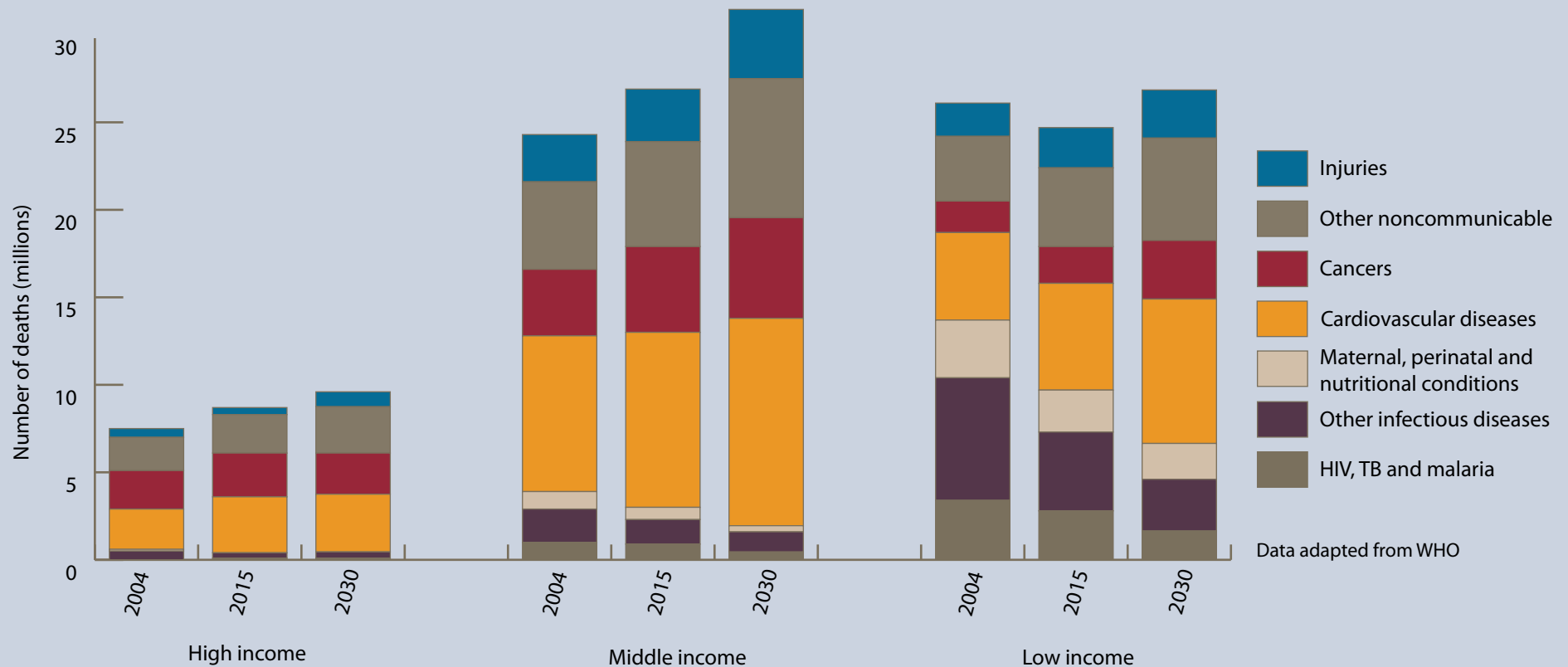


>70% deaths and 124 million DALYs associated to tobacco in 2020



15% of children are obese in Thailand

## Projected deaths by cause for high-, middle- and low income



the household into poverty. In LMIC CVD affects people at a younger age, than in high-income countries. For example, the average age of death from CVD in sub-Saharan Africa is at least ten years younger than in high-income countries, which means that it often affects adults in their most economically productive years. As chronic diseases are expected to increase the coming decades, the impact on poor economies and health services will be huge. In 2006, the estimated losses because of CVD and diabetes ranged from \$ 20–30 million in Ethiopia and Vietnam

to almost \$ 1 billion in China and India. These losses are substantial given the limited resources available in these countries. It is estimated that these figures will be doubled by 2015.

### Shortage of infrastructure and resources

Despite rising awareness of the CVD problems and associated costs in LMIC, few resources have been directed towards solutions. The rates of detection and treatment of CVD and risk factors reported in many LMIC are critically low and many people with these dis-

eases have no access to appropriate health care. Often there is no public health infrastructure or budget to address both communicable and non-communicable diseases such as CVD. In addition, there is a widespread apathy by the major health development funds, the World Bank and bilateral aid programs in tackling non-communicable diseases in LMIC. In 2005, for example, global health funding per death for HIV/AIDS was \$ 1029 compared with \$ 320 for non-communicable disease. Furthermore, chronic diseases attract only 5% of the entire WHO budget.

## Prevention

Prevention and management of CVD receive little attention. Although the burden is already huge, a window of opportunity still exists in preventing the epidemic from reaching its full potential. This is because CVD is largely preventable as shown in many western countries. Effective prevention strategies require a comprehensive multidisciplinary approach to identify and manage major risk factors and to promote adherence to prevention protocols. It requires the implementation of multisectoral policies and effective and affordable delivery of primary care interventions. The development and implementation of strategies to prevent and treat CVD

in LMIC will require major efforts to direct scarce resources to interventions that are cost effective, culturally appropriate and sustainable.

## Conclusion

CVD constitutes a considerable cause of morbidity and mortality in LMIC. The challenges that LMIC face in the prevention and control of CVD are enormous and they include the under-appreciation of the magnitude of the disease burden; relatively weak healthcare systems for provision of comprehensive preventive and primary healthcare; limited health resources; and increasing urbanization accompanied by the adoption of

less healthy lifestyles. Although daunting, these challenges are not insurmountable. The burden could be addressed by implementing cost-effective measures such as population-based health education programs to promote normal body weights, physical activity especially in urban areas, reduction of smoking and reduction of salt intake. This will require a multidisciplinary approach of key national and international players with a strong political commitment.

## About the author

Charles Agyemang is an epidemiologist and public health scientist at the AMC and University of Amsterdam. His PhD interests include the epidemiology and risk factors of CVD and the determinants among different ethnic groups and LMIC countries.

## Further reading

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