Prevention of Cardiovascular Disease and Stroke

Meeting the Challenge

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In the United States and some other parts of the world, the last half of the 20th century was a time to bask in the sunshine of substantial reductions in the mortality from heart disease and stroke. These trends were a result of both an improvement in acute treatment of cardiovascular disease (CVD) and public health–driven improvement in risk factors for CVD.[1] Despite this progress, contemporary global trends raise new concerns. Acute treatment of heart disease and stroke continues to improve, but it has been unable to stem the tide of adverse trends in health factors that are already beginning to slow and reverse the declines in morbidity and mortality from CVD and stroke.[2] Projections of the incidence, prevalence, and cost of CVD are alarming[3] and have stirred action in the United States and around the world.

The heartening news is that the urgency of the problem of the burden of CVD and stroke and the adverse trends are being recognized. National and international initiatives are being developed by governments, nongovernmental organizations, and the private sector. Through research, education, patient care, and advocacy, the American Heart Association (AHA) has been a leader in the effort to prevent heart disease and stroke, having adopted a very ambitious 2020 Impact Goal of "Improving the cardiovascular health of all Americans by 20%, while reducing mortality from heart disease and stroke by 20%."

The Department of Health and Human Services (DHHS) has developed and promoted the Million Hearts campaign,[4] a national program with the goal of preventing 1 million myocardial infarctions and strokes over the next 5 years. Through the coordination of efforts of multiple agencies in the public sector (Centers for Disease Control and Prevention; Agency for Healthcare Research and Quality; Centers for Medicare & Medicaid Services; Food and Drug Administration; Health Resources and Services Administration; National Heart, Lung, and Blood Institute; Substance Abuse and Mental Health Services Administration) and for-profit and not-for-profit partners (initially, the AHA, America's Health Insurance Plans, American Pharmacists Association, National Community Pharmacists Association, Walgreens, the Y), the initiative will focus on greater population penetration of the ABCS (aspirin, blood pressure and cholesterol control, and smoking cessation) for prevention of CVD and stroke.

The role of CVD and stroke in the increasing global burden of noncommunicable diseases (NCDs) impelled a high-level meeting of the General Assembly on the topic at the United Nations (UN) on September 19, 2011. This is only the second ministerial-level meeting concerning a health topic in the history of the UN; the first involved human immunodeficiency virus (HIV) infection and AIDS more than a decade ago. A political declaration on the prevention and control of NCDs was adopted, and with the understanding that funds would be limited in most parts of the world, recommendations regarding the "best buys" for prevention of NCDs were suggested, including tobacco control and ultimate elimination, reduction of salt intake, promotion of a healthy diet low in saturated fats and sugar, reduction in the consumption of alcohol, and increased physical activity.[5] Pilot projects were described that provided free generic drugs for blood pressure and blood glucose control that substantially increased the recognition and adherence in the treatment of risk factors for NCDs.

Will these collective efforts ensure reaching the targets with regards to the incidence, prevalence, and mortality from CVD and stroke? Building on science (eg, Human Genome Project, proteomics, and metabolomics) and technology to better understand determinants of risk and to more effectively communicate and measure risk will play a key role in improved prevention. Epidemiological science informing the Eighth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 8); the fourth report of the National Cholesterol Education Program Adult Treatment Panel IV (ATP IV); and Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults (Obesity 2) will provide new guidelines and a road map for the future. But it is still an uphill climb.

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"What gets measured gets done." The initiatives headed by the DHHS and the AHA have mechanisms for measuring and tracking the effects of their efforts, particularly in secondary prevention of CVD and stroke. The outcome of the UN NCD summit with a ministerial declaration of the problem of NCDs and a commitment to measure and report progress is a good first step in many parts of the world. A number of the important metrics in primary prevention present more of a challenge, and Albert Einstein's quote is probably apt here: "Not everything that can be counted counts, and not everything that counts can be counted." Moreover, even after agreement of the appropriate metrics to track progress in prevention, the support for this data collection (ie, the funding to track trends in the metrics) is not readily apparent.

Fundamentally primordial and primary prevention is not a medical problem but is instead a societal, cultural, and environmental problem. The most effective CVD preventive measures are those that are part of a person's lifestyle—such as avoidance of tobacco and foods high in salt and saturated fats and remaining physically active—and are often not influenced by physicians and other clinicians until much too late. Certainly physicians and other clinicians will remain the primary deliverers of acute care and secondary prevention measures for CVD and stroke. But there are large gaps both in the United States and abroad in the use of effective secondary prevention measures and medications.[6] There is debate whether an alternative approach in the use of effective secondary prevention medication therapy, such as that used to treat HIV with highly active antiretroviral therapy, is appropriate and would alter the trajectory of CVD incidence. However, really bending the prevention curve will require the engagement of multiple sectors of societies and a number of partners: medical, governmental, and industry. What is not clear is how these partnerships will develop and be most effective.

The private sector has an important role in changing the environment to make healthy choices for living easier. However, there also are inherent conflicts of interest in achieving an environment optimally suited to the goal of improvement of the public health. There are professional, governmental, and corporate responsibilities and sound fiscal reasons to work toward such a goal. It is not likely that the interest of the public health and government regulation will be sufficient to substantively change the environment and the behaviors of those at greatest risk for development of CVD and stroke. Financial incentives must be aligned and equitable policies developed and enforced locally and globally to discourage the manufacture and use of tobacco products, sugar-sweetened beverages, and foods with excessive saturated fat to enable people to make healthy life choices. Even though this is an enormous challenge, recognition of the enormity and urgency of the challenge gives reason for hope.

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