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Publication of this second edition of Dr. Darwin Labarthe's invaluable book, *Epidemiology and Prevention of Cardiovascular Diseases: A Global Challenge* is most opportune: As Dr. Labarthe emphasizes, the CVD prevention effort at this juncture—50 years down the road—confronts both “...considerable challenges and immense opportunities...” On the one hand, the CVD epidemic persists; on a global scale it is waxing—indeed a challenge. And the challenge holds also for countries like the United States, where epidemic CVD persists despite substantial declines in coronary/stroke death rates during the latter decades of the 20th century. The current situation in the United States is problematic—as this book documents—making the challenges considerable indeed: tapering or cessation in recent years of down trends in CVD mortality and in major CVD risk factor levels (e.g., for saturated fat and cholesterol intakes, and for diet-dependent serum cholesterol and blood pressure); epidemic obesity with its consequences, including rampant incidence of diabetes and other obesity-driven metabolic CVD risk factors; unabated high salt intake; overall dietary and physical activity patterns still generally adverse population-wide including among children and teenagers; all too many still smoking, all too many teenagers becoming smokers; even more so for lower socioeconomic strata of all ethnicities, hence paltry proportions of all strata at low CVD risk—a critical index—and little or no evidence of a sustained upward slope in this index; in the media, especially TV, an on-going flood of promotions of foods/beverages harmful for heart health; in medical practice, overwhelming reliance on a high risk strategy (reactive, not proactive) to cope with these challenges—a focus on detection of people who already have a high level of the established major CVD risk factors and their long-term treatment with medications (in 2008, 320.4 million prescriptions for antihypertensive and 139.6 million prescriptions for antihypercholesterolemic drugs, as reported by the AARP). However useful for patients already at high CVD risk, this limited one-sided strategy relying on pills as the remedy begs the basic issue: Epidemics are due to population-wide exposures to new ways of life for which the human species has not been adapted over the 2–4 million years of hominid/hominoid evolution; their roots are mass “...disturbances of human culture...” (Rudolf Virchow)—generalizations fully applicable/valid for the CVD epidemic, as this monograph details. To end the CVD epidemic, the *sine qua non* is rectification of the multiple disturbances in human culture causing it—a proposition repeatedly verified as valid by the history of conquest of earlier epidemics (e.g., tuberculosis, pellagra, rickets).

The opportunities to conquer the CVD epidemic are indeed immense. First and foremost, prerequisite knowledge concerning the *etiology* of the CVD epidemic: the data base (already substantial 50 years ago) is now vast—extensive concordant data, worldwide in scope, accumulated over decades by epidemiology and every other research methodology available to medicine. Critical detailed information on the multiple causes of epidemic CVD is in hand—and for prevention of mass disease, such information on causation, the “question of questions,” is decisive. We know in depth what needs to be done—at every level of prevention—to break links in the chain of causation, including for primary and primordial prevention, i.e., the prevention in the first place (from preconception on) of the adverse lifestyles and the lifestyle-related established major risk factors. Crucial to this effort are improved eating patterns, Mediterranean and East-Asian style cuisines updated for this century, especially as to lower salt, plus moderation in intakes of alcohol, fats, and total calories—along with regular frequent exercise and non-smoking. The update for the 21st century—derived from the research achievements of the last 50 years—gives an enhanced nutrient intake pattern: as earlier, low in saturated fats and cholesterol; reduced in total fats; enhanced in polyunsaturated fats; calorie controlled; plus free of trans fats; much lower in salt; reduced in sugars especially separated sugars (e.g., from sweetened beverages); enhanced in total protein, especially vegetable protein (lower in animal protein from meats); for those who drink, moderate (not excessive) in alcohol; enhanced in potassium/calcium/magnesium/phosphorus/non-heme iron, the vitamins, and fiber (from whole
grains/beans/vegetables/fruits). As this enumeration indicates, the research findings (including from population-based observational studies and clinical trials) document the **multifaceted dietary imbalances**—concurrent excesses and inadequacies—now implicated in the etiology of the CVD epidemic and its diet-related major metabolic risk factors. Consequent recommendations enable variegated approaches to modern delightful eating styles assuring avoidance/rectification of these imbalances.

These eating styles, along with regular frequent exercise, offer the potential for all population strata (socioeconomic/ethnic) to prevent/check/correct the nowadays still usual development of adverse levels of major metabolic risk factors: serum total/LDL/VLDL/HDL cholesterol; blood pressure; plasma glucose; weight; and they go beyond these merits, since adverse eating patterns produce excess CVD risk over and above their adverse influences on these metabolic risk factors.

So the opportunities are truly immense, as Dr. Labarthe emphasizes. Their scope encompasses potential for realization of the critical goal: **continuous progressive enhancement in the coming years/decades of the percent of the population at low risk**, so that for most people—not just a small minority—CVD risk is miniscule; they are freed of the burden of epidemic CVD, with consequent enhanced longevity with health. High stakes indeed!

The opportunities are immense also because on a world scale and in several regions of the world, public policy is in place at the national level (including in the United States), policy committed to the accomplishment of CVD prevention through a two-pronged strategy (population-wide and high risk) emphasizing improved lifestyles. In a few places, public policy specifically includes priority for achieving the decisive goal of progressively increasing the percentage of the population at low risk. In the United States, substantial funds have recently been allocated—specifically to the national Centers for Disease Control and Prevention (CDC)—for the CVD prevention effort.

Opportunities are immense also for this effort because many countries—ranging from Finland to Japan to the United Kingdom and the United States—have already over decades accrued extensive positive experiences with sustained public health efforts to improve lifestyles, thereby control lifestyle-related major CVD risk factors, and contribute to CVD prevention/control. Repeatedly, the public has been responsive and substantial progress (albeit incomplete) has been achieved, despite opposition from special interests (including sectors of the food and beverage industries, the big tobacco companies)—e.g., in the United States, sizable declines in intakes of saturated and trans fats, total fats, cholesterol; the related decrease in adult population average serum cholesterol from about 240 mg/dl 50 years ago to about 200 mg/dl by the year 2000, achieving a national public health goal; marked falls in the prevalence of cigarette smoking; associated declines—in the order of 50% or more—in mortality from CHD and stroke, with consequent addition of years to life expectancy for young, middle-aged, and older adults. And, in several countries, as well as internationally, there are significant social movements in place, supporting/encouraging the effort, bringing together health professionals and lay leaders in effective alliances. As Dr. Labarthe notes, this too is an important component for a successful prevention effort—important today for CVD, as it was in the 19th century for TB control. All these are indeed solid bases for accomplishment of next key tasks.

As noted repeatedly, this book is replete with many-sided up-to-date information invaluable for every person concerned with the CVD prevention effort. It is a fitting product of Dr. Labarthe’s extraordinary capacities and experiences over decades—as a colleague, teacher, researcher, public health leader—in academia, at the CDC, at local/national/international learning venues, including the seminal US and International Ten Day Teaching Seminars on CVD Epidemiology and Prevention he has effectively led for years.

On a personal note, over 40 years ago when I authored an early monograph on this same subject, it was my privilege for it to have a Foreword by Paul Dudley White, MD—distinguished cardiologist, statesman, world leader, humanist/humanitarian. Its opening sentence read, “Dr. Jeremiah Stamler has written the book on Preventive Cardiology that I would liked to have written.” Today these words are mine in regard to this volume by Darwin Labarthe.

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The central messages of this second edition are these:

1. Cardiovascular diseases remain the foremost causes of preventable death globally and continue to grow in prominence, because of their attendant burden, disparities, and costs.

2. Epidemiology has contributed immeasurably to a vast body of knowledge about the causes and means of prevention of these and related conditions, but this knowledge has yet to be applied on a sufficient scale to confer its potential societal benefit.

3. Public health is accountable for putting this knowledge more fully to work by setting goals, devising strategic plans and policies, implementing targeted actions, and documenting their impact in improving the health of populations.

These messages are consistent with the content of the first edition but have gained force from developments in the intervening decade: increased awareness of the global burden of cardiovascular diseases; with their immense social and economic consequences; a growing sense of need to integrate approaches to cardiovascular diseases with prevention of other chronic or noncommunicable diseases, with transformation of health systems to address them coherently; and the ever more urgent goal to reduce the mounting burden, disparities, and costs of these diseases. Epidemiology, through its applications in development, adoption, and implementation of health policy and in public health practice, is fundamental to achieving this goal. It is the author's hope that this new edition will contribute to this effort.

The difference of a decade is due importantly to advances in science and practice that better inform our understanding of the need and opportunity for effective action. From the start of this past decade, the perspective of the author, too, has advanced—from that of the academic epidemiologist to that of the public health practitioner. This was a result of undertaking a US governmental role at the federal level and the greatly enhanced public health experience afforded by this opportunity. The influence of this change on the context and content of the book is substantial; however, it is necessary to underscore the disclaimer that the views expressed throughout are personal and are not intended to represent the official position of the US Centers for Disease Control and Prevention (CDC) or the US Department of Health and Human Services (DHHS).

The book has changed principally in presenting greater emphasis on public health in cardiovascular disease prevention while retaining its epidemiologic content. The intent has been to increase the book’s value for both epidemiologists and public health professionals by bringing the original content up to date in Parts I–III and expanding discussion of how epidemiology is translated into policy and practice in Part IV.

Currency has been achieved by including more than 1600 citations and nearly 400 tables and figures, many from recent sources; rewriting the chapters on the major cardiovascular diseases and their determinants; introducing a chapter on genomic epidemiology; and expanding discussion of the global dimensions of CVD. For many sources, URLs are included to permit continuing access for interested readers.

New chapters in Part IV address strategies of prevention as part of a recently developed action framework; the nature of evidence for prevention, and methods for its evaluation as practiced by several leading authoritative bodies; current national, regional, and global recommendations, guidelines, and policies for prevention of CVD and other major chronic diseases; the case for CVD prevention at individual and population levels; and action plans adopted for implementation in the United States, Europe, South Asia, and worldwide. Expansion in these areas had one regrettable cost—lack of updates on rheumatic heart disease, Chagas’ disease, congenital heart disease, and Kawasaki disease—which are treated only in the first edition.

Features retained in the second edition include the basic structure in which the public health perspective is introduced in Part I; the major atherosclerotic and hypertensive diseases are discussed in Part II;
their main determinants are reviewed sequentially in Part III; and implications of this evidence for theory, practice, and research are discussed in Part IV, which concludes with a chapter on CVD epidemiology of the future—the rich and varied research opportunities presented and the place of epidemiology as the core discipline of “populomics,” the scientific foundation of population health. A historic perspective is also retained, although this is not meant to recount the history of the field, which is being done in a far more effective way elsewhere. The purpose instead is to illustrate wherever appropriate the key studies that, from early in the development of CVD epidemiology, have made fundamental and lasting contributions to our current knowledge.

Throughout the book, the unifying approach of a single author has the advantage of a consistent presentation and coherent interpretation across the many topics addressed. There is room for differing opinion and further exploration of many topics raised. The content reflects one person’s perspective and in no case represents an exhaustive systematic review, although those of others are cited extensively. Closing each chapter is a more or less speculative suggestion of current issues most important for further discussion. In these ways the text is intended to stimulate thinking and debate. The author welcomes comments, queries, and criticisms from readers.

A Chinese proverb says, “Teachers open the door but you must enter by yourself.”1 It is hoped that the material that follows will open many doors for students and practitioners of CVD prevention and public health, revealing a world of opportunity for fulfilling our highest obligation: to assure conditions in which people can be healthy.

Reference

Dedication

This book is dedicated to all whose work is reflected here and to all who will contribute to advances in the understanding of cardiovascular diseases and reduction of the public health burden they represent throughout the world.
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