since the publication of the results of DART2. I would like to understand the rationale for setting certain targets. For example on page 89 it says:

Daily intake of fresh fruit and vegetables... in an adequate quantity (400–500 g per day), is recommended to reduce the risk of coronary heart disease, stroke and high blood pressure.

I think it would be helpful to set out the justification for the choice of 400–500 g per day. Is it because previous reports have recommended this level of intake? Is it this level chosen because it represents something that may be achievable for lower intake populations?

I found the last chapter on implementation the most disappointing as I thought that though it appeared well meaning it was very vague. With one reference it was clearly not a discussion of the effectiveness of individual- and population-level nutritional interventions. Yet as far as I could see neither did it contain a detailed set of global, regional and national recommendations on the future of food production, distribution and preparation nor did it consider in detail the implications of the proposed population dietary goals if countries attempted to adopt them. This chapter did lead me to wonder: What this report was for? How will this report change or influence WHO? What changes to global agriculture and food consumption will occur as a result of this report?

So in summary I think that this report provides a useful summary of the evidence that diet influences chronic disease risk. I, therefore, think it would be a valuable addition to libraries in Departments of Public Health, Epidemiology and Nutrition.

ANDY NESS

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Children all over the world are exposed to multiple low-level environmental contaminants beginning in utero, and yet surprisingly little is known about the proportions of adverse health outcomes attributable to these exposures. The foetus and infant is particularly vulnerable to environmental contaminants because of rapid body growth and development, relatively high exposures related to diet and behaviour, differences in physiology and metabolism in comparison to adults, and immature detoxification systems. In this review of the environmental health issues for children Don Wigle critically assesses the epidemiological and biological evidence supporting causal relationships between early exposures and subsequent adverse health outcomes, and addresses the risk management issues for children. The author is an experienced environmental epidemiologist from the Institute of Population Health at the University of Ottawa who has advised the Canadian government on environmental hazards, and although there is an inevitable North American bias in the literature review and the approach to public health, the book is well written in an accessible style and should be of interest to a wide audience.

The first three chapters provide an overview of environmental health issues for children, the role of environmental epidemiology, and the principles of risk assessment and child health protection. Together these chapters provide an excellent overview for the student, but some topics (such as developmental neurotoxicity and reproductive toxicity) are covered relatively superficially. Subsequent chapters deal in more detail with the main environmental hazards in groups, starting with heavy metals, reviewing dioxins, polychlorinated biphenyls and pesticides, hormonally active agents, the effects of radiation, and concluding with air and water exposures. The evidence is critically appraised and each chapter concludes with a useful summary of the proven child health outcomes, the unresolved issues and knowledge gaps and the risk management issues. The amount of evidence reviewed and the space given to each topic varies widely, and reflects the concerns of the environmental epidemiologist from the developed industrialized world—for example a whole chapter of 27 pages is devoted to the effects of lead, whilst the much bigger topic of water-borne hazards is covered more superficially in a chapter of 31 pages. I would have liked more on the potential effects of climate change on child health, but recognize that the evidence at this stage may be lacking. Two consistent calls throughout the book are for more specific epidemiological research that incorporates biomarkers of exposure and susceptibility with sufficient size to control for potential confounders, and for the continual tracking of levels of environmental contaminants.

The concluding chapter is an excellent overview of the current state of knowledge of the environmental threats to child health, and contains five useful tables summarizing the strength of evidence of causality as sufficient, limited, or inadequate. Much of the evidence comes from inadvertent exposures in pregnancy or childhood before the risks were appreciated, and the clear conclusion is that a precautionary approach has to be adopted. The author concludes that, for almost all potential hazards, existing knowledge does not permit estimation of attributable risk. The overriding difficulty is in quantifying the health risks of low-level environmental exposure, especially at critical periods in early development or over long periods in childhood.

Child Health and the Environment provides a comprehensive review of a big subject area in a well-referenced but easy to digest format: it will be useful for paediatricians, epidemiologists, and those interested in public health policy. The book is supported by a useful website at the McLaughlin Centre for Population Health Risk Assessment at the University of Ottawa: http://www.mclaughlincentre.ca

ALAN EMOND

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When an experienced epidemiologist publishes a new approach to teaching the subject it is always of interest. Neil Pearce’s new book is no exception but the word ‘introduction’ in the title is disingenuous. I expect his book will appeal to practising epidemiologists who wish to expand their theoretical knowledge and understand the deeper properties of epidemiological measures and the fundamental connections between various study designs.
Personally, I have found that newcomers to epidemiology taking introductory courses are not ready for such theory or nuances. I noted this when I first taught beginners and introduced ideas derived from authors of advanced courses, notably Olli Miettinen and Kenneth Rothman. I found introductory students could not assimilate such concepts but could relate to the more straightforward approaches of (say) Brian MacMahon and Abraham Lilienfeld. In contrast, Pearce’s *Short Introduction to Epidemiology* frequently refers to Miettinen and Rothman and emphasizes quite complex epidemiological ideas throughout the book, even elaborating on them in certain sections.

Chapter 1 covers the evolution of epidemiology up to the present (post-introductory) debates about the relative utility of studying health determinants at the proximal or population levels. Chapter 2 begins the section on study design options with an unusual nosology of study designs for dichotomous exposures and outcomes: incidence, incidence case-control, prevalence, and prevalence case-control. The rest of the chapter deals with the two categories of incidence study and introduces many complex terms or concepts such as hazard rate, incidence density, incidence proportion, cumulative hazard, incidence odds, life tables stratified on follow-up time, and ratio measures of effect (rate, risk, and odds). When incidence case-control studies are introduced, case-cohort, case-base, and risk-set or density sampling are mentioned among the initial concepts covered for selecting controls.

Chapter 3 introduces prevalence and prevalence case-control studies. Point and period prevalence are distinguished, along with prevalence odds and the prevalence odds ratio as an estimate of the incidence rate ratio. The need to sample controls by just one method, at random from the non-cases, is emphasized for prevalence case-control studies. Chapter 4 then turns to more complex designs for continuous exposures and outcomes and also introduces regression and time series analysis before turning to ecologic and multi-level studies.

Ecologic studies are usefully presented as idea generators at the population level intimately linked to the continuous process of critical hypothesis generation and testing. Some risks can only be found at the population level, others operate only at that level. Pearce indicates that multi-level modelling is possible and often desirable, but complex. The final chapter in this section on study design options deals briefly with measuring exposure (interviews, questionnaires, job-matrices, biomarkers) and health status (routine records and morbidity surveys).

The next section of the book deals helpfully with the more statistical issues of study design—precision and power, validity (confounding and bias), all briefly. Then the complex topics of effect modification and interaction attract considerable attention over eight pages. The detail includes statistical, legal, biological, public health and epidemiological viewpoints, additive or multiplicative models, and the theory of separate and joint effects.

The last section of the book deals with data analysis. First it covers confidence intervals and then moves on to standard errors of incidence rates (Poisson model) and proportions (binomial model), as well as the standard errors for rate, risk, and odds ratios. Then confounding is tackled, with stratification and pooling, or standardization, as the methods for estimating summary effects. Finally there is a brief section on study appraisal and meta-analysis, and use of evidence from other sources.

Overall, as expected, this is an interesting book. But I found myself wishing it would become two books—one dealing with the more advanced concepts (which he does well in the sections covered that way) and another giving a brief account of the introductory essentials for epidemiology newcomers (also well done in those sections). At present it is an incomplete version of two books rather than a complete edition of one.

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References


Demographic data for Sub-Saharan African countries are often limited to those based on decennial censuses, infrequent household surveys, and incomplete outputs from health management information systems. As a result, knowledge of the demographic characteristics of populations is inadequate for the majority of countries in Sub-Saharan Africa for formulating health and other policies in which demographic aspects need to be considered. The quality and usefulness of the existing information also leaves much to be desired: demographic and health surveys, for example, produce national estimates of limited use for district-level decision making, do not provide enough detail to observe changes in mortality rates other than for the youngest age groups, and trends in cause-specific mortality are almost never available. Frequently, demographers are relying on models based on the experience of statistically more developed countries in other parts of the world to estimate basic indicators such as life expectancy, without any assurance that such models accurately capture patterns of mortality in Sub-Saharan African settings.