

Annual Review of Public Health 2002. J. E. Fielding *et al.* (eds). Annual Reviews, 4139 El Camino Way, P. O. Box 10139, Palo Alto, CA 94303-0139, USA. vol. 23. 492 pp. Price not mentioned.

The *Annual Review of Public Health, 2002* has come out with an extensive range of articles of valuable application to public health practice. The volume attempts to balance a good collection of topics, from basic measurements in public health to conceptual understanding of the socio-economic determinants of health and health conditions, medical practices with public health implications and evolving challenges of various public-health practices.

The article on 'Macroeconomic determinants of health' is a lucid essay on the conceptual understanding of poverty and health, and the questions raised by the linkages of economic development and health. Reviewing the concepts sets the tone for current and future understanding of public health action. The review also discusses the initiation, process and constraints of some important public health intervention programmes on tobacco control and injury prevention. Funding of programmes has not been treated simplistically as input, but described as a process indicator to illustrate the direct and indirect political and industrial influences in decreasing funding to the campaign. There is convincing evidence to show that a multi-pronged intervention of increase in price of cigarettes, media campaign exposing the marketing strategies of the industry, legislation and enactment of clean indoor policies, especially at workplace go a long way in reducing cigarette consumption and adult smoking prevalence. Demonstrable effects in youth smoking prevalence were absent and reasons for these have not been explored. The analysis on the state tobacco control programmes has many lessons for countries and states planning for any primary prevention programme on smoking.

Though the title 'Challenges in motor-vehicle safety' gives the reader a narrow idea of technological challenges in vehicle safety, the authors have traced the history of the multi-pronged initiative to reduce injury and death related to vehicular accidents by the federal agency in USA. The constraints in sustaining gains during implementation of motor-

vehicle safety standards, alcohol consumption standards, safety belts and helmets, and speed limits are explained. The authors highlight the importance of public participation and advocacy to effective enforcement of rules as two crucial features for success. Both these bring up the conflict of the right of individual autonomy and greater public good, and influence on public health policy.

The articles on tuberculosis, population health measures (DALY and QALY), and public health quality measurements are ready reckoners for the issues still relevant in current public health context. From the viewpoint of elimination of tuberculosis as a public health goal in the US, it may have been worthwhile to discuss the success and failure stories of the DOT programme in other countries. As all public health planning is dependent on the disease burden or health status of communities, it is crucial to understand the context in which it is calculated and used. The article on HALYs is a compilation of methodological and ethical issues in using DALY or QALY. As we acknowledge the rationale of public health interventions based on measurements of magnitude of the problem, it is also important to assess the quality of such interventions. Using the Donabedian model, the authors explain quality assessment of the process of public health planning (which is least evaluated) and outcomes of interventions. Information about the various attempts in institutionalizing quality assessment of local health departments is a leading example for other countries to adopt.

The section on environment and occupational health is useful to the extent of understanding of the issues in environmental risk exposure and the necessity of finding novel ways of measuring risk or benefit. The article on dietary interventions to prevent chronic disease is timely, to inform both medical and public health practitioners of the limitations and usefulness of individual or group intervention, dietary or educational intervention, clinical trials vs community trials. The choice of study group (highly motivated) and the type of intervention (intensive, selective, targeted) have been the main determinants of changes in dietary behaviour and biological markers. Long-term studies to address the longevity of effect are still lacking. The authors em-

phasize that physicians should be able to translate the benefits from individual studies to population settings. The recommendation of future research seems superficial in the context of concerns about rising costs of mounting such types of individual dietary intervention studies.

An attempt to explain the public health implications of social behaviour (gambling) on mental health is commendable. This is important, as many social issues are never considered from an epidemiological point of view and the authors have attempted to bring out the prevalence of co-morbid mental health conditions and also make recommendations. Choice of this topic emphasizes that public health has still a long way to go.

The more hardcore methodological articles on normality and cost-effectiveness analysis are worth mentioning. The last section on health services explains the recent trends in medicalization, privatization and liberalization leading to alarming increase in medical-care costs and lack of strict regulations of pharmaceutical advertising. The effects of overuse and misuse of medical technology are mainly because of a lack of regulation of devices. The testing and treatment of coronary disease among low-risk patients is the best and prominent example reviewed by the authors. Errors in interpretation of a test leading to overestimation or underestimation of risks seem to be the main factor for indiscriminate testing. This in turn leads to inappropriate screening, 'shotgun testing' due to low tolerance by a doctor to a positive test and 'defensive medicine'. How much of patient demand actually leads to testing has to be explored, and this again is due to lack of complete information. The role of regulatory agencies, the need for technology development, opinion-makers like media and marketers, decision-makers like doctors are conceptualized in the process of adoption of medical devices, but ethical issues of testing have to be also discussed by the authors.

The alarming fatality due to prescription errors has been neatly explained through national and local studies. While the national studies explain trends in mortality, the local-institution-based studies measure the enormity of the problem through various measures of frequencies and increased costs of such events. The disturbing fact that most errors occur among outpatients, high-

lights the consequences of increasing managed care and the lack of monitoring of drug use. The comparison of prescription errors with the number of transport accidents is not convincing, as the magnitude of the problem is always understood by describing the population exposed or at risk (denominator in public-health parlance). Nevertheless, the authors attempt to explain the risk factors for such errors, the barriers in reducing them and also make broad suggestions. There is an overlap in the risk-factor analysis, leading to confusion. The model of transport accident prevention seems to have limited scope. This is mainly because the occurrence of prescription errors is pervasive, especially with direct advertising to consumers, lack of uniform hospital policy for reporting all adverse drug events and the weak post-marketing surveillance of drugs.

All the topics reviewed are of current public health importance to all countries. The reviews have been extensive, exploring from the historical context to explaining the implications for future generations. There has been some important message in each of the articles to improve public health practice. Social and economic determinants influence health and disease in a profound way, and any intervention requires proper conceptualization, planning and implementation. Dynamic public health practitioners are necessary for initiating change and making all stakeholders accountable. Financial, public and political commitment is required for sustaining any gains in public health.

R. SUKANYA

*Sree Chitra Tirunal Institute for Medical Sciences and Technology,
Thiruvananthapuram 695 011, India
e-mail: sukanya@sctimst.ker.nic.in*

Annual Review of Plant Biology 2002. Deborah P. Delmer *et al.* (eds). Annual Reviews, 4139 El Camino Way, P.O. Box 10139, Palo Alto, CA 94303-0139, USA. vol. 53. 627 pp. Price not mentioned.

The change in the title of the series from *Annual Review of Plant Physiology* to

Annual Review of Plant Physiology and Plant Molecular Biology in 1988 and now to *Annual Review of Plant Biology* in 2002, in a way, reflects the trends in research activities in the area of physiology and molecular biology. This title seems to be the most appropriate in the present context, especially in the post-genomic era, where one is trying to integrate the wholesome information to understand the overall structure and functional relationship and the basic molecular mechanisms underlying developmental and physiological activities. With the change in the title, there has been a change in the editorial board and the present volume has been edited by Deborah Delmer, Hans Bohnert and Sabeena Merchant.

Although in the last decade a number of review journals have been fashioned, the *Annual Review* still holds on to stay as the best impact-factor journal that provides in-depth coverage of selected topics. The information compiled by the authors is exhaustive and at the same time comprehensive.

I have been personally subscribing to the *Annual Reviews* since 1984. As in previous years, even in the present volume the selection of topics and material under each chapter has been well covered. The developments in plant metabolism have been covered under three chapters: lysine metabolism, lipoxygenase pathways and fate of alpha-ketoacids. The chapter on lysine by Galili covers both the metabolic and catabolic pathways and presents data to show that the enzymes involved in these pathways are regulated both at the transcriptional and post-translational levels. These studies, it is hoped, will provide information for breeding for higher lysine level in crop plants, although the authors feel that genomic metabolic profiling and NMR approaches would be required in future to analyse flux control of lysine synthesis and catabolism. The chapter on lipoxygenase by Feussner and Wasternack covers in detail the specificity and localization of different lipoxygenases. More importantly, the mechanisms by which the lpx pathway is induced in response to wounding, dehydration, insect attack, etc. are discussed and also the nature, and role of the second messengers like jasmonates or antifungal compounds has been well presented. This is an important area of work, whereby one can explain how the interactions and signal commu-

nications between plant-plant and plant-insect occur. Some of these aspects have also been covered in a chapter on plant-herbivore interaction. The alpha-ketoacids occupy a key position in intermediary metabolism and in plants, one finds four species of alpha-ketoacid dehydrogenase complexes. An account of their functions and genomic and evolutionary aspects is covered in a chapter by Mooney *et al.*

About four chapters in this volume have been devoted to the area of photosynthesis and chloroplast biology. One chapter is devoted to ribulose-1,5-bisphosphate carboxylase/oxygenase. After so many reviews, books and papers that have been written about this protein, one wonders what new information would have been covered in this chapter. There are more than 2000 rbcL and 300 rbcS sequences available in the data bank. Though this enzyme is present in high amounts in green plants, it has low catalytic rate for CO₂ fixation and also uses O₂ as an alternate substrate. It has been in the interest of many to manipulate Rubisco for crop-improvement programmes. But this has not been possible to achieve so far. In the present review the authors have discussed the detailed atomic resolution structures of Rubisco and suggest that it may require 'multiple mutations that subtly change the positioning of critical residues' based on the new structure information to improve the efficiency of the enzyme. In another chapter, Xiong and Bauer have discussed the evolution of photosynthesis based on the information obtained from studies on photopigments and reaction-centre holoproteins from different sources. They have also discussed evolution of cytochrome-bc complex and carotenoid biosynthetic genes. Those interested in this topic should read this chapter along with other reviews on the subject. The inclusion of a review on chlororespiration is timely. In fact, this topic is not being taught mainly due to the fact that its presence was always considered to be controversial. However, the recent discovery in higher plants of a plastid-coded NAD(P)H-dehydrogenase (Ndh) complex and a nuclear coded plastid localized terminal oxidase (PTOX) has given credibility to the concept of the existence of chlororespiration. It was in early 1960 that Goedheer postulated that oxidation of intersystem electron carriers in dark could occur via 'some kind of chloroplast respiration'. Later, finding an effect