

BOOK REVIEWS

Annual Review of Public Health, 2007. Annual Reviews Inc, 4139, El Camino Way, P.O. Box 10139, Palo Alto, California 94303-0139, USA. Vol. 28. 470 pp. Price not mentioned.

Public health as an applied science is constantly exploring new avenues and its evidence base, which originally comprised of epidemiological, sociological and environmental assessments within a defined framework. The 28th edition of the *Annual Review of Public Health* is an assortment of articles dealing with topics as varied as basic statistical concepts to those that were until fairly recently considered outside the health domain, like the prevention of violence. This is a reflection of the transition in the problems that are addressed in health from a research perspective as well as in the practice of public health.

Preparedness for mounting efficient responses in disaster situations is emerging as one of the major functions expected of public health agencies. This is particularly relevant for developing countries which face major natural disasters and need to cope with them using limited resources. Ever since the 9/11 attacks, the United States federal funding for improving preparedness has increased and the recent debacle during hurricane Katrina has brought investments in this area under the scanner. It is in this context that the *Annual Review of Public Health* has included a series of articles on public health preparedness. Christopher Nelson *et al.* (RAND Corporation) provide a lucid review of how to assess preparedness. The scant evidence base which leads to the existence of multiple overlapping and conflicting standards is rightly highlighted as the major impediment to developing sound performance measures. The need for performance metrics that do not stifle local creativity and are cost-sensitive is a major consideration for researchers engaged in developing operational measures.

Ensuring accurate and effective communication to the public in times of crisis is a critical component of disaster management. Deborah C. Gilk presents an exhaustive review of research literature drawn from such areas as environmental risk communication, disaster communication, health promotion and media studies. The theoretical models of lay understanding and motivation discussed present valuable lessons that health agencies can make use of while preparing mes-

sages for their audience. However, little is said on the actual practice of crisis risk communication. The scant literature available highlights the need for evaluation of crisis risk communication strategies used by public health agencies.

Mental health consequences like acute stress and PTSD in first responders to emergencies, has been described previously and is an area of considerable interest. The last article in the series on preparedness presents a comprehensive review of not only the many descriptive studies, but also examples of interventions used in the prevention and management of such disabling conditions. There is a need for many of these interventions, including psychoeducation and psychological first aid to be evaluated systematically before they become standard components of preparedness training of first responders and health workers.

The section on 'Environment and behaviour' has articles on weight management, tobacco control and youth violence. The first article on 'Physical activity and weight management across the life span' highlights the lacunae in this area despite many years of research. The available evidence, while sufficient for broad recommendations, does not allow for individually tailored guidelines. This continues to be a challenge for people who need to treat individuals. Physical activity continues to be treated in terms of discretionary exercise rather than all components of activity across multiple domains of daily life. The complexity of behavioural trials continues to be a daunting hurdle in meeting these goals.

'The Hitchhiker's guide to tobacco control' is an alarming account of the global tobacco epidemic and its growing trend in developing nations. The article succeeds to a great extent in presenting the larger picture of tobacco control, where the major players are the multinational cigarette manufacturers, a lobby of tobacco cultivators and powerless governments, with health agencies relegated to the sidelines. There is much that India needs to do in this area and to move beyond policies to programmes with discernable outcomes.

The dramatic upsurge in juvenile violence in USA during 1983–93, and the even more dramatic downturn during the next ten years have spawned a torrent of explanations, including Levitt's controversial legal abortion theory. Kara Williams *et al.*, through a systematic review

of available scientific evidence, arrive at risk factors for youth violence. The desensitization and aggressiveness promoted by a media saturated with violent images are highlighted. The authors also attempt to dispel the myth about school shootings, without belittling these incidents and the causative factors. This article is another testimony to the increasing list of demands faced by public health agencies and addresses an area of likely concern in growing economies.

Arcury and Quandt, while evaluating the delivery of health services to farm workers, discuss their health needs and barriers that lead to limited access to health services. Composed mainly by minorities and migrants, many of whom do not have valid permits, the health needs of farm workers seem to be similar or much worse compared to other disadvantaged sections of the American society. While the article has dealt with factors preventing health access to this population and successful health-delivery models, it remains silent on the role of plantation owners in maintaining such inequalities and the failure of regulatory agencies in ensuring basic working conditions which have in fact been highlighted by the mainstream media. Health access is matter of considerable concern in developing countries and there is much that we need to do to understand these issues within a local context.

Public health agencies are increasingly faced with a need to act even when the evidence for benefits of such action is scanty, due to the perceived magnitude of the problem. There has been a lowering of the diagnostic thresholds for many chronic diseases and their precursor states, aimed at identifying individuals at early stages and preventing later morbidity. Robert M. Kaplan points out that with the latest cut-offs for prehypertension, impaired fasting glucose and dyslipidemia, virtually all the US adults over 50 years qualify for at least one of these diagnoses. The benefit of such revisions is at best scanty, small or misinterpreted. Such labelling may lead to increased health-care utilization and pharmacotherapy with its attendant costs. The article succeeds in highlighting the manifold implications of public health guidelines.

The controlled clinical trial, the gold standard for assessing the efficacy of health interventions has been facing criticism as being too idealistic/structured to be useful in real life situations. This is

reflected by the fact that much of the evidence generated by clinical trials does not translate into practice. Russell E. Glasgow explores the reasons for this chasm. Barriers for translation of trial evidence exist at all levels: intervention, design, setting, value systems, inadequate training and funds, and at the larger social and political level. Use of inclusive research designs like community-based participatory research and practical trials to identify interventions that can be put into practice, is advocated. The competing interests of internal and external validity still preclude their wide use, although in recent years their use has increased, especially in primary care.

The article on cost-effectiveness analyses provides a historical perspective of how cost considerations entered the realm of public health and outlines its applications in various areas. It succeeds in making an appeal to use cost-effectiveness analyses in assessment of services.

In the section on 'Epidemiology and biostatistics', Luke *et al.* describe the methodology of network analysis with examples from the study of transmission networks in HIV. They also illustrate the importance of networks in communication and building social capital. The article provides a historical account of network analysis, starting from its roots in the Konisberg bridge problem and traces its development over the years. The need for inclusion of network thinking in public health curricula is emphasized by the authors.

The boom in information and communication technology has largely benefitted epidemiologic research. However, there have been some minor setbacks and the article on telephone surveys highlights important issues that have arisen in the last few years due to the use of answering machines, caller IDs and mobile phones. The authors also identify facilitating factors like computer-assisted telephone interviewing, call scheduling and interactive voice response techniques that have been made possible by technology and sound optimistic about the opportunity for reaching hitherto unheard voices through mobile phones.

The topics reviewed in this book are based on studies originating mainly from the United States, yet they carry a universal appeal. Public health needs a range of committed professionals to serve its mandate. The current review provides much room for introspection on what

public health researchers and practitioners can do, given the relative lack of quality data in our local context. With a diverse range of topical articles, the current edition of the *Annual Review of Public Health* is likely to interest a wide audience.

KIRUBA SANKAR
MARIO VAZ*

*St. John's Research Institute,
Bangalore 560 034, India
e-mail: mariovaz@iphcr.res.in

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It is an exciting exercise to review the *Annual Review of Immunology, 2007*. It is a pleasure to start the review with Peter Doherty's words, 'My research career has focused on complex experimental systems, principally virus-induced infectious processes. I have always run my own experimental program and never had a major mentor, although I have had many great colleagues'. Doherty's contribution to immunology has been significant since, with Rolf Zinkernagel he discovered MHC I-restricted CD8⁺ T-cell recognition, a finding that, together with the 'single T-cell receptor/alterd self' hypothesis that they developed to explain their results, led to the 1996 Nobel Prize. The second article by Arnold *et al.* describes the influence of glycosylation on the biological function and structure of immunoglobulins. These are the major line of defence against the extracellular pathogens, since each is characterized by a distinctive set of glycoforms that reflect the wide variation in number, type and location of their oligosaccharides. In a given physiological state, glycoform populations are reproducible; therefore, disease-associated alterations may be utilized for diagnosis and therapeutics. Kollet *et al.* give a brief account of the role of osteoclasts in host defence. The orchestrated interplay is discussed between bone remodelling, the immune system and the endosteal stem-cell niches in the context of stem-cell proliferation and migration during homeostasis, which is accelerated during alarm situations. Bone

remodelling by bone-forming osteoblasts and bone-resorbing osteoclasts dynamically alters the bone inner wall and the endosteum region, which harbours osteoblastic niches for hematopoietic stem cells. The mechanism of recruitment and mobilization has been elucidated, which consists of stress signals that drive migration of leukocytes and progenitor cells from the bone marrow reservoir to the circulation and drive their homing to injured tissues as part of host defence and repair. Dustin and Rice illustrate the immune response to hepatitis C virus (HCV). It is a remarkably successful pathogen, establishing persistent infection in more than two-thirds of those who contract it. Its success is related to its abilities to blunt innate antiviral pathways and evade adaptive immune responses. The tolerogenic liver environment may provide cover. HCV's error-prone replication strategy permits rapid evolution under immune pressure and persistent high levels of antigens may contribute to immune exhaustion.

Charles Serhan highlights the importance of the resolution of inflammation and the return of tissues to homeostasis. The resolvins and protectins are potent stereoselective agonists that control the duration and magnitude of inflammation, joining the lipoxins as signals in resolution. The article describes the mapping of these circuits and recent advances in the actions of the novel proresolving lipid mediators offer exciting new potential for therapeutic control. The article by Welniak *et al.* gleans on allogeneic hematopoietic stem cell (HSCT) as an effective adoptive cellular immunotherapy for the treatment of a number of cancers. The immunobiology of allogeneic HSCT is unique in transplantation, in that it involves potential immune recognition and attack between both donor and host. Williams and Bevan elegantly describe how effector and memory cytotoxic T-cells (CTLs) differentiate and survive *in vivo* in response to infection. Understanding the mechanisms behind the differentiation of effector and memory CTL is of increasing importance to develop vaccination strategies against a variety of established and emerging infectious diseases. Liu *et al.* review recent progress on how thymic stromal lymphopoietin expressed within thymus and peripheral lymphoid and nonlymphoid tissues regulates dendritic cell (DC) mediated central tolerance, peripheral T-cell homeostasis, and inflam-