

with a personal interpretation to offer. In separate articles, Jenkins and Sharpe, along with their coauthors, do valiantly attempt this.

Surprisingly, Jenkins and Pape, despite pioneering recent studies on the fate of responding T cells *in vivo*, simply restate what is by now said frequently enough: that inflammatory cytokines induced from accessory cells by pathogens or their mimics ('adjuvants') are important in regulating fate of the responding T cells. Sharpe and Schweitzer do better trying to address the current controversy over whether the two costimulatory molecules, CD80 and CD86, do or do not separately control Th1 and Th2 responses. They argue that the differential kinetics of CD80 and CD86 induction, coupled with the differences in the kinetics of the disease processes, may explain conflicting results in differing experimental systems. However, they do not even acknowledge a similar controversy on the possible inhibitory and activatory roles of the T cell costimulation receptor CTLA-4 that can also be explained as a matter of differential kinetics.

The rest of the book deals more directly with therapeutic possibilities. Overstatement remains the order of the day. So Wong says, in discussing the ICE family proteases in inflammation and apoptosis, 'inhibition of ICE represents an approach in which the levels of several cytokines can be modulated simultaneously, and offers greater therapeutic impact in the treatment of a variety of inflammatory diseases'. This flies in the face of conventional drug development, where careful selection of a single target pathway is crucial, since if multiple events are affected, unrealized and unwanted side effects multiply. Similarly, Noelle, Pape and Jenkins, Schweitzer and Sharpe, all say that interrupting T cell priming *via* costimulation is a good therapeutic bet, since it can be done regardless of knowledge of the precise molecular target being recognized by the responding T cells. That any concomitant infection during the course of this suppression of costimulation may have potentially catastrophic consequences is not a possibility that they even acknowledge.

In fact, if one looks at the 'real' drugs being tested in this book, especially in the poster summaries, it is obvious that the pharmaceutical industry is quite hard-headedly aware that traditional methods

of drug discovery are currently far more profitable with the incorporation of structure-activity relationship analyses and rational design strategies than any leads from molecular physiology. Of course, this is not to say that industry does not keep its options open on the biotech bandwagon—the piece by Narula and colleagues about the possible therapeutic uses of interleukin-10 reads every bit as gung-ho as those by the academic authors, despite similar potential limitations.

A curious feature of the current state of biotechnology emerges. Not only does the promise of biotechnology far outstrip its performance so far, even the rate of increase in the feverishness with which promises are made outstrips the rate of increase in tangible results. By and large, the promises being made are about interventions in antigen-specific, adaptive B and T cell immune responses, while the new drugs actually being tested affect various inflammatory pathways in innate immunity. Clearly, analyses of T and B cells have a long way to go before they translate at high frequency into usable products in everyday medicine. Until then, aspirin and its cohorts rule.

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Drug Supply and Use: Towards a Rational Policy in India. Anant Phadke. Sage Publication India Pvt Ltd, M-32, Market, Greater Kailash I, New Delhi 110 048. 1998. Price: Rs 295 (cloth), Rs 165 (paper). 183 pp.

There has been a 700-fold increase in drug production during the last 50 years. Yet, chronic shortage of drugs continues to plague the public health facilities like Primary Health Centres. As a result, the poor patients, who are the main beneficiaries of these public health facilities, are deprived of the drugs they need. On the contrary, in the private sector, the poor have been spending their meager income on irrational drug formulations, prescribed by private doctors, in the hope of better medical treatment.

The author of this book, Anant Phadke, a full-time social worker and the Coordinator of the Rational Drug Policy cell of the Medico-Friend Circle, Pune, has not only highlighted the production of irrational drug formulations, but also described the maladies which result with the irrational use of drugs in India. Currently, availability of irrational drug formulations and irrational use of essential drugs are both contributing to the wasting of people's money as well as of Government. The role of drug industry as well as doctors in perpetuating the use of irrational drugs has been well documented and substantiated with detailed evidence.

The author rightly complements the drug companies for introducing new drugs, which are useful, through their intensive research. But he criticizes them for continuing to market toxic drugs by suppressing information about the side effects of these drugs. Because of this practice, he cites that a large number of drugs, which are irrational or of doubtful efficacy, are marketed aggressively by the drug companies in collusion with the doctors through commercial gimmicks and, in certain cases, indulgence in corrupt practices.

The genesis for the increased production of irrational combination of drugs and shortfall of essential drugs, with practical examples based on Drug Price Control Order of Government of India, is well presented. In addition, lack of appropriate regulation of ayurvedic drugs sale has been cited as the main reason for this abnormal increase in the introduction of irrational drugs of all kinds in the markets in recent years. The author questions the present policy of allowing commercial production of ayurvedic drugs without testing their safety and efficacy through modern scientific research, although he has recognized the need for propagation of ayurvedic therapies, which have been found to be effective and safe.

Drug companies are known to add unnecessary ingredients and make irrational drugs to gain extra profits. But, the question is, why do doctors prescribe such drugs. The answer lies in that there are 4,00,000 allopathic doctors and twice as many non-allopathic (homeopathic and ayurvedic) doctors in India. The large-scale use of allopathic drugs by these non-allopathic doctors is one of the main factors responsible for large-scale sale of

irrational drugs by various drug companies. Since majority of doctors in rural areas are not qualified, rural population is the worst affected. The author further points out that irrational prescription is not confined to non-allopaths alone. Even the prescribing patterns of the qualified allopathic doctors are far from satisfactory. His studies indicate that even in a metropolitan city like Mumbai, 100 practitioners had prescribed 80 different regimens for a common disease like tuberculosis, out of which only four matched with the standard regimens recommended by the WHO! The author therefore recommends that the services of community health workers be used for simple ailments at least; since on the basis of surveys conducted, it has been established that they generally do not indulge in irrational drug use.

The second half of the book covers detailed report of the research study on 'Supply and use of pharmaceuticals in Satara District', which comprises a set of seven interconnected small sub-studies. In this study, an attempt has been made to analyse and compare, the doctors' prescription with the standard prescription for the diseases, for which these prescriptions were given. As a result of this exercise, an estimate of the financial wastage due to irrational prescription in this district could be computed. In addition, the drug needs of this district could be estimated and compared with the current expenditure on drugs.

Although the study, conducted in Satara district for three years, is unique in several respects, as claimed by the author, the detailed methodology and results presented with statistical significance may distract and divert the attention of readers from the main theme of the book. The author assumes that if technical language is avoided, detailed presentation would be of interest to a wider audience. But his attempts to avoid scientific and technical details are not quite successful. Although the methodological issues could be of interest to investigators of drug epidemiology studies, such details may not interest the general readers. However, the results of the study, which reflect the

use of the drugs at the grass root level by various agencies, both in public and private sector, are indeed of considerable importance for better utilization of drugs in India.

The author has not only extensively dwelt on the reasons for irrational drug use in India, but has also suggested remedial measures to develop a rational drug policy, that includes ban on irrational drugs, preparation of essential drug list, continuing medical education, etc. Valuable data, collected by the author from different sources, are presented in several tables and figures. Guidelines for prescription analysis, provided in appendices, would be useful to investigators in this field.

In a nutshell, Anant Phadke, in this book presents the true picture of current production pattern and use of irrational drugs, as well as projects the steps that need to be taken to develop a rational drug policy in India. Besides, a brief account has also been included of the measures taken by the various agencies to influence the policy-makers to adopt a rational drug policy. In general, the book would be of use to policy-makers, physicians, pharmacists, public, voluntary agencies, etc. who are interested in better utilization of drugs in India without wasteful expenditure by the government as well as by the public.

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Development and the Information Age. John Howkins and Robert Valantin (eds). International Development Research Centre, Ottawa, Canada. 1998. ISBN: 0-88936-835-X, pp. xiii + 59.

What are the implications of the information revolution? Will it help bridge the gap between the developed and the developing countries, or will it, like the industrial revolution, exacerbate the divide

between the two? Several publicly funded agencies around the world are interested in understanding how information and communication technologies can be harnessed in development programmes. The Institute of New Technologies of the United Nations University, for example, have convened a few conferences and commissioned a few studies on this issue. The United Nations Commission on Science and Technology for Development, for its part, decided to undertake a scenario-building exercise and IDRC pitched in some funds. A fabulous venue, Kelburn Castle in Scotland, was chosen, two facilitators, acknowledged experts in scenario building, a technique pioneered by Royal Dutch Shell, were hired, and an international team of about 25 participants including six invited speakers was assembled for a five-day workshop. This cute little volume describes the background to the workshop and presents the four scenarios that resulted.

Based on two axes, viz. global environment (inclusive vs exclusive, open vs closed, and enabling vs restrictive) and national response (complete vs partial, proactive vs reactive, and engaged vs disengaged), the participants came up with four scenarios, which were designated 'the march of follies', 'cargo cult', 'net-blocs' and 'network'. Using these scenarios and a shared understanding of the five key indicators of development, viz. literacy, education and skill building; health; income and economic welfare; choice, democracy, and participation; and technology, the group arrived at some conclusions that should be of interest to policymakers and students of development.

I wonder if the purpose could not have been achieved at a much lower cost than by the typically expensive ways of some of our international organizations.

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