

that are statistically significant but clinically implausible. In the same way Weiss draws attention to the major possible biases in clinical studies and to ways of controlling confounding factors.

In summary this is an attractive book, which can be read quite quickly, first because it is a small monograph and second because of its useful and clear contents. Many clinicians would benefit from reading it, more in the sense of a better interpretation of clinical research (e.g., in the medical literature) than as a basic book for clinical research management.

*Clinical Information Systems, Bruce I. Blum. New York: Springer Verlag, 1986, 414 pp.*

Reviewer: David L. Martin, M.B.A., Consultant in Health Technology, Health, and Welfare Canada, Ottawa, Canada.

Blum endeavored to do much in his book: to address neophytes in clinical information systems, the computer industry, and even experts, all under one cover. His theses were that clinical information systems (CIS) were mature, that they would have a major impact on patient care and the health delivery system, and that the number of commercial systems offering these benefits was very small. In addition to proving these theses, Blum hoped to increase the demand for more sophisticated products and to provide marketplace incentives to advance the state of the art.

There are three main sections to this book, dealing with the background of the CIS, computer systems, and clinical applications. In the first, Blum presents a lucid history of the computer and of computers in health care. At this stage he clearly differentiates between data applications, information applications, and knowledge applications (including expert systems and artificial intelligence). He addresses each of these categories in his later analyses.

The computer systems section wisely starts with the simple, such as the personal computer, and proceeds to the complex hardware, programming languages, and data base management systems. The neophyte will find the latter sections difficult, but Blum provides selected suggestions for further reading at the end of each chapter for those who must know (but don't). The last chapter on computer systems presents the well-known (by computer people) steps in system implementation, again progressing to the complex programming "heuristics" (this is one word he doesn't include in his rather complete glossary!).

Those who have been laboring heavily toward the end of the computer systems chapters will find welcome relief in the latter half of this book, when Blum launches into a largely descriptive outline of clinical applications. These chapters are dependably complete and again progress from early hospital information systems to medical decision-making applications. Blum's evaluations will be appreciated by interested medical practitioners and computer experts alike.

The concluding chapter, "A Case Study," relates the background and operating structure of the Johns Hopkins Oncology Clinical Information System. One wonders why this system was left to the last and presumably most important

place. If it was to be considered the best, Blum gives no defense of that position. If it was because Blum presumably would be more intimately acquainted with it, the reader will be frustrated by the paucity of detailed information.

This book is replete with good and bad points. I was impressed by the orderliness and readability of the presentations, but distressed by evidences throughout the book of sloppy editing (spelling mistakes, incomplete references, mislabeled exhibits).

The early chapters, although "heavy" for the non-expert, are probably necessary for him. For the computer expert or the advanced student they would be redundant. Also, there is a huge jump between the principles in the first half of the book and the finished products in the latter half. Planners wanting to know which system to buy will find no easy answers here.

I found myself asking: "Is this a thesis?" In view of Blum's hypothesis and conclusions, while the technology may be "mature," I remain unconvinced that it isn't still in search of problems to solve. Blum himself points out that the major savings are still in communications, admission-discharge-transfer functions, imaging technologies, and, in the more advanced systems, error checking (e.g., drug-drug incompatibilities). The potential major impact on patient care remains only possible, not proven; this may be partly due to the still limited acceptance by the medical profession.

There are few commercial systems, but Blum overlooks the emergence of local area network (LAN) based systems. While this book will inform potential users and developers, I find it unlikely that it will affect demand or even suggest marketplace incentives; nothing in this book addresses the difficulties from the commercial market developer's perspective.

I would recommend this book to the physician or planner beginning to consider and learn about clinical information systems. They will find the book not only an excellent entrée into the field, but also a useful reference book and guide to further study. It will not obviate the need for skilled systems designers, but it will help remove much of the mystique involved in planning systems.

The computer student and the experts will also find interest in the book in Blum's thoughtful discussions and arguments. It is a good book, but few books create miracles.

*Trends in Health Legislation in Europe, H. J. J. Leenen, G. Pinet, and A. V. Prims. Paris/New York: Masson, for WHO, 1986, 229 pp.*

Reviewer: Göran Liedström, National Board of Health and Welfare, Stockholm, Sweden.

Health legislation is not only a key element in national and international health activities, it is also a reflection and an expression of health policies. For people working towards high goals, such as "Health for all by the year 2000", it is of the utmost importance to get a survey of current laws and regulations. If these could be followed over a period of time, so much the better. For policy makers