tions and future research directions, which is generally an attempt to include material that was published between first drafts of manuscripts and the time of publication. Although this information is interesting and important, much of it is available elsewhere, albeit in piecemeal fashion. For those looking for comprehensive reviews of medical and psychosocial issues, including references up to and including the year 2000, the management section will be extremely useful.

Over all, the text is very readable for a general scientific audience. It may be rather technical for policy analysts and health system administrators, but they will be rewarded for their effort, since much of the information directly applies to organization of an important segment of health services. This edited text covers all of the major areas of interest in considering familial and hereditary breast and ovarian cancers. Although the editors, most authors, and the focus on services are European, there are enough commonalities to make the book a worthwhile purchase for North American readers as well.

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*Essentials of Medical Genomics*. By Stuart M. Brown, Ph.D. Hoboken, NJ: Wiley-Liss, 2003. $49.95. Pp. 274.

There has been considerable focus on the implications of the Human Genome Project for the day-to-day practice of medicine recently—both in the popular press and the medical literature. New research results are distilled into 10-second segments on the local evening news, and companies offering various forms of clinical genetic testing have embarked on direct-to-primary–care-provider and direct-to-consumer marketing of their wares. Although it is still not clear just what the impact of genomics will be on the diagnosis and treatment of many common diseases, one thing is clear: there is an urgent need to educate medical care providers about both the capabilities of and—probably more importantly—the limitations of "genomic medicine."

It is in this context that this book emerges. Written by a molecular biologist/bioinformatics expert from the Department of Cell Biology at the New York University School of Medicine, this book evolved from the author's experience teaching an elective medical genomics course offered to NYU medical students. The book jacket suggests that it is being marketed in an attempt to educate physicians and medical students regarding emerging genomic technologies and "their role in clinical practice." I believe that this book succeeds in meeting the former goal but falls short of the mark on the latter goal.

At 274 pages, this text is organized into a total of 11 chapters, plus a glossary and index. An introductory chapter, titled "Deciphering the Human Genome Project," reviews the basics of Mendelian genetics and touches on topics including recombination, linkage, transcription, translation, and alternative splicing. The second chapter, entitled "Genomic Technology," discusses the basics of molecular biology from which today's high-throughput techniques have evolved.

Of particular note are chapters on bioinformatics tools and genome databases. The former provides an excellent concise summary of many of the tools available for *in silico* genome analysis. The chapter on genome databases provides solid background regarding the information currently available in the public domain. The author discusses various National Center for Biotechnology Information (NCBI) resources, including GenBank, Entrez, PubMed/Medline, OMIM, and BLAST. A section on genome annotation is useful. Also, illustrations give the reader a taste of the human genome sequence data that can be accessed over the Web by anyone with a computer. Lastly, the author discusses model organisms and the potential of comparative genomic studies to improve our knowledge of the human genome.

A chapter on human genetic variation introduces concepts, including different types of mutations, single-nucleotide polymorphisms, variable number tandem repeats, and linkage. The chapter is sprinkled with a few clinical anecdotes.

The chapter entitled "Genetic Testing for the Practitioner" was contributed by Dr. Harry Ostrer. Although it is an excellent brief summary of issues surrounding genetic testing in the clinic, I was really struck by the fact that only 11 pages of relatively large-print text (out of 274 total pages) were devoted to this subject in a book that is marketed primarily to current and future clinicians. Although genomic medicine is a young and evolving science, the clinical use of genetic testing is both relevant and mature enough that I believe it deserves more detail. I believe that the book would have benefited substantially from the further involvement of Dr. Ostrer or other clinicians. Of note, several concepts of real current importance to the clinician were not covered here: mosaicism and imprinting are two examples.

The other chapter by an outside contributor, an excellent review of gene therapy, was contributed by Dr. John Hay. However, this chapter, at 32 pages in length, occupies almost 14% of the book's text—probably an allocation that is a little out of proportion in comparison with the 11 pages devoted to testing technologies already of clinical importance in nonresearch settings.

The last several chapters do provide for a strong finish. Excellent chapters on microarrays and proteomic technologies allow the reader to understand these technologies, which will almost certainly have an impact on clinical medicine in the decades to come. Likewise, a chapter on pharmacogenomics and toxicogenomics is well done. The final chapter is an excellent discussion of some of the ethical, legal, and social issues found at the intersection of emerging genomic technologies and the clinic.

Lastly, the inclusion of a glossary is obviously quite important in a book of this nature. Although the glossary is well

written and very thorough for concepts and terms relevant to many of the chapters, I believe it suffers from a lack of terms important to practitioners of genomic medicine. For example, although there are definitions of alleles, Boolean search terms, FASTA, and Hidden Markov Models (terms relevant to basic molecular genetics and bioinformatics), we do not see terms of clear importance to the office practice of genomic medicine defined. Inclusion of terms and concepts like germline and somatic mosaicism, imprinting, genetic heterogeneity, and others—both in the glossary and in some detail in the text—would make this a more robust book with respect to the medical practitioner.

Although there are many uncertainties regarding just how genomic medicine will be practiced, it clearly will no longer be exclusively the province of the medical geneticist. We have an urgent need to facilitate the development of genomic literacy in medical practitioners. This book is a novel and important attempt at contributing to this process, but I believe it falls somewhat short of the mark. It will be quite useful to anyone from other fields who is interested in a taste of what emerging technologies in genomics, proteomics, and bioinformatics can bring to bear on questions of potential importance in biomedical research. However, I believe that it is not an ideal text for the primary-care physician or nongenetic medicine specialist looking for assistance in coming to grips with the rapidly evolving role of genetic and genomic information in clinical practice. That said, there is no ideal text at this time for these individuals. Nongeneticist physicians would do well to use a combination of resources: in my opinion, the 6th edition of *Thompson & Thompson Genetics in Medicine*, online resources at http://www.genetests.org/, and the recent review series on genomic medicine in the *New England Journal of Medicine* will give them a good start.

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