Book Reviews

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Familial and Ovarian Cancer: Genetics, Screening and Management. Edited by Patrick J. Morrison, Shirley V. Hodgson, and Neva E. Haites. Cambridge, United Kingdom: Cambridge University Press, 2002. Pp. 401. $95.

Writing a text on cancer genetics is a daunting task today because of the amount of material to be covered and the speed with which the field is developing and changing. Even in this dynamic environment, there is some solid ground beginning to emerge. This multiauthored, edited text is organized into three parts in an effort to summarize what is currently known. Part 1 focuses on selected aspects of the molecular biology and natural history of hereditary breast and ovarian cancer. Part 2 deals with current screening recommendations and other clinical service issues. Part 3 covers medical management, ethical, legal, social, and psychological issues for those women found to be at increased risk. The intended audience is broad: clinical geneticists, surgeons, oncologists, psychologists, and other health care and health policy professionals. The authors are largely experts from European centers, with contributions from a few highly regarded North American scientists.

From the introduction, we learn that cancer genetics clinics have been established in many parts of Europe for a number of years but that the organization and quality of services vary. They are becoming overwhelmed by increasing public demand and consequent referrals. Eleven centers in Europe worked together in the late 1990s on an EU-funded demonstration project entitled "Familial Breast Cancer: Audit of a New Development in Medical Practice in European Centers." The work of the demonstration project continues as the "International Collaborative Group on Familial Breast and Ovarian Cancer." The chapters included in this text were generated, in part, from the work of the initial collaboration, which provided evidence summaries, management guidelines, and consensus views for various aspects of care for high-risk patients. Other chapters, from independent investigators not affiliated with the European demonstration project, produce a well-rounded text.

Part 1 contains up-to-date summary material that is convenient to have placed all "under one roof." There are concise summary chapters, which provide overviews of the clinical genetics of breast cancer and ovarian cancer. It is gratifying to see the inclusion of Charis Eng's authoritative chapter on Cowden syndrome, a rare condition, which provides interesting clinical and scientific insights and which reminds readers that *BRCA1* and *BRCA2* are not the only genes associated with hereditary breast cancer. This high academic standard is continued in the Vasen and Nooy review regarding the question of whether breast and ovarian cancers are part of hereditary colorectal cancer susceptibility syndromes, including hereditary nonpolyposis colorectal cancer (HNPCC) and Peutz-Jeghers syndrome (PJS). There is no agreement on whether breast cancer is a component malignancy of HNPCC; however, there is no doubt that ovarian cancer risk is increased in women with HNPCC. The most frequently occurring cancers in PJS are those of the colon and breast, but ovarian cancer is seen occasionally in this hereditary colon cancer syndrome also. Other chapters cover the natural history and pathology of hereditary breast and ovarian cancers. This section concludes with a chapter on estimating the risk of developing breast/ovarian cancer by means of the Gail and Claus models and pedigree analysis, augmented by Bayesian analysis. One shortcoming is that the review does not consider the computer model BRCAPRO or several other, more recent models included in the CancerGene software program, which is now widely used by cancer genetic counselors in the United States.

Part 2 is entitled "Screening," but that proves rather a misnomer, as the majority of the chapters relate to public health issues regarding cancer genetics services in Europe. The material in this section provides readers a window into the world of cancer genetics services outside of the resource-rich United States—for example, a Welsh model from Cardiff. This paper has many helpful summary boxes which highlight key points throughout the text. For example, a summary of benchmarks being piloted for cancer genetics service provision could serve as a checklist for other programs interested in measuring the quality of their service. Other service-related chapters focus on referral criteria and guidelines for the development of cancer genetics services, with an emphasis on preliminary risk assessment by the primary care provider, with the specialist services reserved for known familial cases. The chapter by Haites, Hodgson, and the Scottish Working Group on developing clinical cancer genetics services has detailed organizational suggestions, such as a five-step evaluation strategy from initial risk assessment through cancer genetics referral to risk reducing and treatment suggestions. This model includes algorithms for risk stratification and counseling of women at low, medium, and high risk of breast, ovarian, and colon cancer. The final chapters in this section, which focus on screening, detection, and survival patterns for high-risk breast and ovarian cancer, form an effective transition between this and the final section of the book, which is devoted to management issues.

Part 3 includes chapters targeting women carrying *BRCA1/2* mutations, familial ovarian cancer, and prophylactic mastectomy. The issues of uptake and measurement of *BRCA1/2* testing and other ethical, social, and insurance issues are addressed. The final chapters describe potential gene therapy op-

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