Book Review

Community Genetics

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Genetics and Public Health in the 21st Century

Using Genetic Information to Improve Health and Prevent Disease

Oxford, Oxford University Press, 2000

Public health genetics, the application of genetic science to improve health and to prevent disease, has now come of age. This book is a testament to the breadth of the subject, covering matters as diverse as the impact of the human genome project on health and health services, the need for multidisciplinary education in genetics for health professionals, the part played by epidemiology in establishing correlations between genotype and phenotype, quality assurance in genetic services, occupational health implications, the evaluation of genetic testing, screening and other community-based programmes, and the consequences for the law, ethics and society. The use of genetic information to improve health and prevent disease lies quite firmly within the definition of public health – 'the art and science of promoting health and preventing disease through the organised efforts of society' – as understood by most public health professionals in the United Kingdom.

The concept of public health genetics is therefore broad and multifaceted and covers much more than community genetics, a term used mainly in Europe, to describe a branch of genetics that 'seeks to integrate genetic services into community interventions' and which directs its interest to reproductive counselling, carrier testing, prenatal diagnosis or genetic screening. Public health genetics includes within its remit, as the book clearly demonstrates, all these issues but much more besides and has within its ethical framework a clear understanding that the primary goal of genetic interventions in the reproductive period is to enhance reproductive choice and not to reduce the birth prevalence of genetic diseases. There is no uneasy sit, as was suggested by the editor of this journal last year, between public health genetics and reproductive choice.

Prevention as a public health concept embraces primary, secondary and tertiary prevention. The impact of genetics on diagnostic and treatment services is therefore as much the subject matter of this field as its impact on what many would understand to be purely preventive strategies. The organisation of services for people with inherited disorders and their families is obviously a prime concern, but as we move further into the 21st century there can be little doubt that the subject must concern itself with the high penetrance inherited subsets of common disorders as well as with how an improved understanding of the role of low penetrance genes in the pathogenesis of disease might allow a better use of predictive and preventive strategies, or how the interaction of genes with therapeutic agents will lead to individually tailored drugs and a need to develop pharmacogenetic services. In more general terms, the subject matter of public health genetics must embrace issues as diverse as science policy, the role of industry in research and in the development of new diagnostic and therapeutic agents, intellectual property rights, medical databases and confidentiality and much else besides.

Themes that come across most effectively in this volume are the impact of the subject on research and education (Austin and Peyser, Caumartin et al.), the place of epidemiology (Dorman and Mattison), the need for quality assurance (Watson), the health economic implications (Grosse and Teutsch), the prevention of specific diseases – haemochromatosis (Burke et al.), atherosclerosis (Williams et al.) and sickle cell disease (Olney), and some of the ethical (Burris et al.) and communication issues (Condit et al.). The initial chapter by the editors makes one of the most important points in the book. It is that in the interface between genetics and public health, 'all public health professionals will need an appreciation for integrating genetic research, policy and program development into their daily work' and while not particularly endorsing 'the creation of a new public health subspecialty in genetics' they 'encourage and emphasize the smooth integration of genetics into public health practice'. The specialty of public health genetics will be here to stay for some time but its goal of using genetic information to improve health and prevent disease will only be achieved when all health professionals become conversant with the potential of genetic science. At that point the specialty will not be needed for it will by then have done its job.

This book is highly recommended to both geneticists and to public health professionals. General practitioners and those concerned with the impact of genetics and primary care will also find the book of interest. The articles are all relevant and most are of the highest quality. The contributors number among them those who have developed public health genetics as a subject in its own right. They and the editors are all to be congratulated.

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