written by Clive Rowlands former Captain and Coach of Welsh Rugby:

I was admitted as an eight year old, in 1947. That winter was the snowiest since 1814 and among the coldest on record, but our beds were wheeled out onto the balcony so that our lungs would benefit from the sharp, icy mountain air. Although I was one of five children, I don’t think I suffered as much as other youngsters because my sister, in her early twenties, was already in Craig-y-nos and I was allowed to see her every day. I also benefited from her weekly visits because children’s visiting was normally only once a month. However I wasn’t aware that my sister was terminally ill and she was later sent home to die. My most abiding memory however is of receiving a rugby ball and being punished for kicking it through a glass door. I was put in a straitjacket for a week.

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Public health genomics is a relatively new field within public health. The Centers for Disease Control and Prevention (CDC) in the USA, with considerable foresight, recognized the need for the entire public health workforce to achieve competence in this area. This book, addressed primarily to US public health students and professionals aims to help them achieve these competencies. As such, the authors may perhaps be forgiven for presenting an almost entirely US centred account of genetics and genomics but in doing so the opportunity to learn from international experience, and some of the subtlety of international debate within the field is lost.

In a slim volume and very readable format, the book presents a wide overview from the initial development of the subject, including the Human Genome Project and the US federal and state programmes in public health genomics. Background material includes basic molecular genetics, patterns of inheritance, multi-factorial traits and the basics of genetic epidemiology as well as ethical, legal and social issues such as the use of genetic information, genetic discrimination and ethical concerns. The practical impact of genomics for public health is covered in five chapters that include prenatal diagnosis, genetic screening programmes, inherited metabolic disease and newborn screening and the management of adults and children with genetic disorders. A final section covers genomic aspects of general public health issues such as health economics and health inequalities, and looks to the future in areas such as personalized medicine, gene therapy and stem cell research.

The book is, however, limited on a number of accounts. Firstly, it is almost completely focused on the USA, and totally ignores the breadth of research, public health activity and policy debate that is taking place throughout the world. Students of the text may gain the impression that the sequencing of the human genome itself and all related considerations before and since have been US undertakings. Information resources such as those at HumGen (an international resource based in Canada concerning ethical, legal and social issues in human genetics), or the Foundation for Genomics and Population Health in Cambridge, UK, which has one of the most extensive databases of research, policy and independent commentary are not included.

Secondly, the very limited presentation of many of the topics misses an opportunity to outline the arguments and discussion that make this area so interesting. For example, in its consideration of newborn screening for inherited metabolic disorders, the author talks only about the extensive tandem mass spectrometry programme in California and does not mention a question that troubles policy-makers in other countries that have opted for more limited screening programmes, about whether to screen for disorders that have no treatment. Is this ethical if the infant gains no health benefit and the only benefit is information for the parents and possibly the opportunity to avoid a subsequent affected child?

Thirdly there are significant omissions, such as, for example, in the consideration of the role of genetics in adult disease. The author fails to mention the many inherited disorders in almost every area of medicine—disorders of the retina, for example, or inherited arrhythmias or cardiomyopathies that can cause sudden cardiac death. The need to test for these conditions in order to make a correct diagnosis and follow up family members at risk is a great challenge to preventive health and health services.

Fourthly, there are some sections that are rather puzzling and uncritical. For example, in the section on health economics of genetic screening, results of a systematic review of health economics of genetic screening were
presented on the economics of screening for eight conditions without any consideration of whether these were suitable conditions for screening either of populations or sub-groups. Most of the conditions listed (including, for example, retinoblastoma and familial colorectal cancer syndromes) would not be suitable for population genetic screening rendering the remaining of the debate about the ability of health economics to ‘inform health policies’ rather misleading.

In conclusion, this book includes a lot of useful information for the beginner in public health genomics, which, no doubt covers the syllabus for students of public health in the USA. In general, it is stronger on the genetics side than on the public health or policy side. Whilst recognizing that all dimensions of such a large subject cannot be covered, there are certainly areas where opportunities for deeper understanding that would have been of interest to a public health audience have been missed.

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