Guttmacher AE, Porteous ME, McInerney JD
Educating Health-Care Professionals about Genetics and
Genomics
Nat Rev Genet 2007;8:151–157

DOI: 10.1159/000101763

Engaging Health-Care Practitioners in the Genomics Era

Genomics marks a quickly evolving field of research that has an increasing impact on individuals and society. Guttmacher et al. argue that for genomics to effectively change the clinical practice, advances in the genomic literacy of health-care providers need to be made. They describe the knowledge, skills and attitudes that are necessary in genomic medicine, and approaches to integrate them into the health-care community. The focus of educating (future) health-care professionals is on enabling them to understand and utilize genetic-based probability and risk assessment, and to communicate effectively about them. Essential in this understanding of genomic medicine is the role of family history to determine the mode of inheritance, awareness of the individual information that genetic tests might give and making appropriate referrals to a genetic specialist. To facilitate informed decision making by patients the physician should be skilled in communicating genetic information in plain language and taking family dynamics into account.

The authors refer to various reports in both the United States and the European Union to emphasize that current education fails to train genetically literate physicians that are willing and feel confident in addressing genetic issues in the clinical setting. As a solution they present some recommendations for pre-service and continuing education that should put genetics in a practical clinical context. The latter seems quite obvious but as the authors state, among the most needed improvements in pre-service education is bridging the gap between the basic sciences and clinical instruction. Education should be case-based and reflect practical examples that illustrate the fundamental principles of genetics as

they relate to common diseases, as opposed to dealing only with rare Mendelian diseases. Continuing education, i.e. residency programmes and fellowships in postgraduate training, should proceed in integrating genetics with other major disciplines. However, most important for rapid implementation of genomic medicine in patient care, as the authors suggest, is engaging clinicians in working out how the knowledge will be applied most effectively. As biomedical research and clinical practice are continuously developing, genomics marks an area that implies life-long learning for both physicians and educators.

Comments

In 2006 the September issue of *Community Genetics* [1] included a collection of papers undertaken by the GenEd project (Genetics Education for Non-Geneticist Health Professionals) that underlines the statement made by Guttmacher et al. that much work is needed to make genetics a consistent, pervasive and clinically relevant discipline for the non-geneticist health professional. Genetics is still largely seen as just a medical specialty like all others instead of being fundamental to all issues of health and disease. Therefore, it has to compete with (traditional) medical priorities in educational programmes that have long been present and debated. The article provides a strong and convincing argument in favour of a genetics- and genomics-rich curriculum and offers helpful though general recommendations for integrating these into medical education. In addition, it lists some resources that might be helpful in the education of health professionals in genetics. Designing such education is a considerable challenge and requires clinical preceptors who ‘think genetically’ and are able to elaborate for students the genetics-based lessons in diverse clinical cases. Some of these cases – from John, aged 37, who is concerned about his family history of colorectal cancer to Hannah, aged 39, terminally ill and in a coma with a cerebellar haemangioblastoma – are already given in the article, which places the authors’ argument right in clinical practice.

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Reference

- 1 Harris R, Challen K, Benjamin C, Harris H: Genetic education for non-geneticist health professionals. *Community Genet* 2006;9:224–226.