

Preface

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Preface Changes in medicine The Oxford Textbook of Medicine is published online and has been regularly updated for many years, but the production of a new and very substantially updated edition provides a moment when it is natural and proper to reflect on what has changed in medicine—and what has not—in recent years. In the context of burgeoning social changes and inequality across the world, we have cause to weigh and consider exactly what modern medicine has to offer patients and their doctors. Here we reflect on aspects of Medicine that are changing rapidly and set out a vision for this in the sixth edition of the Oxford Textbook of Medicine.

Demand, capacity, magic solutions, and the need for perspective Within all healthcare systems, in rich and poor nations alike, most physicians feel the inexorable rise in demand and are struggling to provide adequate ‘capacity’—the term commonly applied by healthcare managers charged with the impossible task of constraining expenditure while serving political masters who, almost without exception, promise more and more and blame inefficiency and ‘unwarranted variation’ for the failure to deliver. In response to the difficulties, claims are made that some new technological advance, be it sequencing of patients’ genomes, healthcare apps, the application of artificial intelligence or ‘Quality Improvement’ methodology, will provide the solutions. In the Oxford Textbook of Medicine, we do not shy away from these aspects and have several new chapters that consider how rich and ‘resource-poor’ countries might best invest their revenues on health. It is often very hard for practising physicians, who care for patients as individuals, to maintain their bearings within the unfamiliar and depersonalized world of modern healthcare management. Many are left wondering whether those who organize health services ‘live on this planet’, or ‘did any working doctor check out that latest directive from above?’. When clinical outcomes that really matter are difficult to quantify, doctors find themselves and their services judged by spurious measures of ‘productivity’ in the process of healthcare ‘delivery’. Unrealistic and often clinically irrelevant targets might drive the thinking of the insurers, managers, and politicians, but who can determine the human and clinical value of the care provided? Timeliness of care is important and sometimes crucial for salutary outcomes, but disaster strikes when clock-driven targets are blindly pursued for all patients irrespective of clinical urgency and to the exclusion of all else, including patients with greater clinical need. In the morass created by financial constraints and zealous political control of health services exercised by those without clinical responsibility, it is rare for doctors be able to stand back and perceive genuine improvements. However, it is certainly true that today we have greater potential to prevent and treat disease and to maintain health than ever before. It is our hope that the Oxford Textbook of Medicine will inform doctors about these changes and provide good guidance as to how they can be translated into clinical practice. Advances in biomedical sciences We seek to embody advances in understanding and practice that have

arisen through scientific research. In the ten years since publication of the last edition of this book there has been spectacular progress in the application of science in medicine, especially the understanding of genomics and molecular cell biology. These include: in diagnostics, non-invasive prenatal diagnosis of chromosome abnormalities and monogenic disease by sampling maternal plasma for cell-free fetal DNA, a technique which also holds promise for screening and monitoring of cancers; in metabolic disease, the introduction of molecular therapies that address the defective chloride transport in cystic fibrosis; in oncology, increased understanding of cancer immunity leading to the development of immunotherapies for cancers. Our authors include the very best in their fields. The founding editor and author in this edition, the late David Weatherall, was a recipient of the Lasker-Koshland Special Achievement Award in Medical Science. Two new authors have received the Nobel Prize recently—Professor Tu Youyou the 2015 prize for Medicine or Physiology, and Sir Greg Winter the 2018 prize for Chemistry. Another new author, Professor Y.M. Dennis Lo, was one of two winners of China's inaugural Future Science Prize in 2016. Beyond scientific development, the introduction of new technologies into practice typically leads to a sequence of events including initial 'hype' from many in the field, with extravagant claims of potential benefit. After an interval, these claims are followed by a more realistic assessment of what the technology can—and cannot—provide. Frequently, this familiar pattern is driven by powerful commercial influences which can corrupt thinking in a manner that generates a climate in which those with views contrary to the big battalions are inevitably marginalized. In this edition of the Oxford Textbook of Medicine we have strived to bring an authentic perspective and realism to recommendations for treatment. We sense, for instance, that the excitement generated by the sequencing of patients' genomes continues to increase, but that this trajectory is flattening and expectations becoming more realistic. For patients very likely to have genetic disorders, diagnoses can be made for a proportion that was unimaginable until recently, but for most patients with the degenerative and/or polygenic diseases that are the greatest burden

Preface viii to health, evidence of clinical benefit from genome sequencing remains elusive. Beyond the progress in genomics and cell biology there has been immense interest in bioinformatics and, especially with the enthusiasm of major biomedical charities such as The Wellcome Trust, for 'big data', and the opportunities that these bring to the practice of medicine. However, while there are plentiful examples of genomics and cell biology having been translated productively from the bench to the bedside, with enormous benefit to patients, examples of transforming clinical impact from big data and bioinformatics are sparse. But examples there are, such as in the analysis of outbreaks of the scourges *Clostridium difficile* and methicillin-resistant *Staphylococcus aureus* (MRSA). These discoveries give hope for the future as we learn which problems are tractable with this type of approach and which are not. Clinical skill Until recently, it would have been, to paraphrase Thomas Jefferson, regarded as self-evident that the key requirements of a good physician are the ability and will to obtain an informative history, carry out a thorough physical examination, formulate a relevant differential diagnosis, instigate appropriate investigations, advise and administer correct treatment, including best efforts to relieve symptoms in all cases. These skills, and the commitment to use them, are often forgotten when healthcare is described in the commercial terms of demand and capacity. While advances in biomedical sciences have dramatically improved the outcome for some diseases, and Paul Erlich's century-old *magische Kugel* (magic bullet) has whetted our appetite for wonder, it is prudent to recall Thomas Szasz: 'Formerly, when religion was strong and science weak, men mistook magic for medicine; now, when science is strong and religion weak, men mistake medi-

ciné for magic'. The term 'personalized' medicine imputes remarkable and as yet unproven powers, excepting in a very few cases, to gene sequencing and molecular therapies, while the patient wants to be treated as a person. It is also alarming to us that some medical curricula increasingly focus on process, 'behaviours', and 'communication skills', to the detriment of medical content or mature guidance and attitudes to lifelong learning. There is a tendency to forget the very essence of being, and how to become, a physician in the time-honoured understanding of the role. In the Oxford Textbook of Medicine we unashamedly emphasize the primacy of history, examination, differential diagnosis, investigation, and treatment. Without a firm grasp of these essentials the doctor cannot provide good care for patients, and nor can anyone else. Furthermore, having a firm understanding of clinical context and a well-informed clinical perspective is an essential prerequisite for driving biomedical research into avenues that really matter. The broader context of health and disease

The world has become a smaller place. We are now in an era when many regard not having a smartphone as an index of deprivation. An event that has happened on a different continent can, as a result of social media, become known to millions of people within hours—the term 'viral' has been rightfully translated from communicable illness to global phenomenon. Narratives transmitted in this way often concern disasters, wars, and disease, and they are typically handled by the media in a sensationalized and superficial manner. One hundred and fifty years ago, Darwin's 1859 masterpiece on evolution was entitled 'On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life'. The 'less favoured' undoubtedly have poorer health outcomes, due largely to the persistent social ill of inequality, in poor as well as ostensibly rich countries. Continuing the tradition of previous editions, we have contributions that discuss the impact of social determinants of health, also thoughtful chapters on human disasters (by another Nobel laureate, Prof Amartya Sen), and the practical and critically important aspects of humanitarian medicine. In addition, the modern problems of pollution and climate change are examined. We contend that all doctors would benefit from reading these chapters.

Patients and their expectations There are continuing changes in patients' expectations, particularly those of articulate patients suffering from long-term conditions and residing in countries with a rich provision of healthcare. A paternalistic medical approach is no longer acceptable, and several patients have contributed greatly to the book by taking the opportunity to tell us how they think doctors should behave towards them and care for them. However, we are very aware that one size does not fit all, and that many patients want a doctor who will give them clear recommendations and not keep repeating a bewildering (to the patient) variety of options and ask them to choose. The mature and able physician will be alert and sensitive to those patients who want this and will provide them with clear advice, and we have endeavoured to ensure that the Oxford Textbook of Medicine will assist.

Access to medical knowledge The ever-expanding world of the smartphone and tablet device gives patients, families, doctors, and other healthcare professionals ready access to more information about medicine than all but a very few would have thought possible a decade ago. This has many benefits but often leaves users of the internet thoroughly perplexed, and some desperate people vulnerable to online quackery. Those wanting details of particular studies will naturally refer to the original literature. Those wanting in-depth reviews of particular subjects can refer to diverse resources: these are typically good at apprising the reader of plentiful options for investigation, diagnosis, or management, but often leave them uncertain of what a clinically experienced expert in the field would actually recommend. In the sections that form the bulk of the Oxford Textbook of Medicine, we have selected experts with specific clinical experience and given them this task, and we contend that they have met the challenge.

Acknowledgements The Oxford Textbook of

Medicine is a large undertaking: this edition, the most substantial so far, comprises 647 chapters and covers 6654 printed pages, and its production has required an extraordinary co-ordination of effort from many quarters. In darker moments the editors feared that the process would never end, but as we have read and edited the chapters along the way, we have experienced the joy of learning a huge amount of medicine, often in fields far removed from our own. For this we are very grateful to our contributors, including those whose submissions were delayed!

Preface ix We wish to make particular acknowledgement of our friend and senior colleague, David Warrell, an editor from the first edition of this textbook, senior editor of the fourth and fifth editions, and author in this edition. We and our readers, notably those seeking information on tropical diseases and especially any who have been bitten by snakes, about which his knowledge is truly prodigious, owe him a great debt. We thank Helen Liepman, with whom we remain good friends: she has overseen and directed matters at Oxford University Press and coped in a steadfastly pleasant and professional way with expressions of editorial frustration caused by our failure to understand a publishing process that at times seemed to be Byzantine in its complexity, as might perhaps be expected in an ancient university. We also thank Anna Kirton, Jamie Oates, and Jess White at Oxford University Press for their considerable efforts on behalf of the book. Finally, we record that the editors' personal lives have remained calm, and we are very grateful to Helen, Jenny, and Sue for their indulgence of our bizarre editorial pursuit. John D. Firth Christopher P. Conlon Timothy M. Cox

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