Healthcare systems in all countries, whatever their economic status, face unprecedented challenges in coming years. Population growth, climate change, food and water provision, and ageing populations will place increasing demands upon the provision of even basic healthcare for many. On the other hand, the rapid increase in scientific knowledge and its translation into healthcare will generate new healthcare interventions, including drugs, vaccines, diagnostic devices, complex biological therapies, and screening and prevention strategies. Making appropriate selections of the most effective and affordable new interventions whilst at the same time ensuring that existing knowledge is deployed effectively for the maximum healthcare benefit, is a huge challenge to all healthcare professionals and policy makers.

Clinical and healthcare research is a cornerstone of our efforts to meet these challenges. We recognize that there is a gap in the translation of research from the laboratory into the clinic. Only translational and clinical research of the highest quality clearly focused on the needs of patients and healthcare systems with health technology assessment, will allow us to make the right choices and deliver the best affordable healthcare. Furthermore, research to ensure that the best clinical developments are deployed into healthcare systems in a timely way is equally important to ensure benefits for patients and healthcare systems. Much excellent biomedical research will continue to be done in industry, and the public sector needs to improve its ability to work effectively with industry to ensure that products reach patients in a timely and affordable way; while many countries will need to ensure the continued economic benefits of successful pharmaceutical, biotechnology and devices industries.

This supplement, arising from the work of a diverse group of international investigators in the field of clinical and healthcare research, will be useful in helping to map out the way forward in assessing how healthcare systems can make the best use of clinical research. Whilst highlighting the importance of clinical research to provide the evidence base upon which new service developments are based, the authors also explore the evidence that healthcare systems which are actively engaged in clinical research may improve their outcomes by operating at the state-of-the-art. Much work to address these questions has been conducted in cancer which is the main focus of this supplement. However, important contributions on human immunodeficiency virus (HIV) and the wider evidence base are included. For the first time a clear description of the changes in healthcare systems that occur when clinical research is undertaken in healthcare systems of developing countries, particularly India and sub-Saharan Africa, is presented.

The ten chapters of this supplement clarify the issues around the benefits to be gained from clinical research in healthcare systems. They highlight the need for more research to judge the impact of the process of research activity on outcomes of health institutions or regions, rather than only to ask questions about individual patients who are treated within clinical trials. The need for further research is emphasized and supported by an analysis of the appropriate methodologies that are required to answer the questions. The principles are similar in wealthy and less wealthy countries.

In the United Kingdom (UK), to address the needs for support for clinical research within the National Health Service, we have over 10 years managed Clinical Research Networks which provide the necessary support within the service for the provision of a high-quality portfolio of clinical research. The evidence for the success of this approach has been presented previously. Following the initial success of the National Cancer Research Network, its continued growth means that now the UK is contributing more cancer patients to its clinical research portfolio than anywhere else in the world. These principles have been applied in other areas of healthcare with considerable success so far.

Clinical and health research and research active healthcare systems will be central to the provision of worldwide, excellent and appropriate healthcare to meet the challenges we face.