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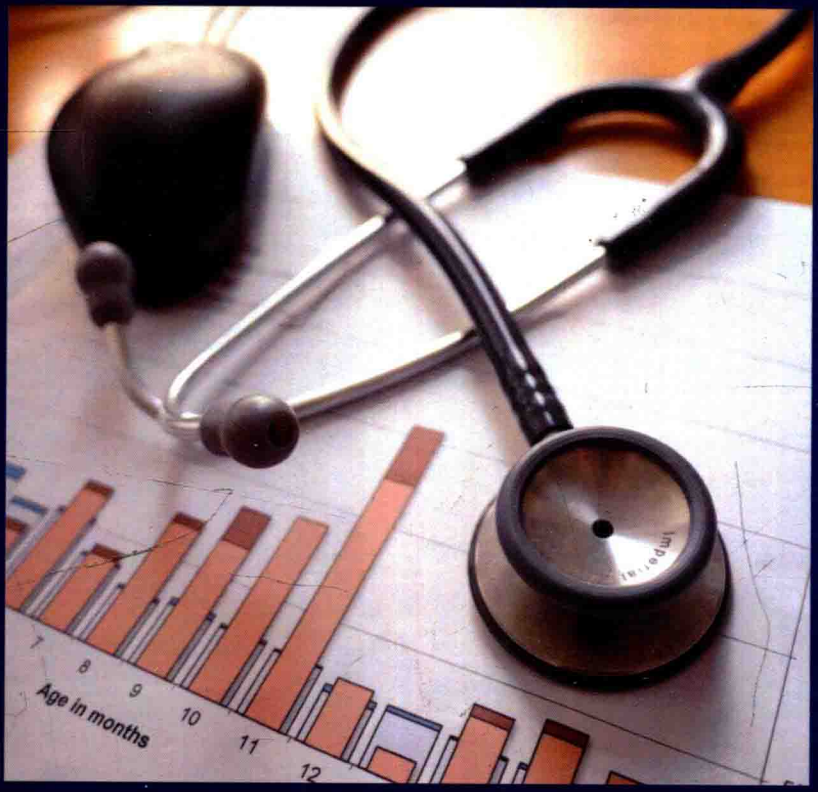

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Preface

> Measurement is the first step that leads to control and eventually to improvement. If you can't measure something, you can't understand it. If you can't understand it, you can't control it. If you can't control it, you can't improve it.
>
> **H. James Harrington**

Healthcare is important to everyone. A high standard of healthcare is even more important, yet large variations in quality have been well documented both between and within many countries. As populations grow older and medical care becomes more complex, expenditures continue to rise. It is therefore more crucial than ever to know how well the healthcare system and all its components are performing. This requires data, which inevitably differ in form and quality, and it requires statistical methods. Whether those methods are simple or complicated, their output has to be made understandable to whoever needs it, be it the patient choosing a doctor, the healthcare professional improving their own performance, the manager overseeing their unit, or the regulator assessing the whole system. This book covers measuring quality, types of data, risk adjustment, defining good and bad performance, statistical monitoring, presenting the results to different audiences, and evaluating the monitoring system itself. It thereby brings all the issues and perspectives together in a largely non-technical format for clinicians, managers and methodologists.

Both authors moved from environmental epidemiology to health services research in 2002, following our involvement with the public inquiries into two big UK scandals: (1) paediatric cardiac surgery at the Bristol Royal Infirmary and (2) general practice by Harold Shipman, the country's most prolific serial killer and family doctor. Applying what we had learned from our work to those public inquiries, Alex Bottle devised the details of our national hospital monitoring system that helped uncover a third scandal: the high death rate at Mid Staffordshire NHS Hospital Trust. Our unit's research focuses on developing indicators of quality and safety and care and understanding performance variations in primary care and between surgeons and hospitals in a range of specialties. We are also involved in quality improvement projects and work with psychologists to understand how clinical staff and managers use (or ignore) performance information. Alex conceived this book as a way to bring together all the elements of performance monitoring, with examples from around the world. We were also

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keen for the algebra content to be as close to zero as possible, which it never is in statistics guides, not because writing formulae is fiddly, but because many statistical issues need to be understood by everyone interested in performance.

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Authors

Alex Bottle is a senior lecturer in medical statistics in the School of Public Health at Imperial College London and methodological lead at the Dr. Foster Unit there. His background is in statistics and epidemiology, and he researches the use of large databases to measure and monitor the quality and safety of healthcare, with particular interests in risk adjustment, statistical process control and modelling multiple health service contacts in patients with chronic diseases. His fruitful collaborations with a wide range of clinicians, from anaesthetists to urologists, as well as with quality improvement scientists and the media, led him to conceive and write this book to bring all these worlds together.

Paul Aylin is a professor of epidemiology and public health at the School of Public Health at Imperial College London and leads the Dr. Foster Unit. After his medical training, he specialised in public health medicine and then spent three years at the Office for National Statistics in London before joining Imperial College in 1997. He became a Fellow of the Faculty of Public Health Medicine in 2001. He is a non-executive director at West London Mental Health NHS Trust. His research explores variations in indicators of quality and safety using routinely collected administrative data, including out-of-hours hospital mortality, the August (or July) effect, cancer care and indicators for late diagnosis. He has been an expert witness for both the Bristol Royal Infirmary and the Shipman public inquiries in the United Kingdom.

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