1.1: Scope of the book

In this book, we aim to provide a practical and comprehensive guide to the design and conduct of field trials of health interventions directed against disease problems in low- and middle-income countries (LMICs). Our main emphasis is on randomized controlled trials (RCTs), but many of the issues discussed are of relevance to other kinds of field research in LMICs. Published papers reporting the results of intervention trials rarely include details of the practical aspects of preparation for a trial and its conduct, yet these are crucial to the execution of a successful trial. Those conducting trials for the first time often do not have access to references detailing the many practical issues that have to be addressed in the organization and conduct of a trial. New investigators generally have to learn by experience and, as a consequence, often repeat mistakes that others have learned not to make. While ‘learning by doing’ can be a valuable educational method, it is usually inefficient and wasteful. We have tried to synthesize the experience of investigators with substantial experience of conducting field trials in LMICs and describe procedures and practices found to work well in LMIC settings. Thereby, we hope that new investigators will build on and extend the experience of others, rather than repeat the same mistakes.

Trials of health interventions involve the implementation of a specific health intervention and comparison of the effects of that intervention with the effects of the currently available ‘best’ intervention or, if there is none, comparison with what happens with no intervention (or with a placebo). In order to avoid bias in the allocation of participants to the intervention or comparison group, assignment of individuals or groups to a particular intervention should be done by randomization. The ‘trial’ approach is in contrast to observational studies such as cross-sectional surveys, cohort studies, and case-control studies. But many of the methods and techniques described in this book may also be usefully deployed in observational studies.

We use the term ‘field trial’ for trials conducted outside clinical settings, in contrast to ‘clinical trial’ that is used for studies carried out in health facilities. Thus, field trials generally involve participants who are living at home in their normal environment, rather than being ‘captive’ in hospitals or outpatient clinics. Most trials of preventive measures, such as
immunizations or health education, are ‘field’ trials. Important differences in field and clinical trials include inclusion and exclusion criteria that may be less stringent in field trials than criteria often imposed in clinical trials, in which it may be important to have a clearly defined disease condition for treatment. To the extent that there are less stringent inclusion and exclusion criteria, there may be fewer problems with the external validity of trial conclusions than there often are for clinical trials that limit the generalizability of conclusions. Another difference is that randomization of intervention by groups (clusters), rather than by individuals, is more often necessary or useful in field trials than in clinical trials (see Chapter 4, Section 4).

Clinical trials of drugs and vaccines are commonly carried out in successive phases, as described in Chapter 2, Section 3. Phase I trials are early studies conducted in a few human volunteers to test the safety of a promising new drug or vaccine. Thereafter, Phase II trials are carried out on larger numbers of volunteers, often to gauge immunogenicity (of a vaccine) and the effect of different doses or number of doses and to monitor for any adverse reactions. When these phases are successfully completed, Phase III trials are conducted on much larger numbers of volunteers who are randomized to receive either the new product or the comparison product, in order to establish the efficacy of the new intervention. The main focus of the book will be large-scale randomized field trials. For pharmaceuticals and vaccines, these will usually be Phase III trials, though this designation by phase does not fit so well with some other important types of interventions such as behaviour change interventions or environmental modification.

We do not envisage that many readers will sit down and read the book from beginning to end! We have called it a ‘toolbox’, because we think this reflects how it might be used, i.e. to consult different chapters and sections to guide different stages in the planning and execution of a trial.