

INTRODUCTION

The aim of this *Guide* is to provide the reader with all the information necessary to apply two methods for the estimation of child mortality. It does not presuppose familiarity with demography or with basic demographic measures. The reader is introduced to the basic concepts encountered in the measurement of mortality, the typical indicators of mortality in childhood, the rationale underlying the methods described and the data required for their application. The procedures followed for the actual application of each method are described in step-by-step fashion, and some guidance is provided regarding the interpretation and use of the estimates obtained.

The *Guide* should be especially useful for persons who are engaged in programme activities aimed at reducing levels of infant and child mortality in developing countries and who require measures of such mortality to identify target population groups for whom mortality is high and to assess programme impact in terms of mortality reduction.

The conventional measurement of mortality requires information on the number of deaths and on the population subject to the risk of dying. Typically, the first type of information is derived from registration systems that record deaths as they occur; the second is obtained mostly from censuses. In the majority of developing countries, either registration systems do not exist or omission and other errors are so common that measures based on the data produced fail to reflect properly levels or trends of mortality.

Over the past twenty years, considerable advances have been made to compensate for the lack of reliable vital registration data. A number of methods based on information obtained exclusively from censuses or surveys have been developed, and census and survey data have become more commonly available. In this *Guide* two methods that use retrospective information on the children that women have borne will be described. The first, known as the Brass method (Brass, 1964), has proved to produce reliable estimates of child mortality in a variety of circumstances. The second, known as the Brass-Macrae method (Brass and Macrae, 1984), relies on information that can be obtained less expensively, and it promises to be useful in evaluating the impact of local projects. Because both of these methods rely on information that is only indirectly related to mortality, they are generally described as indirect estimation methods.

Other methods also exist for estimating child mortality, but they either require considerably more information than those described here or have proved less reliable. The reader interested in obtaining more information about such methods may consult the list of references in

this *Guide*. Another useful source of information on indirect methods is chapter III of *Manual X: Indirect Techniques for Demographic Estimation* (United Nations, 1983b).

This *Guide* contains all the instructions necessary to apply two versions of the Brass method, named the Trussell and Palloni-Heligman versions after the persons who derived them, and another method, developed by Brass and Macrae. Since the *Guide* is intended for use by persons who need not have formal demographic training, it also includes an introduction to the basic demographic concepts involved in the estimation of mortality in childhood and detailed descriptions of the nature of the data required for each method.

The *Guide* is divided into seven chapters. The first discusses mortality measurement in general; the next five are devoted to different aspects of the Brass method; and the last focuses on the procedure proposed by Brass and Macrae. The Brass-Macrae method is treated in a single chapter because of both its relative simplicity and its recency. At the time of writing, the Brass-Macrae procedure is still in the process of being tested, and its efficacy cannot be guaranteed in all cases. The Brass method, on the other hand, has been used for more than two decades, has already given rise to numerous variations or refinements of the original procedure and, despite its known limitations, has performed well under a variety of circumstances. It is therefore recommended that every reader become acquainted with at least one version of the Brass method.

Although the material in this *Guide* has been presented in the simplest way possible, the *Guide's* content is not necessarily simple, and the reader should not expect to master it in a single reading. As with any learning process, an understanding of the intricacies of estimating mortality in childhood can be acquired only incrementally, by working and reworking through examples and by consulting several times the chapters discussing the rationale behind the different methods and their limitations.

To master the basics of the Brass method, it is recommended that the reader work through chapters I to IV in order. The aim should be to master chapters II and IV, on the data requirements of the Brass method and the application of one of its variants, while becoming familiar with mortality measurement in general as discussed in chapter I and with the strengths and limitations of the Brass method as presented in chapter III. Only after becoming thoroughly familiar with those chapters should the reader proceed to chapter V, in which a second ver-

sion of the Brass method is described. Chapter VI, dealing with the interpretation and use of the estimates obtained, may be read early on, but the reader will find it more useful after chapters IV and V have been mastered.

Chapter VII, describing the Brass-Macrae method, may be studied almost independently from the rest, though it should not be read without some familiarity with the concepts presented in chapter I.

The *Guide* is accompanied by a program for microcomputers, named QFIVE, that applies both the Trussell and the Palloni-Heligman versions of the Brass method. Although the program can be used without a complete understanding of the Brass method, it is recommended that it be used only after mastering, at the very least, chapters II and IV. The computerized application of the estimation method is meant to free the analyst from the drudgery of longhand calculations, but it cannot replace the analyst's insight into the use and interpretation of the estimates obtained. Such insight can only be gained by understanding how a method works and why. The text of this *Guide* is meant to lead the reader to that understanding.

For the benefit of those interested in a more detailed description of the *Guide*, an annotated outline of its chapters follows.

Chapter I. *Indicators of mortality in childhood*

This chapter presents the demographic concepts used in the estimation of mortality in childhood. The life table, the basic demographic instrument for the measurement of mortality, is described in detail. Attention is then focused on the main indicators of mortality in childhood. The importance of considering mortality levels over the age range 0 to 5, rather than the age range 0 to 1, is explained. Through the discussion of model life table systems, the reader is introduced to different patterns of mortality in childhood. Examples of estimates for specific countries are used to illustrate the variety of existing patterns.

Chapter II. *Data required for the Brass method*

This chapter discusses in detail the data required to estimate mortality in childhood by using the Brass method. It provides worksheets to aid the user in compiling the data needed. By working through a detailed example, the user becomes familiar with possible variations of the basic data.

Chapter III. *Rationale of the Brass method*

This chapter describes heuristically the theoretical underpinnings of the Brass method and explains why the method works even under conditions of changing mortality. The limitations of the method and the possible biases that may result from violations of its basic assumptions are also discussed.

Chapter IV. *Trussell version of the Brass method*

This chapter describes, in step-by-step fashion, the application of one version of the Brass method, that proposed by Trussell. This version uses the Coale-Demeny model life tables, those most widely used to date. A detailed example and a brief discussion of the results provide the reader with practical information on the use of the method.

Chapter V. *Palloni-Heligman version of the Brass method*

This chapter describes a second version of the Brass method, that proposed by Palloni and Heligman. This version uses the United Nations model life tables for developing countries. Aside from describing the additional data that this procedure requires, the chapter provides a detailed example and briefly discusses the results obtained.

Chapter VI. *Interpretation and use of the estimates yielded by the Brass method*

This chapter compares the estimates obtained by using the Trussell and Palloni-Heligman versions of the Brass method. The problem of selecting an appropriate model life table is discussed, and the possible biases introduced by selecting the "wrong" model are assessed. In addition, the chapter considers the problem of comparing and assessing estimates obtained from different sources. Examples are given of how the estimates yielded by the Brass method can be used to determine mortality trends in childhood when data from difference sources are available.

Chapter VII. *Brass-Macrae method*

This chapter describes the basic data needed to apply the Brass-Macrae method, explains why it works and discusses its possible limitations. The procedure to apply the method is then described and illustrated with a detailed example. The results obtained are discussed in the light of the limited information available on the general performance of the method.