

**SAMPLING:
HOW TO SELECT
PEOPLE,
HOUSEHOLDS,
PLACES TO STUDY
COMMUNITY HEALTH**

2

**SAMPLING:
HOW TO SELECT PEOPLE, HOUSEHOLDS,
PLACES TO STUDY COMMUNITY HEALTH**

A Guide for Health Workers

Prepared for the International Epidemiological Association

by



W. LUTZ

Director, Medical Computing and Statistics Unit
University of Edinburgh Medical School, Edinburgh, Scotland
in collaboration with the World Health Organization



Published by

INTERNATIONAL EPIDEMIOLOGICAL ASSOCIATION



1982

A limited number of copies of this publication is available for distribution free of charge from :

Division of Health Statistics
World Health Organization
1211 Geneva 27
Switzerland

© International Epidemiological Association, 1982
Printed in Switzerland

**SAMPLING:
HOW TO SELECT
PEOPLE,
HOUSEHOLDS,
PLACES TO STUDY
COMMUNITY HEALTH**

2

**SAMPLING:
HOW TO SELECT PEOPLE, HOUSEHOLDS,
PLACES TO STUDY COMMUNITY HEALTH**

A Guide for Health Workers

Prepared for the International Epidemiological Association

by



W. LUTZ

Director, Medical Computing and Statistics Unit
University of Edinburgh Medical School, Edinburgh, Scotland
in collaboration with the World Health Organization



Published by

INTERNATIONAL EPIDEMIOLOGICAL ASSOCIATION



1982

A limited number of copies of this publication is available for distribution free of charge from :

Division of Health Statistics
World Health Organization
1211 Geneva 27
Switzerland

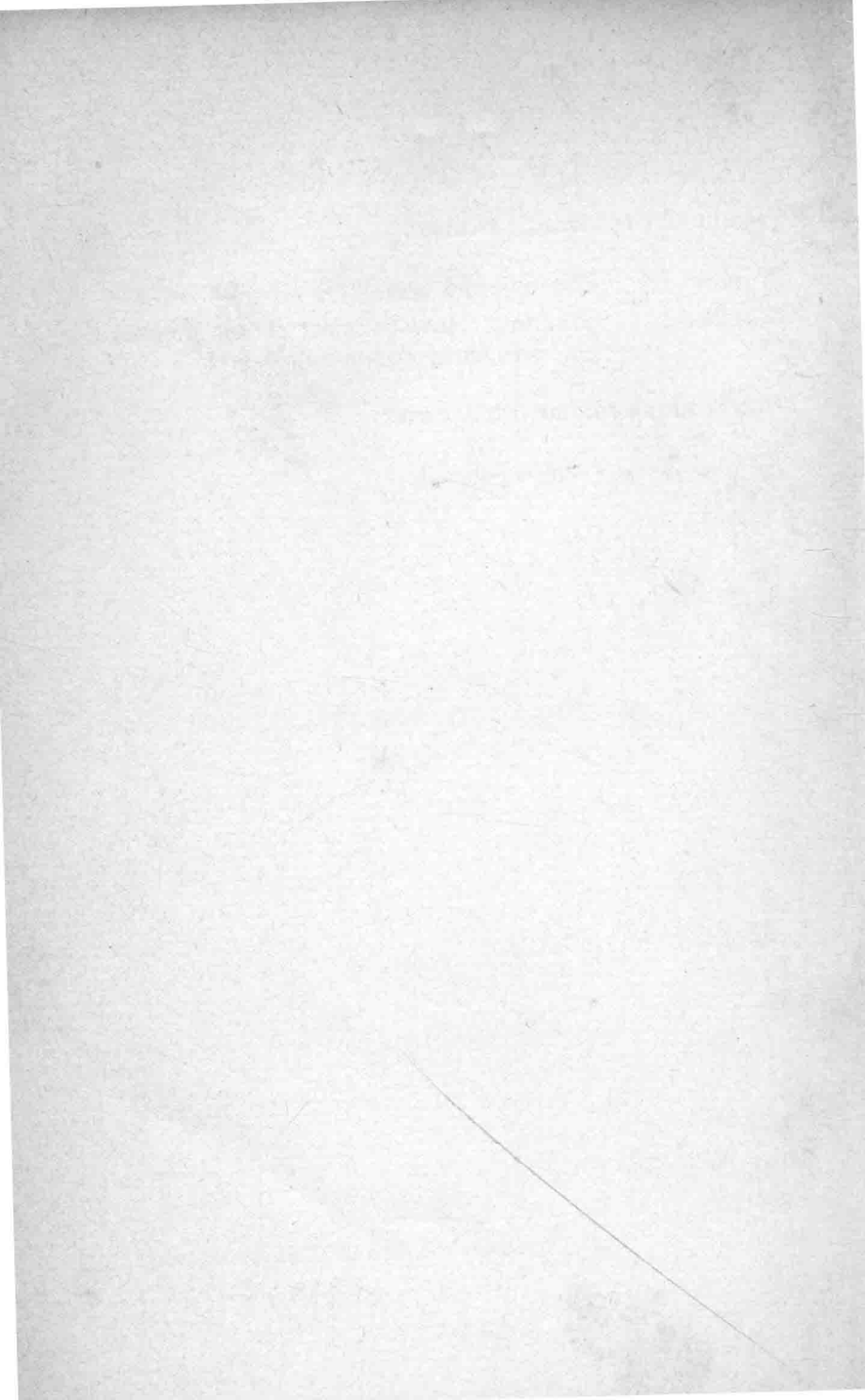
HOW TO KNOW MY COMMUNITY BETTER

Handbooks for Health Workers

- Number 1. Planning and organizing a health survey
- Number 2. Sampling: How to select people, households, places to study community health

Forthcoming volume in this series:

- Number 3. Using information



SAMPLING:
HOW TO SELECT
PEOPLE,
HOUSEHOLDS,
PLACES TO STUDY
COMMUNITY HEALTH

INTRODUCTORY REMARKS :

Handbooks in this series have been initiated to encourage the health worker to study his community and to guide him in organizing a health survey to obtain the necessary information. They were started in order to provide him with the knowledge required to do this correctly, however, in a simple and inexpensive way. "Knowing my community well" is starting point in planning community activities towards reaching "Health for all by 2000". Indeed, a well-organized community survey should become an essential element of any country's H/2000 strategy.

There are right and wrong ways of collecting the information. There are right and wrong ways of interpreting and using it in management health of a patient, family or community. It is often the case that information collected is not even utilized. This refers also to information collected by undertaking a health survey.

Before we collect information it should be agreed as to how and for what purpose the information will be used.

You will see that the survey workshop organized by Dr. Ashma (page 17) also begins with discussion on using information. Sampling and sample size follow as the second and third sessions.

In this series, however, the sampling booklet appears **second** and not third. The reason is simple. There are right and wrong ways of taking a sample. We have been urged repeatedly by health workers to tell them how to do it correctly, hence the reason for hurrying the printing of this book. There is a slight inconvenience in that a few paragraphs, which explain further reasons for Dr. Ashma's workshop, appear in the "Using information" booklet, which was originally planned to appear before the "Sampling" ones. We apologise for this.

Dr.B.Skrinjar-Nerima

Workshop on:

**HOW TO SELECT PEOPLE, HOUSEHOLDS, PLACES TO
STUDY COMMUNITY HEALTH.**

Workshop: What is all about	14
Survey Workshop	17
Sampling: General Principles	20
List Sampling	26
Sampling by "Numbered Tag"	36
Stratified Sampling	44
Cluster Sampling	52
Two-Stage Sampling	64
Study Unit Replacement Rules	70
 The Sample Size:	 82
<i>List Sampling</i>	84
<i>Numbered Tag Sampling</i>	88
<i>Stratified Sampling</i>	90
<i>Cluster Sampling</i>	94
<i>Two-Stage Sampling</i>	102
Summary and Review	108
Information boards	115
Drawing a Sample of Random Numbers	120

INTRODUCTION

A survey, sometimes called a sample survey, is undertaken to get information about people, their health and about the way they live and work. Usually it is not possible to visit or examine everyone because it would take too long, would cost too much or because there are not enough assistants to do this. Instead a **sample** of persons or homes is selected and only these are examined or selected.

This sample will give reliable information provided that:

- (1) the sample is representative, i.e. reflects correctly all sections and kind of persons belonging to the group, or community being studied:
- (2) the people included (selected) in the sample are approached in the correct manner so that they will help and co-operate with the investigators (doctors, nurses or interviewers);
- (3) the sample is large enough.

Simple methods are known that will increase peoples' co-operation and interest in a survey and there are ways of asking questions that improve the completeness and correctness of the information given. These methods are discussed in two other booklets of this series:

- (i) *Designing Questionnaires*
- (ii) *Interviewing and Recording*

This booklet is mainly concerned with three selection (sampling) problems and these are:

- (i) Describing different methods of obtaining a representative sample, sometimes called **random** sampling methods.
- (ii) How to decide which of these different sampling methods to use.

- (iii) *Determining how large the sample should be, i.e. how many persons, families or houses should be seen and examined.*

The layout of this book is similar to that followed in "Planning and Organising a Health Survey". General principles and important questions are set out on the left hand page. The right hand page describes practical sampling problems and surveys in which these general principles are applied.

Readers may find it easier to first read the left side pages of any section and then to read the application described on the pages of the right side.



GUIDING PRINCIPLES

The Need to Discuss and Compare Surveys

Survey theory provides guidelines on how to plan and organise a survey, how to determine the sample size, how to design the questionnaires and how to extract the information and report the results.

Surveys benefit greatly from practice and experience. For this reason survey planners and organisers should, whenever possible, meet with other persons doing surveys so that they can discuss their methods and compare their results. It is also important to learn from others why they carried out their survey in a particular way rather than some other way. At the end of a survey, organisers often feel they could improve their methods and that they would now do some aspects of their study differently. A great deal can be learned from discussions with other survey workers.

A survey "Workshop" is an excellent way of bringing people with similar interests together for discussion and learning. A workshop is a one to five day meeting or small conference at which invited speakers describe the work they have done, the problems they met and how they dealt with them.