

Oral Health Surveys

Basic methods

SECOND EDITION



WORLD HEALTH ORGANIZATION

GENEVA

1977

ORAL HEALTH SURVEYS

BASIC METHODS

SECOND EDITION



WORLD HEALTH ORGANIZATION

GENEVA

1977

First edition 1971
Second edition 1977

ISBN 92 4 154120 2

© World Health Organization 1977

Publications of the World Health Organization enjoy copyright protection in accordance with the provisions of Protocol 2 of the Universal Copyright Convention. For rights of reproduction or translation of WHO publications, in part or *in toto*, application should be made to the Office of Publications, World Health Organization, Geneva, Switzerland. The World Health Organization welcomes such applications.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

PRINTED IN BELGIUM

The World Health Organization (WHO) is one of the specialized agencies in relationship with the United Nations. Through this organization, which came into being in 1948, the public health and medical professions of some 150 countries exchange their knowledge and experience and collaborate in an effort to achieve the highest possible level of health throughout the world. WHO is concerned primarily with problems that individual countries or territories cannot solve with their own resources—for example, the eradication or control of malaria, schistosomiasis, smallpox, and other communicable diseases, as well as some cardiovascular diseases and cancer. Progress towards better health throughout the world also demands international cooperation in many other activities: for example, setting up international standards for biological substances, for pesticides and for pesticide spraying equipment; compiling an international pharmacopoeia; drawing up and administering the International Health Regulations; revising the international lists of diseases and causes of death; assembling and disseminating epidemiological information; recommending nonproprietary names for drugs; and promoting the exchange of scientific knowledge. In many parts of the world there is need for improvement in maternal and child health, nutrition, nursing, mental health, dental health, social and occupational health, environmental health, public health administration, professional education and training, and health education of the public. Thus a large share of the Organization's resources is devoted to giving assistance and advice in these fields and to making available—often through publications—the latest information on these subjects. Since 1958 an extensive international programme of collaborative research and research coordination has added substantially to knowledge in many fields of medicine and public health. This programme is constantly developing and its many facets are reflected in WHO publications.

CONTENTS

	Page
Introduction	7
Aims	8
CHAPTER 1. Design of an oral health survey	9
Determination of objectives	9
Selecting the sample and carrying out a pilot survey	10
Estimating disease levels	10
Sampling and obtaining assistance from WHO	11
Population subgroups	13
Standard age groupings	14
Sample size	14
Pathfinder survey	16
Approval and scheduling	17
Approval	17
Scheduling	17
Emergency care	18
Courtesy reporting	18
“Calibrating” the examiners	18
Duplicate examinations	20
Organizing the survey	20
General	20
Survey personnel	21
Instruments and supplies	21
Arranging the examination area	22
Survey forms	23
Identification section of the survey forms	26
Date of examination	26
Registration number	26
Duplicate examinations	27
Sex	27
Age	27

	Page
Name	28
Coding	28
Ethnic group and occupation	28
Geographical location	29
Examiner	29
 CHAPTER 2. Basic oral health assessment	 29
Disorders of mucosa, teeth, and bone and other conditions . .	30
Dentofacial anomalies	32
Full-denture status	33
Periodontal status	34
Method of assessment	34
Criteria for assessment and coding	34
A. Soft deposits	34
B. Calculus	34
C. Intense gingivitis	35
D. Advanced periodontal involvement	35
Dental caries	37
Method of assessment	37
Coding	38
Criteria for diagnosis and coding	38
Reporting the caries data	40
 CHAPTER 3. Combined oral health and treatment assessment . . .	 41
The combined oral health and treatment assessment form . . .	41
Service utilization	44
Interview technique	44
Disorders of mucosa, teeth, and bone and other conditions . .	46
Prosthetic status and denture requirements	47
Prosthetic status	47
Denture requirements	47
Periodontal status	48
Assessment of periodontal treatment requirements	48
Dentofacial anomalies	49

CONTENTS	5
Dental caries and treatment of teeth	50
Dental caries status	50
Treatment requirements of teeth	50
Conditions needing immediate attention	52
CHAPTER 4. Post-survey action and preparation of survey reports .	55
Sending forms for analysis	55
Preparation of survey reports	56
Statement of the purposes of the survey	56
Materials and methods	56
Results	58
Discussion and conclusions	58
Summary	58
References	58
Annex. Tables that can be prepared by WHO with data from the basic oral health assessment and the combined oral health and treatment need assessment	60

ORAL HEALTH SURVEYS

BASIC METHODS

SECOND EDITION



WORLD HEALTH ORGANIZATION

GENEVA

1977

First edition 1971
Second edition 1977

ISBN 92 4 154120 2

© World Health Organization 1977

Publications of the World Health Organization enjoy copyright protection in accordance with the provisions of Protocol 2 of the Universal Copyright Convention. For rights of reproduction or translation of WHO publications, in part or *in toto*, application should be made to the Office of Publications, World Health Organization, Geneva, Switzerland. The World Health Organization welcomes such applications.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

PRINTED IN BELGIUM

CONTENTS

	Page
Introduction	7
Aims	8
CHAPTER 1. Design of an oral health survey	9
Determination of objectives	9
Selecting the sample and carrying out a pilot survey	10
Estimating disease levels	10
Sampling and obtaining assistance from WHO	11
Population subgroups	13
Standard age groupings	14
Sample size	14
Pathfinder survey	16
Approval and scheduling	17
Approval	17
Scheduling	17
Emergency care	18
Courtesy reporting	18
"Calibrating" the examiners	18
Duplicate examinations	20
Organizing the survey	20
General	20
Survey personnel	21
Instruments and supplies	21
Arranging the examination area	22
Survey forms	23
Identification section of the survey forms	26
Date of examination	26
Registration number	26
Duplicate examinations	27
Sex	27
Age	27

	Page
Name	28
Coding	28
Ethnic group and occupation	28
Geographical location	29
Examiner	29
 CHAPTER 2. Basic oral health assessment	 29
Disorders of mucosa, teeth, and bone and other conditions . .	30
Dentofacial anomalies	32
Full-denture status	33
Periodontal status	34
Method of assessment	34
Criteria for assessment and coding	34
A. Soft deposits	34
B. Calculus	34
C. Intense gingivitis	35
D. Advanced periodontal involvement	35
Dental caries	37
Method of assessment	37
Coding	38
Criteria for diagnosis and coding	38
Reporting the caries data	40
 CHAPTER 3. Combined oral health and treatment assessment . . .	 41
The combined oral health and treatment assessment form . . .	41
Service utilization	44
Interview technique	44
Disorders of mucosa, teeth, and bone and other conditions . .	46
Prosthetic status and denture requirements	47
Prosthetic status	47
Denture requirements	47
Periodontal status	48
Assessment of periodontal treatment requirements	48
Dentofacial anomalies	49

CONTENTS	5
Dental caries and treatment of teeth	50
Dental caries status	50
Treatment requirements of teeth	50
Conditions needing immediate attention	52
CHAPTER 4. Post-survey action and preparation of survey reports .	55
Sending forms for analysis	55
Preparation of survey reports	56
Statement of the purposes of the survey	56
Materials and methods	56
Results	58
Discussion and conclusions	58
Summary	58
References	58
Annex. Tables that can be prepared by WHO with data from the basic oral health assessment and the combined oral health and treatment need assessment	60

INTRODUCTION

Basic oral health surveys, which enable the present status and future needs of a population to be estimated on a sound basis, supply reliable epidemiological data for developing national or regional oral health programmes and for providing effective oral health care. These basic survey data are particularly useful in planning manpower development and in establishing or expanding preventive and restorative services. In view of the importance attached by WHO to basic oral health surveys, the Organization is prepared to assist in their planning and also in analysing and summarizing data collected in country surveys (see p. 11).

In 1961 a WHO Expert Committee on Dental Health (1) formulated standard methods for reporting dental diseases and conditions in an effort to achieve international uniformity and comparability in oral health statistics. Four years later a WHO Scientific Group on Research in Dental Health recommended that in this field WHO should give priority to the development of international epidemiology, including the uniform classification of dental and oral diseases and the standardization of methods and techniques used in epidemiological studies. WHO's efforts to promote uniform classification of oral and associated diseases led to the appearance in 1969 of the *International Classification of Diseases—application to dentistry and stomatology (ICD-DA)*^a in which the relevant classifications and terminology used in the 1965 revision of the International Classification of Diseases (3) are subdivided and expanded.

The International Dental Federation (FDI), other professional bodies, and individual scientists have made many valuable contributions to the development of methods for use in dental epidemiology (4, 5, 6). This manual owes a great deal to their work and to the experience gained through the use and testing of various epidemiological methods in national, regional, and local field surveys.

The first edition of this manual published in 1971 (7) stimulated much interest in the epidemiology of oral diseases. More than 30 health administrations have conducted oral health surveys in accordance with the recommended basic methods. Experience gained in these surveys shows that some of the recommendations made in the first edition should now

^a *International Classification of Diseases—application to dentistry and stomatology (ICD-DA)*. Copenhagen, Munksgaard, 1969. This classification is regularly updated (see reference 2).

be revised, especially with respect to the assessment of periodontal diseases. In addition, several health administrations have sought advice on how to achieve greater precision in estimating the need for, and evaluating, preventive, restorative, curative, and rehabilitative services. An attempt is made in this revised edition to provide for these requirements, at the same time preserving the original concepts so that valid intercountry comparisons can be made of data collected by use of the methods described in the first edition.

Suggestions for elective assessments were included in an annex to the first edition to provide for the collection of more detailed information where appropriate. Guidance on research and advanced application of the epidemiological process in the oral health area is now included in *Guide to oral health epidemiological investigation* (see p. 11), which also describes elective assessments, both new methods and those from the first edition.

Aims

The aims of this manual are as follows:

- (1) to provide a systematic approach to the collection and reporting of data on oral diseases and conditions;
- (2) to ensure that, as far as possible, data collected in a wide range of environments are comparable;
- (3) to encourage dental health personnel in all countries to make standard measurements in oral diseases and conditions as a basis for planning and evaluating oral health programmes;
- (4) to describe a systematic method for estimating the requirements for the application of preventive measures, including health education, and for curative, restorative, or palliative treatment; and
- (5) to encourage the recognition and utilization of valuable opportunities for conducting epidemiological research.

To achieve these aims the manual provides:

- (1) a description of diagnostic criteria that can be readily understood and applied in all countries, regardless of the concepts held and the training and experience of the oral health personnel;

(2) information on means of obtaining practical assistance in planning surveys, summarizing data, and analysing results.

Chapter 1 describes general principles for planning, organizing, and conducting oral health surveys; Chapter 2 deals with procedures for collecting basic data on oral health status; Chapter 3 describes procedures for the concurrent estimation of treatment needs and oral health status; and Chapter 4 explains how survey reports should be prepared. A list of the tables that can be prepared at WHO from data for both basic oral health and combined oral health and treatment assessments is given in the Annex to this manual.

1. DESIGN OF AN ORAL HEALTH SURVEY

Determination of Objectives

The objectives of a study determine the kinds of data that will be needed and the form in which they should be collected. Unless the objectives are clearly defined before a study begins, unnecessary data or data in unusable form may be gathered at considerable cost while data really needed may even be overlooked. Thus, the final objectives must be kept clearly in mind when oral health assessments are being selected for inclusion in a study to ensure that each piece of information is essential for planning, evaluation, or research purposes. It should be routine to ask the simple but searching question, "Why is this measurement included and what use will be made of the findings?"

The methods described in Chapter 2 can be used to obtain data for the following purposes:

- (1) estimating the prevalence of specific oral diseases and conditions, and identifying variations in local, regional, or national groups;
- (2) supplying baseline data for subsequent evaluation of oral health care programmes;
- (3) supplying data to assist health administrators in determining priorities with respect to:
 - health education and preventive and treatment services,
 - the groups in most need of oral health care.

Data obtained from application of the methods described in Chapter 3 can be used for the same purposes. However, they can also be used to give a more accurate estimate of:

- (1) the extent to which existing oral health services are coping with the current need for treatment;
- (2) the nature and extent of required preventive, curative, and restorative services;
- (3) the costs of establishing, maintaining, and expanding an oral health care programme, including an estimate of manpower requirements.

Selecting the Sample and Carrying Out a Pilot Survey

Once the objectives have been determined it is necessary to define the population groups to be included in the survey. Except in very unusual situations, it will be neither possible nor desirable to examine an entire population in order to obtain the oral health data needed for programme planning. In most situations sufficiently accurate data can be obtained from a representative sample of the total population. Sometimes, however, strict sampling routines will be impossible either because the community is scattered or because there is no population register. In such cases samples must be taken from each significant, distinctive, population group as circumstances and knowledge permit; the samples should be free from avoidable bias and sufficiently large to be representative. Individual sample means will then need to be weighted according to the population distribution in order to give an accurate estimate of the overall mean for the total population.

Estimating disease levels

Correct decisions on sampling cannot be made without at least some information about the nature of the conditions to be recorded and their variability within and between various strata of the population. Such information may be available from relevant literature or it may be gleaned from local records and/or local dentists or other health personnel and occasionally from lay persons familiar with the characteristics of the population. Even when such information is available it is desirable to conduct a small pilot study to reveal any oral conditions prevalent in the population that are not specified in the WHO basic oral health assessment form (see p. 31). A decision may then be taken as to whether such conditions should be added to the survey form (other conditions; boxes 24-26) and investigated as part of the main survey or whether a separate investigation