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Report of the EGOHID I Project

Selecting a coherent set of indicators for monitoring and evaluating oral health in Europe: criteria, methods and results from the EGOHID I project.

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Objectives The EGOHID I (European Global Oral Health Indicators Development) project started in 2002 under the European Health Monitoring Programme. The aim was to develop a set of indicators for monitoring and describing oral health morbidity and different facets of oral health care systems in Europe. The challenge was to define valid indicators that would cover common concerns and would have the same meaning throughout the different European health care systems. ***Methods*** EGOHID included i) a review of existing recommendations on oral health indicators, ii) a European study of the availability of national/or regional statistics to construct recommended indicators; iii) a consensus process using aggregation of preferences methods to select a list of essential indicators; iv) the production of a *catalogue* for information users, including descriptions for all indicators. ***Results*** A set of 40 indicators in oral public health were identified which, even though restricted to a minimal essential list, still addressed four key dimensions. The 40 indicators were described in four categories. Part A. indicators for monitoring the oral health of children and adolescents; Part B. indicators for monitoring the oral health of general population; Part C. indicators for monitoring oral health systems and Part D. indicators for monitoring oral health quality of life. This work has enabled a feasibility study (EGOHID II, which is now in progress), which is an essential part of an overall project, since it will allow Member States to evaluate their capability to use these indicators. ***Conclusions*** The EGOHID 1 project was successful in identifying a set of 40 indicators which drew on and consolidated previous work. Consensus was achieved from a wide group of stakeholders on precise indicators in areas where uncertainty about appropriate indicators was high; some areas were also targeted for future development.

Key words: Europe, indicators, oral health, surveillance

Introduction

Numerous projects have been proposed by different teams from European countries within the framework of the *Community Action Programme* in the area of health surveillance (Bonita and Strong, 2003). The European Commission Health Monitoring Programme (ECHI, 2001) has as its main objectives; to monitor trends in the European community, to evaluate community programmes and actions and to provide Member States with appropriate health information to make international comparisons and to support their national health policies.

The development of national and international health surveillance systems has resulted in a deluge of indicators overwhelming health services personnel in charge of epidemiological surveillance and evaluation of care programmes. The oral health sector is no exception. Making an appropriate selection of health indicators is not an easy task. The need for the necessary integration of the oral health sector within the wider national and European health information systems is an added challenge that this European public health project (European Commission, 2002) set out to meet.

The European project EGOHID I (European Global Oral Health Indicators Development 1 (SPC 2002472)) started in 2002 and has been developed under the auspices of the Health and Consumer Protection Directorate-General Community Action Programme on Health Monitoring European Commission (Bourgeois and Llodra, 2004). The purpose was to establish priorities for Oral Health Indicators in a specifically European context and to make recommendations for improving the performance of the health information system by establishing the major reference indicators (McKee and Ryan, 2003). The terms of reference included identifying a set of reference indicators that will help to promote, improve and organize oral health promotion, quality of care and the surveillance of people in Europe (Ochoa *et al*., 2003).

The overall objectives were listed as: (i) to support European Member States in their efforts to reduce the toll of morbidity and disability related to oral health diseases and especially to strengthen the ability at the local, national, regional levels to measure, compare and determine the effects of oral health services and use of resources on oral health; (ii) to identify indicators of oral health - problems, determinant and risk factors related to lifestyle - of critical oral health care, quality of care and of essential health resources and to (iii) to identify the types of data generation and management problems which exist within current health information systems.

The purpose of the project was to promote systematic and efficient identification and technical specifications

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of reference oral health indicators through the use of an oral health outcome framework including information on the level of development of existing indicators and issues where indicators are lacking and require research. The *catalogue* produced by the project was designed to facilitate comparisons of indicator data by promoting harmonization of the information systems and to improve the capacity of area health services to monitor their oral health improvement activities in a standardized manner. This article outlines the rationale for the project, key elements in its implementation and some expected outcomes.

Oral health indicators and public health objectives

Indicators are markers for health status, system performance and process or available resources (NSW Health Department, 2000). They are usually established to ensure follow-up and evaluation of progression towards health targets formulated by strategic programmes. They should not be confused with public health objectives expressed in terms of disease reduction or public health improvements (U.S. Department of Health and Human Services, 2000) which are quantitative, measurable achievements reached within a specific time-frame. It should be noted that oral health is broadly integrated within the health sector in the formulation of general targets, as well as those reflected in the list of proposed indicators. Oral health is considered as a fully participative health sector, contributing not only to the promotion of oral health but also as a key partner in the promotion of general health.

Method

Principles guiding the selection and use of oral health indicators

The overall objective of the programme was to contribute to establishing a community system for health surveillance. This embodied three specific sub-objectives:

1. to develop community health indicators through a critical review of existing data and indicators;
2. to enable the realisation of a reliable communication system for data and health indicators transfer and sharing;
3. to define the necessary methods and instruments for the analysis of activities and the production of reports on health status, trends, and the impact of policies on health.

A high priority in the identification of reference indicators was to encourage the development of standards for the design and implementation of computerised systems for the management of oral health systems. Goals included seeking a level of agreement sufficient to allow comparability of data that are conceptually equivalent and to permit clear delineation of data.

Issues relating to the guiding criteria for the selection of oral health indicators

The major principles for guiding the selection and use of oral health indicators focused on: 1) the identification of a list of priority oral health problems, populations and high risk groups; 2) the definition of a table of essential indicators in the areas of: priority oral health problems, service delivery, quality of care and critical health resources; 3) the validation of the 'long list' of oral health indicators derived from initial consultations; 4) developing a common understanding of terms and criteria for the selection of indicators; and 5) the final recommendation of a 'short list' of essential oral health indicators through a consultation process.

Before even starting to develop a comprehensive list of existing and potential indicators, the methodology for identifying which indicators should be retained on the final list was established. These issues were addressed by specific working sessions during the course of several structured meetings (Lyon, 7-8 September 2003; Granada, 7-8 May 2004; Nice, 5-6 November 2004; Paris, 21-22 March 2005) with broad inclusion of stakeholders (Table 1). This introduction is restricted to an overview of the main characteristics for indicator selection in relation to the various reference areas which are detailed in the following sections.

The issue of health policies

Increasingly European Member States or regions within Member States have formulated health priority areas or targets for health policies. There is a noticeable trend to broaden the spectrum of health objectives moving from simple morbidity measurements, or prevalence of specific diseases, to objectives expressed in terms of quality of life improvements, reduction of health inequalities with reference to social policies and enabling goals. For the oral health sector this evolution implies a broader concept of the role of oral health professions and their contribution to general health then has previously been the norm in many countries.

In addition, special attention should be given to the systematic integration of oral health indicators in any health surveillance system, so that trends and changes in life-style and quality of life behaviour in relation to oral health can be monitored effectively (U.S. Department of Health and Human Services, 2000). If there is a general move of health strategies towards health promotion and prevention, consideration should nevertheless be given to the fact that the situation varies considerably from country to country. There will be situations for example, where the information priority will be given to the organisation (or reorganisation) of the health system to deliver a better quality of care.

European Community health policy requirements

On this basis we may refer to the basic criteria proposed by the Group in charge of the European Community Health Indicators project, which recommends that the indicator set should be:

1. Coherent in the sense of conceptual consistency, this implies that a shortlist should nevertheless cover the multidimensional aspects of oral public health surveillance,
2. Respond to oral health policy priorities, acknowledging the fact that these will be defined by each Member State and adjusted at local or regional levels,
3. Indicators should be scientifically valid, reliable and relevant.

Table 1. Steering Group of the EGOHID I Project

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Contibutors

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Conceptual consistency

A set of indicators in oral public health, even restricted to a minimal essential list, has a time dimension and should cover the following four major fdimensions:

- Health status, morbidity and oral function status
- Determinants (behaviour, life habits)
- Oral health system/promotion, prevention, access to care, quality care and system performance.
- Outcomes and oral health quality of life

The number of indicators in each area varies mainly in relation to health policy priorities and to feasibility of data collection and processing.

Scientific value, reliability and relevance of selected indicators

As short as the list may be, all selected indicators should, nevertheless, have the four basic scientific qualities accepted universally. It was proposed to retain the definitions given by the WHO health statistics programme (WHO, 1996; 1999; 2000):

- **Validity:** it is a true expression of the phenomena
- **Objectivity:** it is able to provide the same result if measured by different people under similar circumstances;
- **Sensitivity** it is capable of reflecting changes in the phenomena of interest;
- **Specificity** it reflects changes in only the specific phenomena of interest.

The WHO recommendations respond to the necessity of the scientific requirements, but they are also used with a deep sense of pragmatism. An indicator that would be qualified as "impeccable" scientifically, but was too expansive to collect or even impossible to use in a given practical situation, would be totally useless. Therefore additional criteria should be considered relating to the actual use of the indicator and to the methodology used to collect the data:

- The data required for the indicator are **useful** for case management or taking action in the community by the staff who originally recorded the data or the service unit from which the data originated.
- It should be **feasible to obtain** as far as possible through routine service processes or through easily and rapidly executable surveys
- It should be **simple and understandable,** measuring one health condition or aspect of the service
- The indicator and the process of collecting and processing the relevant data must be **ethical.**

Lastly, in the elaboration of the indicators selection process, quantitative principles should be considered as important criteria such as: the frequency of a given health problem, its total costs and its potential for prevention.

Full systematic descriptions for all the indicators were written using the structure described later in this paper. These descriptions were discussed during the final meetings of the project members and edited according to the principles described above.

A flexible approach to a shortlist of oral health indicators

The "Stepwise" approach developed by the WHO is a practical example of a dynamic, multidimensional health data collection system, highly adaptable to the objectives and priority information required. In the same spirit, the European Community Health Indicators (ECHI) group proposed the concept of flexible "user-windows" based on the selection of subsets of indicators taken from the comprehensive list of indicators developed.

Methods used for the selection of indicators

The following procedure was used to select the indicators: a long list of over 600 possible indicators was drawn up after consultations within the group and with a wide range of relevant European clinical and scientific oral health organizations. Thirty two group members were then asked (blindly) to grade the possible indicators in order of importance. A statistician then applied the Arrow Theorem to the selections to aggregate the preferences and select 40, which were then discussed in detail by the group.

Results

Structure of the Catalogue

The 40 indicators are described in four categories (see Table 2). An example indicator is set out in Table 3. As described in the WHO Catalogue of Health Indicators (1996), each indicator description includes the following sections:

1. ***Title***
2. ***Rationale*** Provides a brief description of the reasons why the indicator has been selected.
3. ***Definition of the indicator*** textually or, in the case of proportions, rates and ratios, by specifying the numerator and the denominator. *The definition should be complete and leave no room for interpretation.*
4. ***Definition of important terms,*** which may have specific meaning in the context of the indicator. *Each term in the title of the indicator and its textual definition should be clear to administrative or technical staff not necessarily qualified oral health personnel. Clinical criteria, pathological terms may be defined under this section.*
5. ***Data sources*** which could be either routine data collection, special survey or other sources. *There may be a need to identify various types of data sources. This section could /should give an indication on how to collect the data (for example as part of community surveys) or where to find already existing information (for example access to databases, review of registers, of patient records etc).*
6. ***Use of the indicator,*** which is an indication of how the indicator should be used at the facility level, and other levels of the health system. *For example: to identify high-risk groups for implementation of a preventive programme,*

Table 2. A Selection of Essential Oral Health Indicators Recommended by European Global Oral Health Indicators Development Project

	Outcome	*Process*	*Determinant*
A. Indicators for Monitoring the Oral Health of Children and Adolescents	A.11. Early Childhood Caries A.12. Decay Experience in 1st Permanent Molars in Children. A.13. Dental Fluorosis	A.4. Preventive Oral Health Programmes in Kindergartens A.5. School-Based Programmes centered on Daily Brushing with Fluoride Toothpaste A.6. Screening Oral Health Programme Coverage A.7. Access to Primary Oral Care Services A.8. Protective Sealants Prevalence A.9. Fluoridation Exposure Rates A.10. Orthodontic Treatment Coverage	A.1. Daily Brushing with Fluoride Toothpaste A.2. Preventive Care-Seeking by Pregnant Women A.3. Mother's Knowledge of Fluoride Toothpaste for Child Caries Prevention
B. Indicators for Monitoring the Oral Health of General Population	B.11. No Obvious Decay Experience. B.12. Dental Caries Severity B.13. Periodontal Diseases Severity B.14. Cancer of the Oral Cavity. B.15. Functional Occlusion Prevalence B.16. Number of Natural Teeth Present B.17. Edentulous Prevalence	B.3. Geographical Access to Oral Health Care B.4. Dental Contact within the Previous 12 Months B.5 . Reason for the Last Visit to the Dentist B.6 . Reasons for not Visited the Dentist in the Last Two Years B.7. Tobacco Use Cessation B. 8. Untreated Caries B.9. Periodontal Health Assessment B.10. Removable Denture Prevalence	B.1. Daily Intake of Food and Drink B.2. Tobacco Usage Prevalence
C. Indicators for Monitoring Oral Health Systems		C.4. Dentist Satisfaction with the Quality of Care Given C.5. Dentist Satisfaction with the Remuneration Provided	C.1. Cost of Oral Health Services C.2. Dentists and Other Oral Care Clinical Providers C.3. Gross National Product Spent on Oral Health Care Services
D. Indicators for Monitoring Oral Health Quality of Life	D.1. Oral Disadvantage due to Functional Limitation D.2. Physical Pain due to Oral Health Status D.3. Psychological Discomfort due to Oral Health Status D.4. Psychological Disability due to Appearance of Teeth or Dentures D.5. Social Disability due to Oral Health Status.		

Table 3. An Example Indicator - Indicator B7: Tobacco Use Cessation as presented in the 2005 catalogue.

B8. Tobacco Use Cessation

Rationale

The clear link between oral diseases and tobacco use - cancer, periodontal diseases, tooth loss and congenital defects- provides an ideal opportunity for oral health professionals to partake in tobacco control initiatives and cessation programmes. The goal of the WHO Oral Health Programme, shared and supported by the FDI World Dental Federation is "to ensure that oral health teams and oral health organizations are directly, appropriately and routinely involved in influencing patients and the public to avoid and discontinue the use of all forms of tobacco." In Europe where the majority of the population visits their dental team regularly, dental services can be a useful arena for tobacco prevention.
Smoking cessation is one of the most powerful methods of gaining health and also one of the most cost effective, even if tobacco cessation is not currently a routine part of dental practice. Dentists should be encouraged to attend training courses to update their knowledge on the subject and set up effective tobacco-free-initiatives with fully integrated oral health-related programmes.

Definition of indicator

Proportion of dentists providing advice on tobacco use cessation

Numerator: Number of dentists who claim to provide advice on tobacco use cessation to their patients
Denominator: Total number of dentists surveyed

Definition of important terms

Contributions to tobacco-cessation programmes: There are several ethical, moral, and practical reasons why oral health professionals should strengthen their activities in this area, for example:
• They are especially concerned about the adverse effects in the oro-pharyngeal area of the body that are caused by tobacco practices.
• They meet, on a regular basis, children, youths and their caregivers, thus providing opportunities to influence individuals to entirely avoid, postpone initiation or quit using tobacco before they become strongly dependent.
• They often have more time with patients than many other clinicians, providing opportunities to integrate education and intervention.
• They often treat women of childbearing age, thus are able to inform such patients about the potential harm to their babies from tobacco use.
• They are as effective as other clinicians in helping tobacco users quit and results are improved when more than one discipline assists individuals during the quitting process

Common data sources

None

Recommended data collection methods

Oral health care providers surveys, Households surveys, National interview surveys

Use

The indicator is used to monitor the impact of tobacco cessation advice by dentists to reduce smoking among specific populations. It produces information on the capacity and the contribution of the profession to decrease the burden of periodontal diseases, tooth loss and oral cancer. It assists decision-makers in the policy on controlling the tobacco epidemic.

Recommended formats of presentation

Percent of participating dentists by age, gender and location cross-tabulated by the number of persons aged: 12-17; 17-24 or 25+ years of age involved as subjects; or by special populations.

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7. ***Recommended formats of presentation.***
8. ***References*** providing primary sources of additional information about this and possibly other related indicators.

Discussion

Indicators have been selected and described by a process of consensus between a group of decision-makers, clinicians, scientists, administrators and others. As the evidence base develops in the future and demography and epidemiology change, some of the selected indicators will need amendment. However, within the constraints of terms of reference of the project, time and resources, the indicators and descriptions produced provide a list which should aid health planners in the future.

In conclusion, it should be kept in mind, that beside their scientific qualities, the selected indicators should: respond to the priority needs of the community health strategies, national, local or regional, strategies for disease reduction and health promotion, be practically useful and easy to collect, be part of a highly adaptable information system, adaptable to the variety of needs and resources and to the evolution of scientific and economic contexts.

The next step –EGOHID Phase II 2006-2008, will establish methodological criteria for collection of data to implement and promote these oral health indicators in an operational way in order to be able:

(i) To develop recommended common instruments for national health interview surveys (NHIS),
(ii) To develop recommended common instruments for national health clinical surveys (NHCS)
(iii) To develop a methodology for improved NHIS and NHCS data, routinely collected in 25 European countries at the primary oral health care level
(iv) To develop methods to adjust national data to allow cross national comparisons.

A global overview of the EGOHID projects I and II can be found on the official web site: www.egohid.eu.

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