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SECRETARIAT OF STATE FOR PUBLIC HEALTH AND SOCIAL WELFARE OF THE DOMINICAN REPUBLIC

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I. INTRODUCTION

The goal of health for all by the year 2000, to be attained through the provision of primary health care, represents a clear resolve of the world community to improve the health and well-being of its citizens as part of an overall plan of social and economic development aimed at reducing inequalities, eliminating poverty, and achieving social justice. (1)

The preceding overview highlights the need to establish broad objectives designed to give direction to national and regional policies, plans and programs. Essentially, such objectives must restate the intent and purpose of the Alma-Ata Declaration on Primary Health Care in accordance with national realities and in relation to those aspects of the health and socioeconomic sectors that are the priority determinants of health in the Region. (2)

For attainment of the global goal of health for all by the year 2000, the following minimum targets have been established which the countries should strive for:

- A life expectancy at birth of 70 years.
- An infant mortality not higher than 30 infant deaths per 1,000 live births.
- In immunizations, to vaccinate all infants under one year of age against diphtheria, whooping cough, tetanus, measles, poliomyelitis, and, where needed, tuberculosis; to vaccinate all pregnant women against tetanus, and to extend the coverage to priority target groups for other communicable diseases.
- In drinking water and sanitation, to extend this coverage to all by the year 2000.
- In health services coverage, to ensure access for all inhabitants of the countries to appropriate levels of health services by the year 2000. (3)

The goals set forth and the overall goal are to be attained through the principal strategy--primary care and its components--which, as the conceptual and operational core, seeks to bring about the desired impact on the health of the population with a maximum of social efficiency and productivity of the resources assigned to the sector.

Oral health is part of this overall health goal and the strategies for obtaining it and is also one of the priority components of the policies, plans, and programs that seek to improve the health conditions of individuals and communities in the region.

If we wish to be consistent with our goal of health for all by the year 2000, we must objectively develop our primary health care strategy with its priority components including the promotion, prevention and maintenance of the oral health of our citizens.

It is the responsibility of our Governing Bodies and of the Member States to decide to promote the efficient planning, execution and evaluation of oral health programs at all the levels of the integrated health services and to foster national prevention programs that pay particular attention to the most vulnerable groups; to promote the training and redirection of dental manpower, both professional, auxiliary and community workers; to establish, test and provide appropriate methodologies for use by the countries and to initiate basic research; to collect, analyze and disseminate pertinent information for planning effective national oral health programs.

The Government of the Dominican Republic has wished to contribute to this important task and, to that end, together with our positive experience in the oral health field since 1978 we are submitting to the Member Countries of the Region for consideration our formal proposal on the development of oral health as part of the regional strategies of health for all by the year 2000. It supplements the plan prepared by the Advisory Working Group on Dental Health that met in Washington in December 1980, whose important report was submitted to the Member Countries by the Director of the Pan American Sanitary Bureau for consideration.

II. THE ORAL HEALTH PROGRAM OF THE DOMINICAN REPUBLIC

2.1 The oral health problem

Because of its economic and social characteristics, the Dominican Republic belongs to the group of what is known as "developing countries."

At the end of the 1970's, the country had a population of approximately 5 million inhabitants; of these, more than 55 per cent were under 18 years of age, 49.3 per cent living in urban areas and 50.7 per cent in rural areas.

Health and education were not considered to be an integral part of the productive human being.

Health services, including oral health services, were not accessible to the most needy group of the population, and most of these services were oriented towards treatment; accordingly, preventive programs with mass coverage if the community were at an incipient stage of implementation, that is to say, primary prevention of the population had not been developed.

At the national level, no statistical studies had been made of the epidemiological profile and of technical and administrative manpower; however, partial studies were available and showed a high prevalence of dental caries and of periodontal disease.

According to those studies the prevalence of caries was estimated at 95 per cent, and periodontal disease affected a similar percentage of the population with varying degrees of severity.

The number of practicing dentists amounted to around 700, of whom 80 per cent were concentrated in the principal cities of the country, whereas in the rural areas the dentist/population ratio was approximately 1:20,000.

There were about 240 dentists in the public service and, of these, the Secretariat of State for Public Health employed 139.

The number of auxiliary personnel was very small and it was estimated that about 76 were working for the Secretariat of Health; the dentist/auxiliary ratio was 3:1. For the most part, care systems used conventional technology with the result that their coverage, productivity, and output were insufficient to meet the needs of the country.

Elimination of the disease through the application of primary care programs and community participation have not yet taken effect.

In many cases manpower training did not meet the needs of, and was not in accordance with conditions in the country, and the various approaches to training and service delivery were hampering the provision of proper community care.

The production of knowledge and technology was limited, which was a determining factor in dental practice aimed solely at a very small part of the population.

2.2 Strategies for the development of oral health services at the national level

In view of the need to extend oral health services coverage through viable alternatives keyed to the problems encountered, the Oral Health Division of the Secretariat of State for Public Health and Social Welfare found it necessary to develop the following strategies:

- To define a national oral health policy aimed at the planned extension of health coverage, in which priority was assigned to rural and marginal urban areas through short-, medium- and long-term programs.

- To organize the technico-administrative oral health structure and promote the decentralization of the administrative system in a process of service/teaching regionalization.

- To prepare, apply and evaluate national regulations for the oral health services as regards research, promotion, prevention, care, setting of priorities, technical resources, personnel functions, organization, supervision, information system, maintenance and evalation.

- To increase preventive programs of recognized effectiveness through the fluoridation of drinking water and the use of other methods that make it possible to extend the benefits of fluoridation to marginal communities.

- To plan and hold national workshops and seminars, both intra- and interinstitutional and international, so as to establish appropriate mechanisms for stimulating the generation of appropriate knowledge and technology for the extension of coverage, using new service models and effective and efficient methods for meeting community needs.

- To increase and conduct oral dental education activities among the components of primary health care in order to contribute to the prevention of the most prevalent oral diseases and to enlist active community participation.

- To train and update community personnel in the use of knowledge and technology, through a teaching method based on practice, using educational material geared to the community level and developed in the places where services are provided.

- To incorporate new systems and methods of dental practice into the technico-administrative development of health programs.

- To design, implement and evaluate dental care programs by age groups, emphasis being given to the child population.

- To create and develop mechanisms for the communication and dissemination of dental knowledge at the level of the services, teaching and research.

- To train and use auxiliary personnel keyed to the development of the national health program.

- To include in the PAHO/WHO Technical Cooperation Program for the Dominican Republic the execution of the Oral Health Project; and to create appropriate mechanisms for attracting technical and financial resouces from the United Nations Development Program and the Inter-American Development Bank (Santiago Project).

2.3 Present situation

2.3.1 Research

The National Oral Health Program (SESPAS), which covers such activities as education, prevention, care and manpower training, calls for the generation of scientific and autochthonous knowledge on the oral health/disease process, the training profile of dental manpower, the appropriate technology to be developed, the new systems of administering oral health services, and the new strategies for coverage extension, if the goals proposed are to be achieved. To that end, the Oral Health Division plans to conduct scientific research on the basis of its own methodology, in accordance with the national oral health policy and within a regionalized service/teaching system.

At present the following studies have been designed and executed:

- Epidemiological study of the prevalence of dental caries and the oral health status of a sample of 2,535 children aged 4-14 years in 19 public, private and semi-private primary schools in the city of Santiago de los Caballeros, preliminary to the fluoridation of the water supply and in support of the execution of the dental manpower training program of the Madre y Maestra Catholic University.

- Epidemiological study of the prevalence of dental caries and the oral health status of 4,500 children aged 4-14 years in 47 public primary schools in 18 cities in the country preliminary to the implementation of preventive activities.

- Epidemiological study of the prevalence of dental caries and of mottled enamel in the Tamboril area of the province of Santiago.

- Study of the natural fluoride content of the water consumed by communities in the Dominican Republic, (under way).

- Research on mottled enamel in children in various communities in the Dominican Republic (at the protocol stage).

- At present a socioepidemiological study of oral health and care systems in the community program in the care module of the health subcenter of Las Caobas in Santo Domingo, is being designed.

- Also at the design stage is a comparative study of the coverage of oral health service of the traditional systems and of the modular systems at the national level.

- A comparative study of the effectiveness and efficiency of the use of saturation cones and volumetric feeders in the fluoridation of water supply is being designed.

- A study of the coverage of fluoridated mouthwashes over a period of three years at the national level.

- A study of the effectiveness of fluoridated mouthwashes in the prevention of dental caries in three schools of the country is under way.

2.3.2 Promotion and prevention

The promotion of health and the prevention of the oral diseases with the highest prevalence and incidence--dental caries and periodontal disease--are the essential and priority components of primary care in the national oral health program of SESPAS and a number of activities are being conducted in this area.

a) Oral health education

The general purpose of the dissemination of oral health information to the population is to educate individuals and groups in the basic aspects of their oral health and to endeavor to change their attitude and to promote what they can do to improve their own health and that of their children.

These activities are carried out among captive populations--schoolchildren--groups of persons with common interests, and persons seeking oral health services in public establishments.

- Oral health education curriculum

It consists in a gradual and increasing incorporation of basic information on oral health into the regular curriculum of public primary schools in the country. For this purpose, an implementation methodolgy based on six instructional modules to be used as guides, so that the teachers can use a uniform approach in dealing with the topic selected, has been designed.

- Educational talks

  The mass dissemination of information on oral health to the population is one of the most frequent activities within the health promotion area. The establishments of the Secretariat of State for Public Health and Social Welfare are daily used as focal points for executing this activity, especially the waiting-rooms of the dental and maternal and child health services; in addition, meetings of students and teachers are promoted in schools and advantage is taken of mass cultural activities and meetings in churches, clubs or any other type of organized group.

- The health educator, dentist, dental auxiliary, health promoter and dental intern, teacher, community leader, constitute a group of qualified persons responsible for the ongoing execution of this activity.

- Production and dissemination of educational material

  The instructional material used by the Secretariat of State for Public Health and Social Welfare in educational campaigns, health education seminars (health fairs), both local and regional, has been designed and produced by the Oral Health Division. So far it has produced flip charts, educational sheets on nutrition, hygiene, etc., booklets for educators and health promoters, information booklets on the fluoridation of water supplies, and booklets on the oral health education curriculum.

b) Supervised brushing

This activity consists in the brushing of teeth by schoolchildren during the five school days under the supervision of the corresponding teacher; its purpose is:

- to promote the habit of daily brushing of teeth by the children;

- to eliminate and control bacterial plague;

- to reduce the incidence of periodontal diseases and dental caries in school-age children.

This activity has been carried on an experimental basis for more than one year in two public primary schools in Santo Domingo and it is planned to extend it to others in the next school year.

To that end, SESPAS designed and ordered the production of a child's toothbrush exclusively for use in these activities.

c) Fluoridation of public water supplies

The national policy of the Division of Oral Health provides for the fluoridation of public water supplies as one of the strategies for expanding the coverage of dental services in the country.

In this regard, with the support of the UNDP and the technical advice of PAHO/WHO this Division has planned to initiate this method in three cities in the country and to cover approximately 370,000 inhabitants; at present the results of two preliminary epidemiological studies are available and feeders and some of the salts have been purchased so that the execution of the program is expected to begin in August this year.

d) Fluoridated mouthwashes

Because it is impossible to provide all the population with fluoride for the prevention of caries through fluoridated public water supplies it was necessary to use mouthwashes for that purpose. In this activity, a 2 per cent neutral sodium fluoride solution is used every 15 days in primary school children between the ages of 4 and 14 years under the supervision of the teaching personnel.

In 1978 a start was made with mouthwashes for 890 children in 6 schools; at present, three years later, the program has been extended to 74 schools and covers a total of 59,001 schoolchildren. During the next school year it is planned to incorporate an additional 91,000 schoolchildren, so that a total of 150,000 schoolchildren throughout the national territory will be covered.

e) Brushing with a fluoride solution

Another alternative method for the application of fluoride in the prevention of dental caries is brushing with a 2 per cent sodium fluoride solution on four consecutive days three times a year under the supervision of primary school teachers.

This activity was begun in 25,000 schoolchildren in the rural and urban area covered by the Uplands Plan.* This activity was carried out in coordination with the personnel of the health team of the Uplands Plan and the dental manpower (primary care students) of the Madre y Maestra Catholic University. It is planned to extend it to 60 schools in Santo Domingo in the school year 1981-1982.

2.3.3 Dental care

Because of the oral health status of more than 90 per cent of the inhabitants of the Dominican Republic, it was necessary to establish regulations for the oral health services with a view to giving priority to the most vulnerable sectors of the population--pregnant women and children under 15 years of age--and to limit the services offered to the other part of the population--adults. As a result, the first group received more and better benefits and adults received treatment for their major needs and in accordance with the availability of the service. But, even so, because of the great shortage both of funds and of manpower mentioned above, the coverage offered to the population was insufficient and the traditional care system led to the persistence of this inadequacy for a long period. This was the stage that showed that it was necessary to use simplified care systems that are highly productive and to change the 93 traditional dental services, using the regionalized model of service/teaching integration as the strategy.

The installation in the José María Cabral y Báez Regional Hospital in Santiago de Los Caballeros of a complete dentistry service, including a care model with eight chairs, marked the beginning of the use of the new system in the Dominican Republic and enabled us to compare its output with that of the traditional system.

*Uplands Plan: Integrated rural development covering the agricultural, education and health sectors and aimed at conserving natural resources and improving living conditions in the Uplands.

Today there are 16 modular services and 132 conventional services in the country and they are responsible for diagnosis, elimination of supra and subgingival calculus, restorations, pulp treatments, extractions, surgery and X-rays, in accordance with the needs of approximately 400,000 patients a year, using simplified care methods, four-handed (chairside) and quadrant work system so as to deal with the larger number of patients seeking care.

The dental care modules have meant a radical change in the physical and architectural design of the space for dental practice, since their versatility and functional nature make it possible to adapt these systems to community needs and at the same time to incorporate them into the health units, thus permitting an integrated approach to health care.

2.3.4 Manpower

The area of manpower is one of the basic components of the national oral health program of SESPAS, and is a response to the need to make optimum use of existing and new resources.

The purpose is to guide and adapt the various types of oral health manpower--dentists, maxillo-facial surgeons, auxiliaries and equipment maintenance technicians as well as other personnel who, although they do not belong to the Oral Health Division, participate in such activities as research, prevention, education and dental care, i.e., teachers and health promoters, community leaders, primary school teachers, dental interns and students. At present major emphasis is being given to continuing education activities of short duration that lead to the immediate incorporation of personnel already trained into service activities; recently the following activities have been carried out:

a) For professional personnel (dentists)

- First National Seminar on Oral Health Primary Care;
- International Workshop on the Training and Use of Primary Care and Basic Personnel for Oral Health;
- Seminar/Course on the Administration of Oral Health Services in Public Health;
- Seminar/Workshop on the Programming of Oral Health Services in Public Health;
- Refresher course in dental operations;

- Refresher course in pediatric dentistry;
- Study visits abroad;
- Training in the new work system (modular system using the four-handed and quadrant method);
- Continuing training of newly incorporated personnel in the SESPAS modular system.

b) For oral health auxiliaries

- Basic course for primary health auxiliaries in oral health, using service/teaching integration with the Madre y Maestra Catholic University as the strategy;
- Refresher course in oral health for oral health auxiliaries of SESPAS in the six different regions;
- Training course in simplified techniques.

c) For dental equipment maintenance technicians

- Course in the maintenance of simplified dental equipment (Institute of Dental Resources of the Andean Area/Ecuador).

At present the dental manpower comprises 258 professionals and technical personnel distributed as follows:

- 152 dentists (5 administrators at the central level, 6 regional dentists, 4 area chiefs and 131 local dentists);
- 5 maxillo-facial surgeons;
- 4 dental equipment maintenance technicians;
- 97 oral health auxiliaries.

d) The training of human resources at the university level in the Santiago health area, which is being carried out by the Madre y Maestra Catholic University and SESPAS, is an innovative activity in which teaching/learning has been planned and executed on the basis of service/teaching integration through the linkage of the three care levels: primary, basic and comprehensive. The methodological principles adopted are: the subordination of theory to practice; training under realistic conditions; in-service training, in a sequence of increasing complexity. In organizing the curriculum the modular system was used, including educational units that integrate the production, transmission and application of knowledge.

This program has been under way since 1978 and at present covers 210 students: 45 in primary care, 60 in basic care and 105 in comprehensive care. It is receiving technical advice from PAHO and is financed with national funds and funds from the Inter-American Development Bank.

In conjunction with the autonomous Universities of Santo Domingo and Central del Este, joint service/teaching activities are being coordinated; for that purpose, new care systems have been installed and equipped preliminary to a curricular change that will make it possible to adjust the professional profile of the human resources undergoing training to the needs of the country.

2.3.5 Documentation

For the execution of the various components of the national oral health program it is necessary to produce, compile, collect and disseminate all the existing literature and material on oral health to service institutions, institutions for the training of human resources, and professional associations so as to keep the profession permanently abreast of scientific and technological advances in this health area.

Accordingly, with support of UNDP and PAHO/WHO the Division of Oral Health has established and financed part of the equipment of the National Documentation and Health Education Center (CENADES); it is a technico-educational structure of SESPAS whose functions are as follows: to contribute to the proper execution of the teaching process (undergraduate, graduate and continuing education); the systematic production of bibliographical and audiovisual resources for teaching, research and services; the application of educational technologies; and to provide the health sector with scientific information and thus contribute to the development of human resources and increase service coverage.

In addition, the Division of Oral Health is in the process of executing the activities of the national oral health program and, for that purpose, has prepared and disseminated the following documents:

- Document on the National Oral Health Policy;
- Document on the National Oral Health Program;

- Final Report of the First National Seminar on Primary Care in Oral Health;
- Final Report of the International Workshop on the Training and Use of Primary Care Personnel and Basic Care Personnel for Oral Health;
- Report of the Course/Seminar on the Administration of Oral Health Services in Public Health;
- Report of the Workshop/Seminar on the Programming of Oral Health Services in Public Health (being printed);
- Regulations for dental services in the Dominican Republic (being printed);
- National guidelines for the training of auxiliary personnel;
- Service/teaching program in the health area of Santiago;
- Oral epidemiology study in Santiago de los Caballeros (being printed);
- Educational flip-chart on oral health;
- Educational flip-chart on bacterial plaque;
- Educational sheets on diet, brushing of teeth, use of dental floss and advice on oral health for pregnant women;
- Instructional booklet on oral health education for health educators;
- Instructional booklet on fluoridation of water supplies;
- Administrative manual of the Dentistry Department of the José María Cabral y Báez Regional Hospital.

2.3.6 Oral health administration

The Division of Oral Health of SESPAS is the technical and policy setting unit which, as part of the organizational structure of this institution that is a component of the health sector, is responsible for the planning, execution and evaluation of all the activities covered by the National Oral Health Program.

This Division consists of a directorate and four coordination offices: research, promotion, dental care and human resources, each of which have well defined work areas and are closely coordinated with one another, in accordance with the structure of SESPAS within the framework of its regionalization system.

Under the tecnical authority of this Division there are six regional dentists entrusted with the enforcement of service regulations in the health establishments of each one of the health regions of the country.

Because of the need to provide dental care to the low-income segments of the population the Division of Oral Health of SESPAS needs to know the characteristics of their health needs, both from the socio-epidemiological point of view and from that of the conditions of the services intended for their care. Accordingly, the solution of the problem involves an in-depth knowledge of the causes that goes beyond the biological framework and the purely technological aspects that have characterized dentistry in particular and the health professions in general.

The planning of dental care is based on a diagnosis of the community leading to the proposal of a program through which activities more in line with the need of the population are executed.

Dental health programs, from the primary level to the comprehensive level, are executed in accordance with the various human resources available; thus the community sectors, as those responsible for the activities for which they are trained, constitute the primary level, insofar as the absorption of knowledge makes it possible to extend coverage and to emphasize preventive activities.

Furthermore, a significant participation of promoters and auxiliary personnel in the provision of services makes it possible to increase coverage and improve services.

Special mention should be made of the development of the new concept aimed at the training of human resources through service/teaching integration within the regionalized health system. This activity enables students to participate as health workers and not to become a social burden during their training. In addition, this approach provides a substantial potential for generating changes in dental practice.

At this level the manpower being trained comes face to face with actual conditions, primarily in the unserved rural areas, and provides the population with sufficient good quality services during rural traineeships.

Finally, the activities of the professionals incorporated into the clinical, administrative and social updating process complete the organization that seeks to provide the Dominican population, especially the infant, school-age and rural population, with good oral health and better social, economic and cultural conditions.

2.3.7 Community participation

Because of the need to provide the low-income segments of the population with dental care through the primary care, basic and comprehensive levels, the National Oral Health Program stipulates as an essential requirement that those segments participate actively, directly and on a mass basis in the decision, execution and evaluation of oral health programs and participate as agents for changing their own conditions and needs; these segments are a creative part of primary care and their activities should receive ongoing cooperation from the health team.

This integrating and creative participation should be reflected in the conduct of socio-epidemiological research, in the promotion of oral health and in the prevention of prevalent oral diseases, in dental care, and in the training of human resources through:

- the absorption of oral health knowledge by the population at large;
- the active and direct participation of the community in socio-epidemiological research;
- respect for and application of the cultural values of the community in the practice of primary care;
- the positive interaction between the human resources that offer primary care and the population at large.

The results obtained in applying this strategy are:

- Active participation of teachers and students in programs for the prevention of caries and periodontal diseases.

- Design, equipment and participation in modular systems of care in shanty town areas in cooperation with the organized groups of the community and manpower training centers.

- Support for community oral health activities carried out by these educational centers.

- Establishment of Health Committees at the national level.

- Education of organized groups in shanty towns.

2.3.8 Appropriate technology

The national oral health policy of SESPAS stipulates that appropriate mechanisms should be established for stimulating the generation of appropriate knowledge and technology for extending the coverage of the new services using effective and efficient methods to meet community needs.

The technology should have "a scientific, sound and acceptable basis for those that use it and for those that benefit from it and should be in line with the situation and the local resources" (Declaration of Alma-Ata).

Hence, the National Oral Health Program, organized on the basis of three care levels--primary, basic and comprehensive--and forming part of a regionalized service/teaching system is a concrete example of appropriate technology in the administration of oral health services.

- The design, construction and appropriate use of physical space for modular dental care is another contribution in this regard.

- The simultaneous implementation of primary care activities in 200 public primary schools in the upland areas of the country, which is part of the Uplands Plan.

- This Plan, which involves the integrated participation of the population at large, students and teachers of the UCMM, and SESPAS personnel is another example of the optimization of resources, effectiveness, and efficiency.

- The planning and development of modular systems of dental care, of which 16 are already operating in the country in SESPAS services and state and private universities.

- In addition, mention must be made of the installation in a period of four days of a prefabricated structure with a 4-chair module for the care of schoolchildren, which represents a clear effort to apply the technology.

- Systematic epidemiological study prior to the initiation of each preventive activity and in support of manpower training.

- Use of simplified equipment for water fluoridation, for example the saturation cones. This simple, low-cost equipment does not need a supply of electricity.

2.4 Conclusions

Since the country has assigned priority to oral health care, it has emphasized the organization of the national program, which is organized through an oral health subsystem based on the criteria of health regionalization and service/teaching integration. The components of the subsystem are primary, basic and comprehensive care.

Noteworthy is the consolidation achieved by the National Program of Oral Health Services and the execution of subprograms of research, promotion, care and human resources; this situation is due both to the degree of technical training at the central level and the emphasis assigned by SESPAS to realistic dentistry and the coverage of most of the population by qualitative and quantitatively significant means, and to the valuable technical and financial contribution of PAHO/WHO and, through it, of the other United Nations agencies and international banks.

The technical cooperation of PAHO to this project has been provided through ongoing advice in academic and service planning, and in addition, consultant services have been provided in specific areas such as prevention, water fluoridation, service administration, human resources for primary care (promoters and auxiliaries) and research.

Through the fellowship program, professional personnel of the services have initiated and/or participated in academic courses and public health field studies, funding being provided by PAHO, IDB, World Bank, or UNDP.

Grants from the UNDP and PAHO have made it possible to continue to develop primary care in oral health, to create new alternatives for basic dental care, and to execute activities aimed at improving the oral health and general conditions of the population.

III. ORAL HEALTH WITHIN THE REGIONAL STRATEGIES OF HEALTH FOR ALL BY THE YEAR 2000

3.1 Oral health problems in the Region

From the epidemiological point of view, the health/disease process is the synthesis of a group of determinations that operate in a specific society and give rise to the appearance in different groups of hazards or potential characteristics, which in turn are manifested in the profiles or patterns of disease or health, of which oral health is an integral part (4).

In the Region of the Americas, Latin America has a population of approximately 340 million inhabitants (IDB, 1978); the population growth rate is 2.7 per cent annually and the gross domestic product ranges between US$247.5 and US$4,288 (IDB, 1979). It represents a work space in which dentistry seeks alternative solutions to the oral-dental problems of this population and in particular of the 125 million inhabitants who are deprived of social well-being and consequently of general and oral health services.

Of the many health problems dentistry is concerned with, mention may be made of three: dental caries, periodontal diseases, and malocclusions. Because of their severity and magnitude each one of them represents a major need that may be dealt with by the services.

In accordance with studies made (5) the prevalence of dental caries is around 97-99 per cent at age eight years, 50 per cent of the teeth of children are affected, and this percentage rises to 60 per cent between ages 12 and 14 years. The average number of teeth lost (extracted or extraction indicated) is 1.02 in this age group; the need for fillings ranges from 1.54 to 5.37 in the age-group 8-14 years (6).

The cost of treating the age-group 8-14 years affected by caries amounts to approximately US$40 per person. If we bear in mind that half the population of Latin America is under 15 years of age and approximately 1,200 million teeth are diseased, treatment costs would represent around US$4,800 million.

Dental caries is a chronic infectious disease which, unless its progress is interrupted by treatment, leads to the loss of teeth. The prevalence of this disease can be reduced only by preventive measures.

Periodontal diseases increase in frequency and severity with the age of the population. In adults, their prevalence is as high as that of dental caries, and together with dental caries they are the principal cause of the loss of teeth. Once the morbid process has begun, it is more difficult to treat than caries and calls for more specialized personnel.

As for malocclusion, it is estimated that in 70 per cent of the population over 12 years of age it is primarily due to caries and periodontal diseases.

Dental practice is individualistic, curative, inaccessible and high cost and the number of auxiliary personnel available or being trained (1 auxiliary per 3 dentists) is very limited. Because of the minimum use of the preventive methods, available coverage does not exceed 10 per cent and the minimal change that has occurred in the dentist/population ratio in the past 10 years, despite the fact that all the countries (with the exception of the English-speaking Caribbean) have dental schools, should be emphasized.

3.2 Availability of dental manpower

In Latin America the number of dentists available for care of the population is very limited and averages 1.9:10,000. This ratio declines when we break down the areas into marginal urban and rural areas, in which the public health dentist/population ratio sometimes reaches 1:80,000.

This situation is worsened by the fact that the professional profiles are not geared to the conditions and needs of the population; activities for incorporating new dental resources, both auxiliary and community, are still limited.

3.3 Level of production of dental knowledge

Dental practice is based on the models of highly developed countries with high per capita income in which dental technology is aimed at curative practice in large urban centers and with a limited production of knowledge which has prevented any change in the oral health status of the population through objective knowledge of oral epidemiological conditions and the application of service models and models for the training of human resources that make it possible to significantly extend the coverage of oral health services to the population.

3.4 Development of primary care in oral health and the health subsystem

Since oral health is one of the priority components of the national strategies of primary care, its field of action is aimed at the care the population assigns to its own health problems. It includes activities of a low level of complexity which may then be expanded as the population develops. These activities include investigation of the epidemiological conditions of the population, the promotion of oral health, the prevention of prevalent oral diseases, and the elimination of infection.

From a prospective point of view coherent health policies and appropriate strategies should be aimed at structuring an oral health service subsystem organized by levels, which will make it possible to regulate the flow of patients from the primary level to the secondary and tertiary levels.

Oral health care should be based on criteria of quality and comprehensive care; the maintenance of oral health status will be systematized and practice will be given a scientific character.

The planning of dental care should emerge from a specific epidemiological diagnosis of each work area, on the basis of which the oral health program will be prepared, including activities geared to the real needs of the population.

Activities should be developed from the primary to the tertiary level, taking into account the various human resources available; in this way, the population at large will be responsible for the activities for which they are trained and will constitute the primary level; the absorption of knowledge by the population at large will make it possible to extend coverage and to emphasize preventive activities. Furthermore, the participation of a significant number of health promoters and auxiliary personnel in the provision of services will make it possible to increase coverage and improve services.

For the purposes of this program, PAHO should assign maximum priority to activities for the promotion and prevention of dental diseases and should study all the means available for effective use of fluorides for reducing the incidence of dental caries and enabling the countries to adapt such use to local conditions. In view of the fact that in this decade health policy is based on water supply to the population, it is necessary to incorporate the fluoridation of water supplies for the prevention of dental caries to the extent its importance requires. In addition, emphasis should be assigned to the use of other means of recognized effectiveness for the incorporation of fluoride, such as kitchen salt, as well as the local application of fluorides.

PAHO must promote health education policies for highlighting the importance of oral-dental hygiene and preventing the excessive consumption of sugar. As part of its work of promoting health services research the Organization should bear in mind the need for more effective provision of oral health services in primary care strategies (7).

The priority of oral health activities for children, especially school-age children, should be emphasized, as should be those for pregnant women within maternal and child health priority in primary care strategies.

In executing the program it should be borne in mind that curative services are aimed at the care of emergencies, the treatment of caries, and periodontal disorders. These services will be organized as part of primary health care and will use local auxiliaries, middle-level oral health personnel and professional dentists (8).

It would be advisable for the countries to include oral health in their programs aimed at using the primary care strategy for extending health service coverage. This strategy should not be interpreted exclusively at the primary care level; primary care also means the referral of cases or access to secondary and tertiary levels and appropriate means should be adopted for the referral of cases to higher levels. Likewise, access to all dental care services should be ensured so that the advantages of prevention and treatment of children are not lost (9).

3.5 Dental manpower: Training and use

In dealing with the topic of manpower, the conclusion reached is that the community as a whole is responsible for the activities for which it is trained in the fundamental fields of health promotion and protection, and thus constitutes the primary level of human resources in the application of the primary care strategy.

Obviously, among routine dental activities there are some that can be learned by interested members of the community itself.

The absorption of health knowledge by the man in the street is one of the great possibilities of extending coverage, and emphasis should be given to preventive activities, which at present are neglected by university-trained professionals (10).

An analysis of the characteristics of the oral health process and of the provision of services for providing increasing coverage of the problems calls for the definition of a frame of reference that presents a view of health as a component of society as a whole; the training and use of oral health auxiliaries is a

fundamental aspect of this framework. The methodological bases of the training of auxiliaries are training at defined levels, continuing education, and are aimed at training groups which, executing supplementary activities, perform harmonious tasks that have common and well-defined objectives at each stage of the training process and at its completion.

In accordance with the practice of the present auxiliary personnel, their education is organized at three levels, namely:

a) Oral health auxiliary for primary care

b) Oral health auxiliary for basic care

c) Oral health auxiliary for teaching and service administration (11).

With respect to the training of university-level manpower, it is necessary to incorporate a new conception based on the service/teaching process within a regionalized health system.

The educational process will be organized on the basis of the functions to be performed by the various members of the dental team at the various care levels of the regionalized health system, and will foster efficient interrelations with one another and with the other members of the health team. The operation of the system will make for a qualitative and quantitative increase in the coverage, and improvement of the services in which manpower undergoing training will participate (12).

Since manpower training is essential, PAHO should provide support to dental studies in universities, where at present 100,000 students are following professional and auxiliary training courses in 140 schools of dentistry in Latin America that have 10,000 faculty members.

3.6 Community participation for improving the oral health status of the population

The organization and participation of the community should be developed within the overall scheme of participation. The community will participate in the analysis of needs, possible solutions and innovations, and in the programming, operation, production and evaluation of health services and environmental improvement (13).

Within this framework the community should participate on a mass, active, and direct basis in the decision, execution and evaluation of oral health programs; the community is a creative part of primary care and its participation will be enriched as the monopoly of dental knowledge is reduced.

At the community level, the role that can be played by its members, leaders, and organizations in supporting oral health programs should be emphasized.

Thus the role of promoters in cooperating in general health activities that generate primary care: teachers and school leaders can support the execution of specific preventive activities; parents should supervise and reinforce the oral health habits of their children and of themselves and generate individual actions for the care of their own oral health.

The training of the community for its participation should be based on the following criteria:

a) To identify and train persons in the community in which the program will be executed.

b) They will be trained in realistic conditions on the principle of in-service training.

c) A teaching method adapted to the individuals to be trained will be used, and the forms of expression and cultural values of the community will be respected (14).

3.7 Appropriate technology and research in support of coverage extension and improvement of services

The need to formulate strategies, aimed at redirecting research in the Region of the Americas with emphasis on the development of primary care so as to accelerate the solution of critical problems, has been established (15).

In oral health, PAHO should promote research that can be immediately applied to the needs of the countries. Operational research or health service research should also be aimed at the most efficient methods of providing dental services as part of primary health care (16).

PAHO should emphasize the importance of applying appropriate technologies in oral health. In addition, it should insist that the term "appropriate technology" be applied not only to equipment but also to the methods of organizing resources for extending health service coverage (17).

It is urgently necessary to promote the development of indigenous technology aimed at the simplification, self-supply, and reduction of the cost of dental practice (18).

In order to achieve the production of dental knowledge geared to our conditions, an operational plan is proposed that will permit the planning and execution of different types of research in the area of dentistry on an orderly and coordinated basis.

The operational plan in question should comprise three well defined levels that complement one another:

a) Socio-epidemiological research;

b) Clinico-pathological research;

c) Bio-pathological research (19).

In addition to the foregoing, this process calls for the training of researchers; for making research an indispensable component of teaching and services; and for conducting activities and programs of cooperation among developing countries, to which activities PAHO should make a significant contribution by promoting and using subregional, regional and multi-institutional agreements and programs.

IV. SOME SUGGESTIONS THAT MAY BE TAKEN INTO ACCOUNT IN PAHO TECHNICAL COOPERATION TO ORAL HEALTH PROGRAMS

In accordance with the request of the Director contained in his letter DPC/49/1, in which he ask the Secretariat of State for Public Health for comments on the conclusions and recommendations of the Advisory Group on Dental Health, we wish to make some suggestions tht might be taken into account in the technical cooperation of PAHO to the oral health program.

4.1 Administration at the regional level

a) In the Region, PAHO should promote studies aimed at identifying the true magnitude of the oral-dental problems affecting most of the population of the Member Countries and, on this basis, should provide the necessary elements that will enable the countries to rank the priority of oral health.

b) In the field of oral health, PAHO technical cooperation should be aimed at manpower development, research and, in particular, at the integration of oral health into primary care strategies as an important component in the achievement of health for all by the year 2000 (21).

c) The PAHO Technical Advisory Unit on Oral Health should operate at Headquarters and be incorporated into the Division of Comprehensive Health Services that carries out related activities.

d) In order to appropriately integrate oral-dental health into the increasingly multidisciplinary activities of PAHO, oral-dental health should be represented at the organizational level responsible for developing long-term programs and planning (22).

e) Constant communication and cooperation will be necessary between the Technical Divisions as regards oral health, in particular with manpower and protection of environmental health (Water Decade). This joint effort should be extended to the regional and subregional centers that come under the authority of each division.

f) PAHO should promote the establishment of a working group on oral health responsible for developing at the Headquarters level a form of multidisciplinary liaison at the program level.

4.2 Administration of oral health at the level of PAHO areas

a) PAHO should consider assignment of advisers in oral health to each one of the areas and to the Caribbean program.

b) It would be advisable for PAHO to study the allocation of budgetary resources for a dynamic administration of oral health in each one of the areas.

c) The establishment of subregional oral health agencies that will make it possible to optimize the resources assigned and the galvanize the work of area advisers for the benefit of countries should be promoted.

4.3 PAHO technical cooperation in oral health at the level of countries

a) The Country Representatives should incorporate the oral health project, at the level of their respective jurisdiction, into the technical cooperation program.

b) PAHO should motivate the Member Governments to incorporate dental personnel into the planning of national programs and into the delegations they send to the Governing Body meetings of PAHO.

c) The Country Representatives should consider the incorporation of the oral health component into the integrated health projects financed with extrabudgetary funds coming from the banks, other United Nations agencies, and foundations.

d) At the level of the countries, PAHO should maintain appropriate cooperation with the university sector in order to support the execution of manpower programs.

e) The Field Offices should encourage all national oral health activities that are in accordance with the policies of coverage extension and primary care, the training of auxiliary personnel, and dental research.

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