CONSIDERATIONS IN THE FORMULATION OF NATIONAL DENTAL HEALTH PLANS [1]

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The author presents some general ideas gained in the practice and teaching of dentistry in a Latin American country, along with observations based on experience in dental public health affairs, both on the national and international level.

By adding to one's own experience in dental health the opinions of those who are starting out in this field, of those who are achieving results or have even reached the stage of evaluating those results, it is possible to indicate the major factors involved, avoiding a mere statement of principles.

There is a growing conviction, among those who have attempted to make an objective identification of the barriers to community dental health, that all efforts to date have not sufficed to bring about an appreciable degree of dental health and that it cannot be achieved through the unaided efforts of the dental profession. The ever-widening gap between knowledge and needs is a source of increasing concern; moreover, the dental profession itself is unwittingly adding to the traditional barriers new obstacles that prevent this gap from being closed by a bridge of solid and lasting achievements.

It is therefore necessary to identify the problems that are the most common and serious in each of the developing countries and to pinpoint some of the variables involved in the achievement of progress.

Because health problems have a tendency to reflect the characteristics of each environment and its influence on the local inhabitants, it is important that any action directed to the preservation or restoration of health (which is not always dealt with in terms of its relationship to other social functions) be based on techniques specifically adapted to the social, cultural, and economic conditions of the area involved. It is observed, however, that even though other health problems are analyzed in this way, the problems of oral health seldom are.

In order to establish an order of priorities among dental health problems, it is essential to know the magnitude and the implications of each.

To the three basic needs identified by sociologists of a century ago, namely *food, clothing, and shelter,* have now been added another three: *education, health, and harmony in human relations.*

In the dental profession, the constant changes resulting from the technical and scientific revolution of our times require decisions on new problems, many of which did not even exist in the years when today's dentists were students. This makes it important for dentists to have a measure of understanding, preparation, and, above all, willingness to change that will enable them to lead instead of simply accepting the *status quo.* It is very likely that some of the actions now being taken to preserve or restore oral health in the developing countries are based on techniques that are out of

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step with the times or, even worse, are unrelated to the desires of the people.

The fact that dentistry is more inclined to analyze the *effect* than the cause, to deal with the *disease* rather than the *patient,* and pays little attention to the *environment* in which it operates and which surrounds the patient, makes it difficult for the profession to take *decisions for change.* Some examples of the decisions required are: (1) adoption of a strong stand in favor of prevention as a permanent philosophy for the practice of the profession; (2) separation, in dental practice, between truly professional and subprofessional responsibilities, which would allow the principle of *delegation* to be applied at all levels; and (3) formulation of individual preventive techniques—currently or prospectively available—which can be provided to the community by personnel in various categories.

Another example might be: (4) a decision to establish professional fees based on the service rendered and not on the material used; comparison among fees for professional services rendered to patients shows a substantial difference between the charges made by the same dentist for services involving preventive and curative techniques, and—what is more serious—differences in the charges for curative techniques, even for the same patient, depending, for instance, on whether the use of prosthetic equipment or a simple restoration is involved.

To these examples may be added the fact that lamentably, within the dental profession (including every group bringing dental care to a population: dental surgeons, odontologists, stomatologists, and the rest), the image of dentistry in the community is sometimes rather negative, since the dental health of many dentists (and doctors as well) is suspect. It is not uncommon to observe members of dental faculties with severe prosthetic needs discussing the teaching programs for their schools, including a prosthetic teaching program. On one occasion, the chief of the dental health education section was explaining a program for a population of more than 30,000 students; ironically, the man explaining this program had several teeth missing and needed a set of dentures. There is a great difference between the objectives of the profession and the values that some dentists actually ascribe to its practice and to the concept of dental health.

There are two important aspects of the subject under discussion—one is extrospective, the other introspective. The *extrospective* aspect comprises the analysis of the traditional factors responsible for the wide disparity between the potential and actual levels of dental care, these being: (1) the low priority assigned by the community to its dental problems; (2) the inadequate ratio of dentists to population, compounded by a disproportionate distribution between urban and rural areas; (3) the inability of people to pay for continuing dental care; (4) the lack of flexible techniques that would permit the establishment of services conforming to environmental conditions and social and economic realities in each locality; and (5) the reluctance of the profession to reform its manpower structure and adopt new methods to extend dental care to more people and increase the productivity of its services without reducing quality.

The second aspect, the one we have termed *introspective,* will be dealt with in greater detail, the discussion focusing on three questions: (1) To what extent is the dental profession fulfilling its basic objective of service to the community? (2) To what extent is it performing its social function, as indicated by comparisons between elements of the community receiving major care and those receiving less or none? (3) Why is the community making such little use of available dental knowledge and techniques?

This introspective analysis or dissection of the profession is of vital importance as

the factor that would impel any group of persons (not only dentists) to make changes in any type of planning, whether on the basis of gradual or historical development or of accelerated development. The profession as such, its social function, and the benefits that the community receives from its exercise should be analyzed before any discussion of planning based on technological aspects, which are subject to change. This analysis should cover *every facet of dental activity*: (1) the provision of dental services in any facility (whether public or private); (2) the optimum timing of education or training; and (3) the repercussions of such education or training on individuals associated and trained to provide services or introduce variables that generate changes conducive to health. Only through means such as these can each person be offered the most extensive and suitable care possible in the place where he resides, according to his social and economic circumstances. It is unfortunate that until now the general literature and international meetings on dentistry have failed to provide basic guidelines that could help to reorganize the profession as an institution at the service of economic and social development.

Professor John Vaizey of the University of London has described the developing countries in the following terms:

> Although insufficiently developed countries present considerable differences among themselves, there are certain characteristics common to all. The income per capita is always low; in general, and particularly in relation to employment possibilities, they are overpopulated; they are mainly agricultural and their farming methods are primitive; lack of foreign exchange limits considerably the ability to import capital goods; finally, all the political leaders show great interest in the development of their countries.
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> In the realm of education many generalizations can be made about these countries. The proportion of children in the population is very large, very few go to school, those that do go attend for a short period of time; the number of teachers is very limited when compared with the school population and the student-teacher ratio is high, particularly in the public education system; many teachers lack good education; frequently traditional educational structure does not correspond to the actual social and economic needs; as a consequence of these factors there is, in many countries, a relatively large number of people that have studied and cannot find jobs; the percentage of students that abandoned studies before finishing is very high; and to conclude, the programs on education lack coordination and planning and are inadequate in their application.[3]

To this picture should be added the general health situation as reflected by morbidity and mortality rates (with gastrointestinal, respiratory, and communicable diseases at the top of the list), the population structure and growth rate, the distribution of population between urban and rural areas, and the characteristics of the labor force. Other observers complete the description of the underdeveloped countries by stating that the extension of the benefits of current scientific knowledge to a larger segment of the population is prevented by economic and social factors and by the lack of services adapted to each region.

Some include in planning an evaluation of progress in the profession, basing it on an extrapolation of historical trends in which time is the only variable explaining change and governing development. In 1958, a group of experts of the World Health Organization, analyzing the general status of auxiliary personnel in dentistry, applied this evolutionary process to dental health services and the practice of dentistry, identifying five clearly defined stages:

Stage I. Occupation Undifferentiated. In this stage there are no persons in the community whose only means of making a living is the practice of dentistry. Dental diseases are generally left to follow their normal course, and infections and pain are treated with folk remedies. Some individuals devote part of their time to simple dental operations. In primitive

[3] J. Vaizey, "Some of the Main Problems in the Development of Education." In *Policy Conference on Economic Growth and Investment in Education*, Washington, D.C., 16–20 October 1961, p. 148.

communities there are persons who use simple methods to extract or mutilate teeth. As a result of the development in recent times of public health services and religious missions, it sometimes happens that physicians, sanitation technicians, nurses, clergymen, and nuns stationed in remote villages have instruments and anesthetics for extracting teeth in emergency cases.

Stage II. Differentiated Occupation. At this stage there are some individuals with no formal training or official title who devote themselves exclusively to dental practice (tooth pullers). The necessary skills are acquired through a system of apprenticeship. A wide variety of instruments, techniques, materials, and equipment are used. Dental prosthetics is developed and dental practice utilizes the advances in metals technology. The governmental authorities place no restrictions on the practice of dentistry.

Stage III. Initial Professionalization. Courses of formal training with a duration of one to two years are organized by the dental practitioners, who are united as groups or as a guild. Before admission to the profession, candidates have to meet the requirements imposed by the guild. The group of persons practicing dentistry takes on a formal character and the dental profession comes into being. Restrictive legislation in the interest of the public is enacted.

Stage IV. Intermediate Professionalization. Independent schools are established at the university level. Dental courses are increased in length, being now from three to six years. The minimum requirement for admission is complete secondary education. Professional associations become stronger, owing to the increase in the numbers of their members, their improved standing in the community, and the university standards of education of dentists. Weaknesses in the law or in its enforcement may still permit unqualified persons to practice.

The utilization of certain types of auxiliary personnel, such as the chairside assistant and laboratory technician, become firmly established. Courses of training and regulations are established by the profession for its auxiliaries.

The knowledge and skills making up the science and art of dentistry are developed, and persons practicing dental specialties are established in the larger urban centers. The technical aspects of the profession are given primary attention in the teaching of dentistry.

Stage V. Advanced Professionalization. Dentistry acquires full recognition as a health profession. Dental education becomes more balanced, with an increasing emphasis laid on the biological sciences. Postgraduate education is developed and the number of dental specialties increases. Dentistry becomes strongly organized and institutionalized. Dental practice by unqualified personnel disappears.

New types of auxiliary personnel, such as the dental hygienist and the school dental nurse, are trained under the control and supervision of the dentist for tasks specifically delegated. The complexity of the tasks delegated and the degree of freedom to practice vary from one country to another. In some countries where auxiliaries are trained for both curative and preventive procedures, they are required to limit their practice to official services. In countries where auxiliaries are trained only for preventive procedures, they are allowed to engage in private practice.[4]

This concept of the historical evolution of the profession is also reflected in the division of the development of the profession into three stages: the *craftsman or mechanical period,* with removal of teeth and subsequent replacement of lost materials; the *mechanico-biological period,* adding biological aspects to the mechanical period; and finally, the *social period,* categorized by some as a phase that the profession has barely entered even in the most advanced countries.

While this approach is useful for studying the past, it is hardly the best instrument for plotting the future development of the profession.

The reason is that, as the economists might say, this method presupposes that contemporary scientists know nothing of current theories of development. It is known that technological measures introduced at specific times can give rise to over-all changes and have results that were not foreseen. Thus—again employing the language of the economists—accelerated development can be assigned a fixed pattern for the future. This concept, which is being applied in the developing countries, has led them to think more in terms of leaps than

[4] World Health Organization. *Expert Committee on Auxiliary Dental Personnel. Technical Report Series* **163**:17–18, 1959.

of steps when considering the establishment of a modern social, political and economic system, and increasingly to draft their plans in terms of this goal.

From an analysis of the dental profession as such, it might be concluded that the profession is aiming its action primarily at benefiting its own members (dentists). This image of the dentist, stemming more from historical than scientific considerations, has led to a system of individual dental care that has served as a model or standard for all systems of dental care now being organized throughout the world. Thus the established criteria evaluate only the knowledge and technical skill of the individual (known today as the dentist), in terms of an ability to repair teeth and certain surrounding tissues or restore them to a given technical standard, failing to measure the other factors mentioned.

In any place in the world where dental activities are about to be initiated there should automatically be a feeling of association, which should be governed by its own distinct philosophy and by flexible objectives that can be evaluated in the locality for which they were established. Provision of dental care by this group, which will possess knowledge and techniques designed to promote, preserve, or restore dental health on the broadest possible basis, should be evaluated in terms of the extent and depth of its effect on the community and not only according to the quality of the technique. Admitting the principle that the profession exists to serve the community in which it functions, it follows that this profession must have the necessary means of assessing the scope and value of its activity in each community and in the country as a whole.

In 1964, in San Francisco, a distinguished leader expressed himself in the following terms: "Today's population desires health attention in all its aspects, including dental, and even more so, not only do they wish dental attention but they also desire that this attention be within the population's economic means. Therefore, dentistry should adjust itself and look at the possibilities of how it could bring this attention within its economic boundaries." In accordance with this function of dentistry the profession should seek whatever is necessary to contribute both qualitatively and quantitatively to the development of the nation. It should promote any technique or procedure permitting dental care to be provided anywhere in the world in keeping with the need and with the resources available at a particular time and place.

The profession should be identified with development and should recognize that human physiology is subject to the laws of change. This principle, unfortunately, is not generally applied by the members of the profession. Some dentists are loath to analyze their surrounding environment and accept the responsibility of adapting to it and facing the changing problems of an increasingly dynamic society. Dentists are generally conservative, individualistic, and resistant to change. They are reluctant to admit that what is valid for the United Kingdom, the United States, or the Soviet Union may also be valid for a developing country. When they first entered the university they concentrated only on the techniques of dentistry or the scientific aspects of the oral cavity, without realizing the place that they as individuals should occupy in society. Because of this concentration and absorption in teaching, research, or the practice of dentistry on an overly individualistic basis, they did not and perhaps still do not realize that societies are so dynamic. The same attitude has kept them from grasping the social and economic importance of the university and from understanding that in the developed countries in which they were trained or from which their system was adopted, the mission of the university is considered, for reasons unknown, to be abstract rather than specific.

It must be recognized once and for all that as the population grows and more and more people are made aware of the need for better health, it becomes increasingly important to seek the material and human resources needed to provide more and better service to a greater number of people, using materials and techniques that will ensure more lasting results and treatment at the lowest possible cost. At the same time, provision must be made for adequate payment, directly or indirectly, by those who receive service. It is not enough for dentists to be available to patients who seek them out and are willing to pay for the finest dental care. They must also experiment with ways of providing better care, either curative or preventive, on a basis sufficiently broad that service will no longer be the exclusive prerogative of any specific class. To summarize, the objectives of the profession should establish a direct relationship between the knowledge of dental science and the possibility of applying this knowledge to a larger number of people. They should be formulated so as to achieve a proper balance between every person's right to health, without regard to financial means or geographic location, and the cost of dental care and the just aspirations of those who provide it.

According to this interpretation of the social function of the profession, we should be able to train personnel in each region to provide dental care using the means at their disposal. If we attempted anything more, we would be like a man who weighs 300 pounds and is training for a two-mile race.

A general statement has been made concerning some aspects of the introspective analysis of the profession. After laying down realistic objectives in keeping with the philosophy of the profession, the next step is to analyze the use of the personnel who will have the job of achieving these objectives and of creating the techniques and securing the resources that will make the whole structure operational. This requires consideration of three basic components in the development of manpower resources: (1) the establishment of *adequate incentives* for those who will carry out the program; (2) the *development of effective training procedures;* (3) the *intelligent and realistic development of academic instruction.*

The first incentive that may be mentioned for the provision of services is one often discussed but, unfortunately, seldom applied: a spirit of service to the country or social responsibility, which should transcend all other considerations. Since the dental profession is composed of citizens and not of robots, it is important to see to it that the type of training or instruction given to its members is not an obstacle to the country's progress but a contributing element.

Recently, in some developed countries, the profession has begun a critical self-analysis, showing that financial remuneration is not the only factor in the status of the profession and that genuine prestige requires continuous study of and involvement in the economic, political and social environment in which the dentist operates.[5] Even in countries where economic considerations are conducive to prestige, it has been observed that the dental profession does not have the standing in the community that it should. As for countries currently in the process of development, data for some of them reveal that only 2 per cent of the students completing their primary schooling eventually enter the professions and only two students out of every 100 enrolled in the first year of dental or medical school finish their studies. This considerably increases the cost of university training of these professionals for the community. In some countries a university degree is not considered a guarantee of ability to serve the

[5] American College of Dentists, "The Image of Dentistry." *J Am Coll Dentists* **32**:132–263, 1965.

patient, but merely as a guarantee of a secure position in society. In others the university degree is viewed as a ticket of admission into the elite. *The prestige of the profession is often not measured by service to the country but rather in terms of a comparison of techniques between one part of the world and another.*

In the selection of incentives, the basic factor should be the remuneration received (either through employment or by direct charges to the patient) by the persons educated or trained. This remuneration should be *in direct proportion to the importance of the work* performed; it should not be based on the number of degrees or the extent of training received. For example, if the rural areas lack dental technicians or aides it might be advisable that when persons with these qualifications are sent to those areas they be offered greater compensation than that paid to university graduates in urban areas who are unwilling to accept those positions. In some cases, the medical aide or technician or the agricultural aide who is willing to live in the country deserves better pay than the physician or dentist or agronomist who insists on remaining in the city. Frederick Harbison has quoted this statement by the Ashby Commission:

> The literary tradition and the university degree have become indelible symbols of prestige in Nigeria; by contrast, technology, agriculture and other practical subjects, particularly at the sub-professional level, have not won esteem. I would argue most strongly that situations of this kind will not be corrected by publicity, exhortation of prime ministers, and the building of more educational institutions. They will be changed only when the systems of rewards and status values in a modernizing society are changed; and the initiative in making changes must come from the government itself in the form of a complete revision of the entire system of reward of government employees. The failure of politicians and planners to come to grips with this problem will produce in the newer countries, as it has already done in Egypt and India, an army of unemployed intelectuals.[6]

To analyze the different roles open to the profession in national plans the efficient development of the needed manpower, as well as that of academic education, must be considered. In doing so it is necessary to keep in mind that training and education are two different processes. Harbison says:

> Training includes the development of determined skills necessary for the achievement of specific tasks or a series of specific tasks. Education deals with the acquisition of general knowledge and with the development of a basic mental capacity. Both training and education take part in the formation of human resources. Of course, education is a previous requirement for many kinds of training, but this does not mean that responsibility of training and responsibility of education are inseparable.[7]

Practical training programs at different levels could be established without undertaking the expense of a classical dental education program. These programs might utilize dental services, either private or governmental, that could be established in the community, and could extend their services from small country areas to the city.

The manner in which variables are introduced in education and training will determine the possibility of creating dental services that are flexible and within realistic financial boundaries. Some examples, for purposes of discussion, might be:

If a country has no dental services at all, or lacks them in certain areas, specified government employees (for instance, primary or secondary school teachers, agricultural aides, or the like) could be given the minimum training necessary to serve the community by providing some basic dental services. In some areas these services may involve only the extraction of teeth in

[6] F. N. Harbison, *"The Strategy of Human Resources Development in Modernizing Societies."* In *Policy Conference on Economic Growth and Investment in Education.* Organization for Economic Cooperation and Development, Washington, D.C., 16–20 October 1961, p. 121.

[7] *Ibid.*, p. 122.

emergency cases; in others they might also include the insertion of materials (without necessarily cutting the teeth) to check the advance of dental caries.

In regions where dental services are available only in certain towns and cities, it might be feasible to establish "continuous training centers" staffed by specialists or persons with sufficient knowledge to give training in any new techniques that may be discovered. And in areas where special services can be provided, university-trained personnel could receive advanced training comparable to that offered by similar centers in other developing, or even developed, regions of the world.

The organized profession in each country could take a more active part in policy making, in providing dental service, and in dental education. For example, in Colombia, the Dental Society of Antioquia and other dental associations started a "dental corporation" one year ago; its activities include the provision of dental services through "clínicas populares" (low-cost clinics) financed by the beneficiaries themselves.

The Pan American Health Organization is currently cooperating in the design of a plan under which clinics of various kinds will be built in a specific country to provide care to a large number of people through the use of systems and techniques within the financial reach of the population. The authorities of this country are now examining the project to verify its feasibility. Other countries might develop techniques and systems to increase productivity and train instructors for this and other countries. Other dental associations might establish regional centers to evaluate and publicize training systems in use throughout the world, or design techniques for providing their members with printed materials translated from other languages, as in the establishment of "book banks" with materials available to or issued by other associations, or creating national information and documentation systems.

The establishment of dental service systems staffed by professional groups and making maximum use of available equipment and instruments could also serve as a means of promoting training and education. Systems of prepaid dental care, financed by individuals, industries or associations; diagnostic laboratories; specialized consultation centers for general dental practitioners; and centers owned and operated by dental societies for the training of professors and general practitioners, are other examples.

The best approach to the provision of services is, in a word, *planned innovation*. The planning of innovation should permit the profession to act with flexibility *in a real world*. This would require full and concerted participation by all services, faculties, and associations.

Summary

The best way to formulate national dental health plans is by studying the past experience and opinions of persons who work in the several areas of this discipline. Despite the efforts already made, there is a wide gap between available knowledge and existing needs. The scientific and technical advances made require the modern dentist to understand changing situations. A preventive attitude, among other things, needs to be adopted as a permanent philosophy. The professional workload should be lightened by delegating responsibility to sub-professionals, and by preparing preventive techniques which can be applied by various kinds of personnel in the community. Measures of this kind would place dentistry and the concept of dental health in their rightful place.

The extrospective and introspective aspects of dentistry are examined. As part of the extrospective aspect, the author discusses the gap between potential and actual levels of dental care. In dealing with the introspective aspect, he stresses that the dental profession can act as a catalyst within the community and that its aim should be to offer preventive or curative services in keeping with existing financial capacity.

Among the steps suggested to promote edu-

cation and training in dental care are the following: establishment of practical training programs at the various levels, which would cost less than the present training programs and could be extended from rural to urban areas; use of such governmental employees as school teachers and agricultural technicians who, with minimum training, could perform such basic dental services as urgent tooth extractions and temporary halting of dental caries; provision of dental services by professional groups; and planned innovations, in which the cooperation of out-patient clinics, dental schools, and associations should be sought.