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DENTAL HEALTH EDUCATION

Report of a WHO Expert Committee

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CONTENTS

	Page
1. Introduction	5
2. Review of priority dental health problems and related needs for dental health education	6
3. The dental health system as a context for planning dental health education	11
4. Definition, scope, and objectives of dental health education	13
5. Principles for developing dental health education	14
6. Guiding principles for planning, implementing, and evaluating dental health education activities and programmes. .	20
7. Training of personnel for dental health education. . . .	23
8. Research needs in dental health education	24
9. Conclusions	26
10. Recommendations	27

WHO EXPERT COMMITTEE ON DENTAL HEALTH EDUCATION

Geneva, 2-8 December 1969

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DENTAL HEALTH EDUCATION

Report of a WHO Expert Committee

A WHO Expert Committee on Dental Health Education met in Geneva from 2 to 8 December 1969. Dr J. Karefa-Smart, Assistant Director-General, who opened the meeting on behalf of the Director-General, welcomed the members and the representatives of the International Dental Federation and of the International Union for Health Education.

In his introductory remarks, Dr Karefa-Smart pointed out that WHO had already convened nine meetings of international groups of experts to discuss subjects related to dental health, and five to discuss health education, but this was the first time a matter pertaining to both fields had been analysed in depth by an expert committee. He stressed that the education of individuals in sound oral hygiene practices was of fundamental importance to achieving the goals of oral health, and was convinced that the work of the Committee would be most useful to health services and educational institutions in member countries.

1. INTRODUCTION

The worldwide prevalence of dental diseases is a constant reminder of the almost universal need for effective dental health education programmes. In many countries, vast quantities of dental health materials have been distributed and countless numbers of dental health information programmes have been conducted for decades in schools and other settings. However, these efforts have not succeeded in influencing behaviour to the extent expected. Even in those countries providing free and adequately staffed dental services, many people do not avail themselves of the services they need. More effective approaches to dental health education are urgently required.

In recent years, in both developed and developing areas throughout the world, there has been increased interest in and emphasis on the educational approach in the prevention and control of health problems. One of the principal reasons for this is the recognition that many of the factors in the causation and continuation of disease and in the maintenance and improvement of health are matters of personal and group behaviour rather than of environmental exposure. Since oral and dental health status depends largely on regular personal and group behaviour throughout life, effective utilization

of the educational approach is central to any widespread improvement in oral and dental health.

The objectives of the Committee were as follows :

- (1) to review the current status of dental health education in relation to high-priority dental needs and problems ;
- (2) to discuss basic concepts of dental health education founded on research in education and behavioural science ;
- (3) to develop broad guidelines for planning, implementing, and evaluating dental health education programmes based on these concepts ;
- (4) to consider needs for manpower, facilities, and research in dental health education.

This report provides a survey of the major aspects of dental health education, but does not describe a step-by-step procedure for the development of dental health education programmes of any given type. These programmes have in the past been extremely varied, and it was emphasized throughout the meeting that each programme should be tailored to suit the particular problems to be solved with educational procedures, and that the initial step to be taken when a programme is being considered is a *diagnosis* of the existing situation.

2. REVIEW OF PRIORITY DENTAL HEALTH PROBLEMS AND RELATED NEEDS FOR DENTAL HEALTH EDUCATION

2.1 Introduction

2.1.1 *Relationship of dental health to general health*

Health is defined in the Constitution of WHO as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". This definition applies to the whole individual and therefore encompasses such specific parts of the organism as the oral cavity.

A previous WHO Expert Committee considered that dental health was concerned with the functional efficiency not only of the teeth and supporting structures but also of the surrounding parts of the oral cavity and of the various structures related to mastication and the maxillo-facial complex.¹ The scope of dental health is therefore broader than the term implies, and it might be more correct to use the expression "oral health". In most instances, the two terms are used interchangeably in this report.

Dental health cannot be separated from general health, since oral disease may be a manifestation of or an aggravating factor in some more wide-

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1965, No. 298, pp. 4-5.

spread systemic disorder. Consequently, action taken to improve or maintain dental health may be very important in safeguarding general health.

2.1.2 *Some major problems in developing a concept of positive dental health*

Health tends to be appreciated only when it is impaired. Early symptoms of disease frequently go unnoticed or are regarded as of little significance. This tendency applies also to dental disease.

The development of a concept of positive dental health is made difficult by the chronic, recurrent, irreversible, cumulative, and prevalent nature of dental disease. These characteristics contribute to the belief that dental problems are inevitable and non-preventable.

Moreover, the teeth have different degrees of importance to different individuals. Some protect their teeth because of their functional and aesthetic value ; others look after them because of their contribution to social and mental well-being ; to many individuals, the teeth are seemingly of such low value that few attempts are made to preserve or protect them.

The difficulties are further increased by the relative efficiency, comfort, and social acceptability of artificial replacements for the natural dentition. Those who regard the loss of teeth through disease as inevitable may consider dentures to be the best possible solution to their dental problems.

Other major obstacles to the development of a concept of positive dental health are the undramatic nature of most dental diseases ; the association of dental treatment with pain, discomfort, and anxiety ; and the reluctance of many individuals to accept and carry out on a regular, continuing basis the oral and general health practices related to the prevention and control of dental diseases.

2.2 **Dental caries and periodontal disease**

2.2.1 *Basic facts*

The worldwide prevalence of dental caries and periodontal disease is well recognized. The incidence and prevalence of each may vary from one community to another, and all age groups may be affected, but dental caries tends to be more prevalent in the young while periodontal disease more commonly affects the adult population. Both are chronic destructive diseases : dental caries destroys the hard tissues of the teeth, whereas periodontal disease destroys the supporting structures and tissues. Both diseases may cause pain, infection, disfigurement, interference with function, and emotional problems.

Recent research indicates the presence of a common factor in the initial stages of development of both diseases : the formation on the tooth surfaces of dental "plaque". Plaque is composed of organic and inorganic materials in which grow micro-organisms that may be harmful to both dental and periodontal tissues.

In the natural course of these two major dental diseases, there is an important difference that is relevant to their prevention and control. In the case of dental caries, the damage done to the tooth structure is permanent and irreversible and the tooth almost always requires treatment by a dentist; gum inflammation, on the other hand, can usually be controlled in large measure by improvements in oral hygiene practices.

2.2.2 Educational implications

In the light of present knowledge, the prevention of both these diseases requires education in three main areas :

- (1) Adoption and continuing regular application of prescribed oral hygiene and nutritional practices.
- (2) Periodic dental care either for the early treatment of disease or for the application of specific preventive measures, such as topical application of fluorides for dental caries prevention or professional cleaning of the teeth to prevent periodontal disease.
- (3) Application of community-wide measures, such as fluoridation of water supplies.

Although these measures may appear relatively simple to understand and to carry out, in practice they may present many difficulties. For example, socio-cultural, situational, and economic factors may interfere with nutritional intake and with the frequency and correctness of tooth-brushing. In addition, the availability, acceptance, and utilization of dental treatment services may be blocked by a number of social, economic, psychological, and environmental factors. Other specific barriers are discussed in subsequent sections of this report.

Since dental caries and periodontal disease are of crucial significance to the improvement of dental health throughout the world, they should be given top priority in dental health education programmes. At the same time, however, planners of educational programmes must keep in mind the epidemiological differences between various age groups and geographical areas, as well as the relevant cultural contexts and economic conditions. These considerations also apply to all other dentofacial diseases and anomalies discussed below.

2.3 Malocclusion and other dentofacial anomalies

2.3.1 Basic facts

Malocclusions, which are the result of irregularities in the development of the facial skeleton or in the spacing and position of the teeth, are common. Many are congenital, but some may be acquired by faulty habits

during childhood or by the premature loss of teeth. Because these irregularities encourage the retention of food debris and increase the difficulty of removing dental plaque, they may be conducive to an increase in both dental caries and periodontal disease.

Some dental and facial anomalies may be obvious at birth, e.g., cleft lip and cleft palate. These conditions present serious problems to the dentist, the surgeon, the speech therapist, the patient's family, and the patient himself. Other types of anomaly may not be visible until later during childhood or adolescence, when defects in the number and formation of teeth or in the growth of the facial skeleton may become apparent.

Fortunately, much can be done to rectify malocclusion and to repair most dental and facial deformities if they are diagnosed early.

2.3.2 *Educational implications*

In the case of all noticeable anomalies, top priority in education should be given to dealing with the potential effects of the condition on the child's personality development, personal appearance, and evolving speech patterns. The parents' feelings related to acceptance or rejection of the child should be considered here, as should specific education of the parents about ways of handling problems of feeding, speech development, etc., that arise from the anomaly.

For the individual with cleft lip or palate, integration into society may be difficult because he is often considered to be "different" from other members of the population. Severe emotional problems may occur both during adolescence, when differences assume enlarged importance, and during early adulthood, when the individual is trying to obtain employment. Educational activities specifically designed to provide emotional support will therefore be necessary for a large number of those who have had surgical operations for cleft lip or palate.

In addition, for all individuals with malocclusion, emphasis should be placed on obtaining corrective treatment as early as possible. This is necessary not only to prevent the personality and appearance problems already mentioned but also to prevent dental caries and periodontal disease.

2.4 **Tumours**

2.4.1 *Basic facts*

Although tumours of dental tissues alone are uncommon, those affecting the associated structures are not. Their development may be related to chronic irritation from decayed teeth or poorly fitting artificial restorations or to continual exposure to toxic substances such as those derived from smoking. At present the main problem in this area is oral cancer.

2.4.2 *Educational implications*

There is some evidence to support the belief that the occurrence of oral cancer may be reduced by terminating chronic irritation, infection, or continued exposure to toxic substances. Educational activities relevant to each of the specific factors involved in prevention should be developed.

Early detection and prompt treatment of oral lesions are essential to prevent both undue facial deformity and reduction of dental function. The most important educational need for achieving this high-priority objective is the education of dentists to recognize the earliest signs and symptoms of oral cancer and other tumours and to refer patients to appropriate diagnostic facilities.

Obviously, a closely related educational task is to encourage individuals to seek and use dental care services on a regular and continuing basis.

2.5 Traumata (accidents)

2.5.1 *Basic facts*

Dislocations and fractures of the teeth and jaws are common consequences of injuries arising from transportation accidents, industrial operations, and athletic activities. With the increase all over the world in air and road traffic, industrialization, and participation in sports, such injuries will undoubtedly become more prevalent.

The management of these injuries and their consequences demands a high degree of technical skill and a full appreciation of modern methods of resuscitation and rehabilitation. In few other aspects of dental practice does the dentist develop the same sense of belonging to a unified health profession. The problems may range from the exposed nerve of a fractured tooth to severe damage to the soft and hard tissues of the face, from the conservation of a damaged tooth to the long-term treatment of the maimed or disfigured.

2.5.2 *Educational implications*

It is obvious that more effective accident prevention programmes focused on the specific risk areas mentioned above are needed. In addition, steps need to be taken to modify relevant aspects of the environment and equipment involved.

Specifically, more attention should be devoted to automobile design so as to prevent injuries to the mouth and face resulting from contact with hard surfaces, especially in the interior of the vehicle. Mouth injuries sustained in sports involving bodily contact could be greatly reduced by the wearing of appropriate, properly fitted mouth guards. Once such devices have been adequately assessed and manufactured, participants in all sports in which the risk of injuries to the face and mouth is high must be persuaded to wear them.

2.6 Oral manifestations of general disease and of other health conditions

2.6.1 *Basic facts*

Oral evidence of systemic disease occurs frequently. Diabetes, blood disorders, vitamin deficiencies, specific drug therapies, infections, psychological distress, pregnancy, and many other conditions may all produce changes in the oral tissues. It is not difficult, therefore, to substantiate the importance of oral signs and symptoms as indications of more general disease and other health conditions.

As the number of individuals who receive regular dental care increases, the dentist's responsibility for the general health of his patients will also become greater. His role in early diagnosis of disease and in prompt referral of the patient to appropriate medical resources must be more strongly emphasized.

2.6.2 *Educational implications*

If the dentist is to accept responsibility for the early recognition of signs and symptoms of general disease, and the public is to be made aware of this role, two main educational objectives must be achieved. The first is the training of dentists to make differential diagnoses of various conditions that may produce changes in the oral tissues. The second relates to the advertising, sale, and use of pharmaceutical products such as mouthwashes, which may disguise a number of oral disease symptoms and prevent the individual from recognizing the need for early expert advice, thereby delaying diagnosis and treatment.

3. THE DENTAL HEALTH SYSTEM AS A CONTEXT FOR PLANNING DENTAL HEALTH EDUCATION

3.1 Introduction

Since dental health is an integral part of general health, dental health programmes should be viewed as essential components of over-all health programmes. Every community health programme, no matter how simple, must always provide some means of satisfying dental health needs.

In any country, state, or local community a health system of some kind can be identified and described, and the dental health system should be considered a part of it. Both are parts of a larger system represented by the community as a whole. If dental health education activities are to be effectively developed, the whole community must be considered.

3.2 Components of the system

The community comprises the clientele of the dental health system, and contains the dental manpower to staff the public and private facilities that supply dental care services. This dental manpower is produced in a subsystem — the dental schools and related educational networks. Another subsystem produces the equipment and materials required for operating the dental care services. The cost of these services, including the production of manpower and materials, is dependent upon the total resources available to the community and on the prevailing political views as to how these resources should be spent. These views are influenced by public opinion, which in turn is affected by such factors as (a) the technical information provided by the dental profession, and (b) direct observation by the public of the results obtained from the dental services in relation to expectations and costs.

3.3 The system in operation

All components of the system are in a constant state of dynamic interaction; information enters and leaves the various parts, which influence one another accordingly. To be fully integrated, dental health programmes must take all these interactions into account. For instance, an educational programme designed to create an increased demand for dental care services needs to be based on information about such factors as the amount of free time available in dental offices and clinics or the possibility of expanding the services.

The clientele may be seen from several points of view: as individual patients; as members of selected groups, such as schoolchildren, women in prenatal clinics, or workers in a factory; or as members of the community at large. Obviously, the ways in which the various parts of the dental health system interact will differ with each of these points of view.

The dentist himself is one of the most influential parts of the system. As an individual practitioner, he influences the operations of the entire system in a large number of ways. For example, he is an educator of his patients and of other members of the dental team, as well as a professional specialist with technical expertise. Each of his roles requires different combinations of system interactions, combinations that will vary from patient to patient, from problem to problem, and from area to area.

Other important groups in the system are the administrators of health programmes, the educators of future dental personnel, the moulders of public opinion, those who develop and produce dental equipment and educational materials, and those who make political decisions at any level. All of these groups will have some impact on the eventual scope, content, methods, and objectives of dental health education programmes.

4. DEFINITION, SCOPE, AND OBJECTIVES OF DENTAL HEALTH EDUCATION

The WHO Expert Committee on Planning and Evaluation of Health Education Services described health education as follows :¹

The focus of health education is on people and on action. In general, its aims are to persuade people to adopt and sustain healthful life practices, to use judiciously and wisely the health services available to them, and to take their own decisions, both individually and collectively, to improve their health status and environment.

Since dental health education is an integral part of general health education, the achievement of dental health goals will require the application of principles and processes that are effective in other aspects of health education. The degree to which dental health education goals can be achieved is determined by a series of interrelated factors, which include :

- (1) the accessibility of dental health services and of advice in which individuals have confidence ;
- (2) the economic feasibility of putting into practice the dental health measures advocated ;
- (3) the acceptability of the proposed dental health practices in terms of the customs, traditions, and beliefs of individuals, families, and groups ;
- (4) the extent to which people already have the kinds of learning experience needed to enable them to understand or to desire the benefits that arise from new or modified dental health behaviour ; such behaviour may often require a considerable personal sacrifice of a financial, social, or psychological nature.

It is imperative, therefore, that all health workers and others involved in dental health education recognize that the attainment of changes in dental health behaviour is conditioned by social, psychological, and economic realities and by the quality, amount and availability of dental health services. At the same time, it is essential for those involved in dental health services to recognize that the degree to which health policies and plans become meaningful and health programmes fulfil their purpose is determined largely by the actions of the people for whose benefit and welfare they are intended.

There is no one right or easy way to educate people to take an interest in their dental health behaviour, yet people at all levels of society must be so educated if a nation is to obtain the maximum return from the investment

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1969, No. 409, p. 8.

it makes to raise the dental health standards of its people, to reduce major dental health problems and hazards, and to promote oral health.

The ultimate objective of all planned dental health education activities is to obtain and maintain optimum dental and oral health status for all individuals throughout life. Although this goal may never be fully achieved, considerable progress towards it can be made by judicious application of what is now known about human behaviour and ways of effecting social and behavioural change.

5. PRINCIPLES FOR DEVELOPING DENTAL HEALTH EDUCATION

5.1 Review of past and current dental health education activities

5.1.1 Dental health education in schools

An analysis of the literature on school health education reveals that schools in many countries have attempted over the years to conduct dental health education programmes. These programmes have been essentially of the "information-giving" type, and their informational content has almost always been the same. Furthermore, programmes of teacher education focused on improving the status of dental health education have employed this same approach. In spite of the overwhelming evidence that providing teachers and children with information about dental health is not an effective method of obtaining behavioural change, this approach has continued to predominate.

5.1.2 Dental health education of adults

A number of studies have highlighted the influence of parents in promoting children's dental health practices. Parents everywhere have a significant role in influencing children's behaviour in all areas of health. Although the need for and importance of parental education in dental health is widely and strongly supported, there is no general agreement on the appropriate content of such programmes or on the best methods to use.

In countries where the demand for dental treatment services can be met, adult dental health education is planned around the dentist-patient relationship. It is clear that opportunities for education of patients by dentists are not being fully exploited, and the extent to which dentists engage in educational activities outside their offices is extremely limited. Perhaps one of the main reasons for this is that many dentists have been educated to think chiefly in terms of therapy, repair, and restoration, with little emphasis on prevention and education. Another reason may be the way dental practice is organized and financed.

5.2 Some major social science concepts related to dental health education

In 1964, the WHO Expert Committee on Organization of Dental Public Health Services emphasized the importance of social and behavioural research :¹

A better understanding of human activities and behaviour is basic to almost every advance in dental health programmes. Faced with the lack of public acceptance of a practical method like fluoridation, or with the low utilization of care services when they have been made easily available, the dentist sometimes attributes his failures to an intangible phenomenon called "public indifference" or "public ignorance".

During the past decade social scientists have taken a growing interest in studying the dimensions of patient behaviour, and their efforts have produced more realistic explanations of dentists' failures in educating patients in oral health.

Without considerable information about the patient, his family background, social relationships, life experiences, perceptions, motives, beliefs, interests, and values it is not possible to formulate meaningful, effective dental health education activities and programmes. A number of psychosocial and cultural variables related to dental health education have been studied, and are summarized below.

5.2.1 *Fear arousal*

The effects of the use of fear to persuade people to take health actions are of interest to workers in all kinds of health education, including dental health education. In recent years there has been a considerable amount of research related to specific aspects of this problem. Studies have shown that the effects of the use of fear vary with such factors as education, income, occupation, personality structure, and the nature of the health issue. These are major variables to be taken into account in planning all health education programmes.

Studies using fear appeals have shown that people need some level of emotional arousal before they will take action. Fear may be only one of a number of factors that produce the necessary emotional arousal. It is essential that the stimulus selected be appropriate to the action desired.

5.2.2 *Concepts of preventive health behaviour*

Although most individuals are aware that they are susceptible to specific dental disease, they do not regard this as a serious problem. Since dental diseases do not seem very serious to most people, actions to relieve potential

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1965, No. 298, p. 26.

dental problems are not given high priority, even though most people know the correct actions to take.

Even when it is known that a person is motivated to take action to protect his dental health, it cannot be predicted what action, if any, will be taken. A person's specific choice of behaviours is restricted by his perceptions of what is available to him as well as by his beliefs about what will benefit him most in relation to his perceived dental problem. These perceptions are all highly subjective, so that the action taken by an individual may not be regarded as appropriate or effective by dental personnel.

Some data show that beliefs about prevention of dental disease tend to be held by persons who have beliefs about the prevention of other diseases, while people who practise preventive dental behaviour tend to practise preventive health behaviour generally. Moreover, beliefs and behaviour concerned with health prevention seem closely related to the individual's general concepts of prevention. Consequently, the effect on preventive dental behaviour of activities directed towards increasing preventive health behaviour in general may be equal to, or greater than, the effect of activities focusing directly on dental behaviour.

Some actions, such as going to the dentist's office, may be perceived as unpleasant, painful, embarrassing, expensive, or inconvenient. Others may conflict with the individual's social and cultural behaviour patterns.

5.2.3 *Socio-economic status*

A large number of studies have shown a relationship between the utilization of dental care services and socio-economic status. People from lower educational, occupational, and income groups go to the dentist for preventive care less frequently than do those of higher status. Changing this pattern is not simply a matter of making services free. It requires both changing the dental attitudes and habits of low income groups and finding new methods of organizing and paying for both preventive and restorative dental care.

5.2.4 *Summary*

A review of the recent literature confirms that people at various socio-economic levels and in diverse cultural groups have different views of what constitutes appropriate dental health behaviour and that these views are major determinants of the specific actions they will take. Relationships between the interacting psychosocial and cultural variables are complex and at present unclear.

Many social scientists have affirmed that confronting a person with information is not likely to bring about a substantial change in his view of what is appropriate or effective dental health behaviour. For the layman,

health and illness are personal experiences related to finance, suffering, anxiety, interference with life goals, and personal needs and desires ; consequently people judge health and illness not on the basis of prevalence statistics, but on how a condition will affect them personally. Attempts to change dental health behaviour should therefore be based on the relation of recommended actions to things that are valued by the people involved. Unfortunately, many dentists and other professional health workers tend to view patients in the light of their *own* system of values.

Unsatisfactory dental health behaviour is not simply the result of being "dentally" uneducated, of not having enough money, or of being afraid of dental treatment. Consequently, programmes of dental health education must provide a broad approach that takes account of all relevant and inter-related factors.

5.3 Some basic concepts underlying dental health education

The ultimate goal of planned dental health education programmes is behavioural in nature, viz., the reinforcement and maintenance of health behaviour where this is satisfactory, or a change to new behaviour that will promote and improve individual, group, or community health. Planning for dental health education should therefore take into account not only the forces within the individual that affect behaviour (e.g., beliefs, attitudes, interests, values, needs, motives, expectations, perceptions, and biological factors) but also the external forces that interact with these internal ones and have an impact on a person's behaviour (e.g., family, kinship, and friendship groups ; health and medical facilities and services). Since all these forces are in a constant state of dynamic interaction, the processes of dental health education should be flexible and should be continually tailored to take account of changing personal and situational factors.

One of the chief weaknesses in many dental health education programmes has been the failure to make adequate educational diagnoses before prescribing programme activities. Without considerable information about the individual, his family background, social and cultural values, beliefs, perceptions, and aspirations it is not possible to develop appropriate and meaningful dental health education activities and programmes. Even when individuals with similar dental health problems are grouped together for educational purposes, it is necessary to take into account the differences between individuals and to provide a variety of educational experiences.

The major components of the educational process are :

- (1) the educator, i.e., anyone who attempts to influence the learner, such as dentist, teacher, or mother ;
- (2) the learner, i.e., the individual or groups to be influenced ;

(3) the behavioural goals towards which the process is attempting to direct the learner.

The educator in dental health, in his attempts to influence the learner, may apply any of the available individual, group, or mass methods either singly or in combination. The selection and application of specific methods will depend on the outcome of the educational diagnosis. The ineffectiveness of many dental health education programmes is due to the tendency of health workers to predetermine the goals themselves and to plan educational activities directed towards achieving the goals that are important to *them*, without attempting to involve the learner actively in the educational process.

Many internal and external factors and forces affect the outcomes of the educational process and must be recognized in planning dental health education programmes, for example :

(a) the learner's own (usually implicit) dental health goals, which will be conditioned by a number of psychosocial and cultural factors ;

(b) other goals that are of higher priority to the individual than dental health goals, e.g., desire for improved social status, relationships with the opposite sex, and increased earning capacity ;

(c) the learner's attitude towards the educator, which may be a desire to "turn him off" or "shut him out" ;

(d) influences, other than the planned educational activities, that may impinge on the learner at any time, e.g., misleading health advertising and social pressures ;

(e) barriers that must be reduced, removed, or penetrated by the educator before the learner can make any movement towards the desired goal, e.g., communication difficulties, interests of the learner, motivations, perceptions, and past experiences.

All these forces and many others interact in complicated ways and tend to diminish, dilute, and distort the intended impact of the educator's efforts. Consequently, the greater the dental educator's awareness and understanding of these factors and forces, the more realistic and effective will be his educational treatment plan.

The educational process should be continually applied at all levels of prevention. Some specific programme components applicable to the various levels are listed in the accompanying chart.

APPLICATION OF PREVENTIVE MEASURES TO DENTAL HEALTH ^a

Primary prevention		Secondary prevention	Tertiary prevention	
Health promotion	Specific protection	Early diagnosis and treatment	Disability limitation	Rehabilitation
Dental health education Education for periodic dental examination Good standards of nutrition, adjusted to developmental phases of life Attention to personality development Genetic counselling Provision of optimum living conditions	Attention to personal oral hygiene Use of environmental controls, such as water fluoridation, topical application of fluorides, and other preventive measures Protection against occupational and recreational hazards, e.g., use of mouth guards Use of specific, essential nutrients (of which fluorine is one) Protection from carcinogens, e.g., anti-smoking measures	Case-finding measures, such as radiographs Screening surveys, such as oral cancer screening programmes Dental recall systems Treatment of decayed teeth Professional cleaning of the teeth Elimination of infections Provision of orthodontic appliances and space maintainers	Treatment to control dental caries and periodontal disease and to prevent further complications and sequelae Provision of appliances to restore function and appearance Treatment of other oral diseases and conditions	Education of individuals for appropriate use of dentures Pre-surgery and post-surgery education for oral surgery patients

^a Modified from : Leavell, H. R. & Clark, E. G. (1958) *Preventive medicine for the doctor in his community*, 2nd ed., New York, McGraw-Hill.

6. GUIDING PRINCIPLES FOR PLANNING, IMPLEMENTING, AND EVALUATING DENTAL HEALTH EDUCATION ACTIVITIES AND PROGRAMMES

The planning of dental health education should take place within the context of planning for the total dental care programme, and in both the same systematic procedures should be applied. These are :

Collecting information essential for planning, e.g.,

- (1) vital and social statistics of dental diseases ;
- (2) priorities given to dental problems in health programmes at all levels ;
- (3) present and potential dental health services and facilities ;
- (4) information about the people to be reached, their understanding about dental health, their level of interest in doing something about the problem, their customs, beliefs, taboos, and habits ;
- (5) channels of communication among the people : how they get dental information and whom they believe ;
- (6) possible conflict with other programmes currently operating in the area, including attitudes of people towards these programmes ;
- (7) segments of the population that need to take action.

Establishing dental health education objectives, e.g.,

- (1) actions desired of the people as individuals, families, or community groups ;
- (2) specific beliefs affecting dental health that will need to be changed ;
- (3) specific information the public will need in order to take the desired actions.

Assessing the barriers to dental health education and ways of overcoming them, e.g.,

- (1) other interests of higher priority than dental health ;
- (2) communication barriers, such as language differences and literacy levels ;
- (3) geographical isolation, e.g., people living far from sources of dental care ;
- (4) capacity and economic ability of people to take the necessary dental health actions, such as the purchasing of necessary foods, toothbrushes, and dentifrices, and to obtain dental treatment services ;

- (5) community attitudes towards dental programmes, such as fluoridation of community water supplies ;
- (6) attitudes towards the providers of dental care services and of education.

Appraising apparent and potential resources

- (1) Organizations :
 - (a) health departments and other governmental agencies ;
 - (b) voluntary health agencies ;
 - (c) professional dental organizations : international, national, and local ;
 - (d) other related professional organizations, e.g., medical, nursing, and public health associations, and educational societies ;
 - (e) civic groups, occupational groups, and trade unions.
- (2) People :
 - (a) the general public, who should be involved in planning and implementing the programme ;
 - (b) persons whose views influence community attitudes, such as school-teachers, community leaders, and other community workers ;
 - (c) health personnel who will provide the dental services.
- (3) Material and equipment for the educational components of the programme, e.g.,
 - (a) mass informational resources, such as newspapers, radio, and television, and the proportion of the population reached through these ;
 - (b) educational aids, such as pamphlets, posters, films, slides, flannel-graphs ;
 - (c) supplies and equipment, such as transport and projection equipment.
- (4) Funds :
 - (a) amount available from official agencies ;
 - (b) amount available from professional and voluntary organizations ;
 - (c) amount available from industries with a basic interest in dental health.

Developing the detailed plan of operations, including evaluation

The plan will encompass decisions on such questions as :

- (1) What individuals and groups should be brought into the planning of the dental health programme, keeping in mind that dental health education is not the sole responsibility of the dental profession ;
- (2) What specific information will these planning groups need ;
- (3) What methods will be used to involve these groups in the planning ;
- (4) What specific information will the target groups need to carry out the desired actions ;
- (5) What methods will be used to secure the participation and co-operation of the public : community self-help projects, home visits by health workers, individual contacts, group discussions ;
- (6) What educational aids are needed ;
- (7) How can all the educational resources be used in a co-ordinated way, keeping in mind the necessary multidisciplinary character of the planning groups ;
- (8) What priorities will be given to various aspects of the educational effort ; will major emphasis be given to school dental programmes, private dental care activities, public health clinics, adult groups, hospital patients, industrial workers ;
- (9) When and where will the educational programme be initiated, taking into account all other community activities and programmes ;
- (10) How will the educational programme be evaluated ;
 - (a) What types of evidence will be used to measure programme effectiveness ;
 - (b) What baseline data will be established ;
 - (c) How will the data be analysed and interpreted ;
 - (d) What types of controls will be used to relate behavioural changes to the educational effort.

Once the objectives have been clearly defined, criteria and techniques for measuring achievement decided upon, an adequate base-line established, and the methods selected and pre-tested, the dental health education programme can be initiated ; evaluation of this programme at periodic intervals should reveal the places where progress has or has not been made and indicate the reasons for success or failure. Steps can then be taken to replan the programme, adopt new procedures, and improve the effectiveness of the educational effort. Only through such continuous revision can the goals of dental health education of the public be most effectively realized.¹

¹ See *Wld Hlth Org. techn. Rep. Ser.*, 1954, No. 89, p. 16.

7. TRAINING OF PERSONNEL FOR DENTAL HEALTH EDUCATION

7.1 Personnel for programme planning and evaluation

The development of appropriate dental health education programmes at the national level requires close co-ordination between the responsible health administrators and public health dentists, health education specialists, and other health personnel. The dentist is responsible for the over-all planning of the dental health programme and, in consultation with the health education specialist, for determining its specific dental education content. The health education specialist should assume major responsibility for developing the comprehensive educational plan for achieving the specific dental health behavioural objectives.

In some countries, a similar team of specialists may also be necessary at the intermediate levels of health administration. However, since their role is basically to provide advisory and consultative services in relation to broad programme planning and evaluation, the number who need to be trained is not very large.

It is desirable for public health dentists to receive their training in schools of public health or in other institutions where health education is a basic discipline in which all members of the health team follow a common course.

7.2 The dentist

The crucial person in the development of dental health education activities is the dentist himself, whether he works in a health institution or in private practice. As the head of the dental health team, he has the important mission of educating his patients and of seeing that other members of the health team make the best use of all opportunities for educating patients.

If the dentist is to accept and carry out his important educational functions and responsibilities, he must receive appropriate training during his undergraduate dental studies. The curriculum of dental schools should therefore provide opportunities for participation in a variety of dental health education activities, in school, hospital, clinic, and industrial settings. In addition, basic concepts of dental health education should permeate the entire curriculum.

Responsibility for the development and implementation of these curriculum elements should rest with departments of social or community dentistry. Where no such department exists, some other department should be designated to carry out this function. The important thing is that dental schools include, as one of their primary objectives, the effective preparation of graduates to assume responsibility for dental health education.

7.3 Other dental personnel

In the training of dental hygienists, dental nurses, dental assistants, and other types of dental auxiliaries, there is a need to include practical experience in developing and applying a variety of educational procedures and materials. Special emphasis should be placed on individual face-to-face methods and on procedures applicable with small groups, such as school-children and women in prenatal clinics. Throughout this training, educational concepts and behavioural principles related to ways of motivating people to take effective dental health actions should be stressed.

7.4 Related health and education personnel

Members of other health professions have important roles in dental health education and should therefore receive training appropriate to these specific roles. The physician occupies a special place in the health team. During his undergraduate medical training attention should be paid to dental and oral health problems so that he can reinforce the educational efforts of the dental team.

All health personnel, such as nurses, home visitors, and social workers, who have direct contact with people either in their homes or in health facilities, should be aware of opportunities for dental health education related to specific needs. They should also be familiar with community dental resources so that appropriate referrals can be made when necessary.

The role of the schoolteacher in dental health education cannot be overemphasized. The curriculum of teacher training colleges should not only include basic concepts of health education but should also provide opportunities for teaching practice related directly to health education. Dental health education should be included as part of this general health education programme. The dental team, with their specialized knowledge, can co-operate with teachers to make dental health education meaningful and interesting.

8. RESEARCH NEEDS IN DENTAL HEALTH EDUCATION

The recent report of a WHO Scientific Group on Research in Health Education specifies quite clearly the general context of research needs in health education in general.¹ Many of the specific educational research problems noted in that report are, with minor modification, equally relevant to dental health education, as are some of the broad categories of research that are delineated.

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1969, No. 432, pp. 9-15.

It is not the purpose of the present Committee to discuss dental health research problems comprehensively. Studies required on some specific problems in dental health education are listed below, but not in priority order.

(1) Studies concerned with the practices recommended by the dental profession, especially as related to the effectiveness of these practices in the prevention of dental caries and periodontal disease; studies of the problems that arise in carrying out the practices recommended.

(2) Studies of school dental health education, with emphasis on the social and emotional consequences of dental neglect rather than on the clinical consequences; assessment of the outcomes of active participation in the educational process by learners.

(3) Studies on the extent to which the utilization of dental care facilities acts as a means of dental health education, with particular reference to the number and frequency of visits made before people will be motivated to attend regularly without further emphasis.

(4) Studies of methods of providing dental services as these affect dental health education activities, e.g., a study of the effectiveness of dental health education practices according to whether the dentist is remunerated on a salary, visit, or fee-for-service basis.

(5) Studies of the organization of the time and functions of persons working in the dental office so as to allow maximum time for effective education.

(6) Studies concerned with the education of members of the dental team so that they can provide the best dental health education, including such preventive activities as oral cancer education, topical fluoride applications, personal oral hygiene practices, and the use of ancillary personnel for educational purposes.

(7) Studies of the kinds of health education processes that can be used with the patient receiving dental prostheses for the first time, and of the social and emotional consequences of wearing such appliances.

(8) Studies concerned with developing reliable and valid indices for assessing oral health as measurements of the effectiveness of practices carried out.

(9) Studies of the educational problems concerned with orthodontics, preoperative and postoperative management, cleft lip and palate, and other kinds of dental and facial anomalies.

These are only a few of the many areas where research is scarce, inadequate, or non-existent at the present time and in which research will undoubtedly have to be carried out during the next few years. Research

institutions such as those described in the report¹ mentioned above need to be alerted to the relevance of dental health education research as an important component of health education research.

9. CONCLUSIONS

The Committee intends this report as an introductory exploratory survey of the main areas involved in improving and developing dental health education activities and programmes. No attempt is made to examine any of these areas in detail. Instead, attention is devoted to broad guiding concepts that are related to the educational process ; to an understanding of human behaviour in general and of dental health behaviour in particular ; to basic principles of programme planning as these apply to dental health education ; to the factors involved in training dental and other health personnel for their responsibilities in dental health education ; and to important research needs relevant to dental health education.

Points that have been repeatedly emphasized are :

(1) Dental health education programmes must enlist the co-operation and support of the people for whom they are intended, and should be developed and carried out on a multidisciplinary basis.

(2) Major emphasis in all dental health education programmes should be placed on primary prevention, with special focus on motivating people to seek and use dental care services.

(3) Co-ordination of all the different dental health education activities in the community is essential.

(4) There is a great need for additional dental personnel of all types for all levels of programme operation. Some activities of the dental health education programme should therefore be directed towards recruitment of potential dental manpower.

(5) Since education and services go hand in hand, dental health education programmes should assist, where necessary, in obtaining additional services and in improving the quality of existing services.

(6) The present curricula of many dental schools make it difficult to train dentists and related personnel to carry out their educational functions. New, imaginative undergraduate training programmes for dentists are sorely needed throughout the world so that the preventive aspects of dentistry can receive proper emphasis.

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1969, No. 432, p. 26.

(7) In addition to dental personnel, other health and education personnel need to be trained to accept responsibilities in the broad programme of dental health education.

(8) Much greater emphasis needs to be given to adult dental health education at all levels of prevention, with particular focus on the role of parents in influencing their children to develop desirable dental health behaviour.

(9) Up to now, very little research directly related to dental health education has been carried out. More funds, facilities, and manpower are needed to increase both the quantity and quality of research in this important behavioural area.

(10) Dentists and other dental personnel and organized dental societies should become more actively involved in community activities outside their immediate interests, and should lend their prestige and expertise to the support of all programmes designed to improve the general health of the public.

10. RECOMMENDATIONS

10.1 Promotion of dental health services within the context of general public health programmes

It is important that WHO give every possible assistance to member states interested in strengthening the dental health components of their general public health programmes. In 1964 a WHO Expert Committee on Dental Health recommended, as the first and most important step in the organization of an effective dental health programme, the appointment to the central health administration of a full-time dentist, preferably one with appropriate qualifications in public health.¹ Further support and encouragement should be given to training the dental and administrative manpower that is essential to the development of health programmes of acceptable quality.

Since the educational aspects of dental health programmes and activities are of primary importance, WHO should continue its assistance to member states in establishing and strengthening technical health education services, under qualified professional leadership, within the organizational framework of governmental health authorities at all levels. A major objective of such services should be to contribute to all phases of the planning, development, and evaluation of dental health education programmes.

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1965, No. 298, pp. 30-31.

10.2 Collaboration between WHO and other organizations

WHO is already collaborating with UNESCO, UNICEF, the International Dental Federation, the International Union for Health Education, and other international bodies. It is recommended that such collaboration be extended in the near future to a study of dental health education programmes in schools, with emphasis on the preparation of teachers for dental health education responsibilities. In this study, which should include the design, implementation, and evaluation of pilot demonstration programmes in several countries in different parts of the world, the need for comparative research data should be kept in the foreground.

10.3 Support and promotion of research relevant to dental health education

As stressed in the report of the WHO Scientific Group on Research in Health Education, research on educational problems in all health programmes is at present insufficient in quantity and inadequate in quality.¹ Health workers everywhere face innumerable problems in the educational aspects of their work, and these problems need to be studied on a well-planned interdisciplinary basis. Communication between related disciplines and between health education practitioners and research workers should be increased. Problems that need further study are the establishment of priorities in dental health education research, the formulation and selection of the research methodologies most relevant to specific dental health education problems, and the selection of appropriate methods of communicating research findings to everyone involved in dental health education.

10.4 Provision of funds and facilities for training and research

The funds and facilities available for research and training in dental health education do not match the importance of the work. The Committee suggests that WHO interested governments, and professional organizations should give consideration to ways and means of training the additional dental and educational personnel needed to carry out the practice and research functions that are essential to the advancement and improvement of dental health education activities.

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1969, No. 432.