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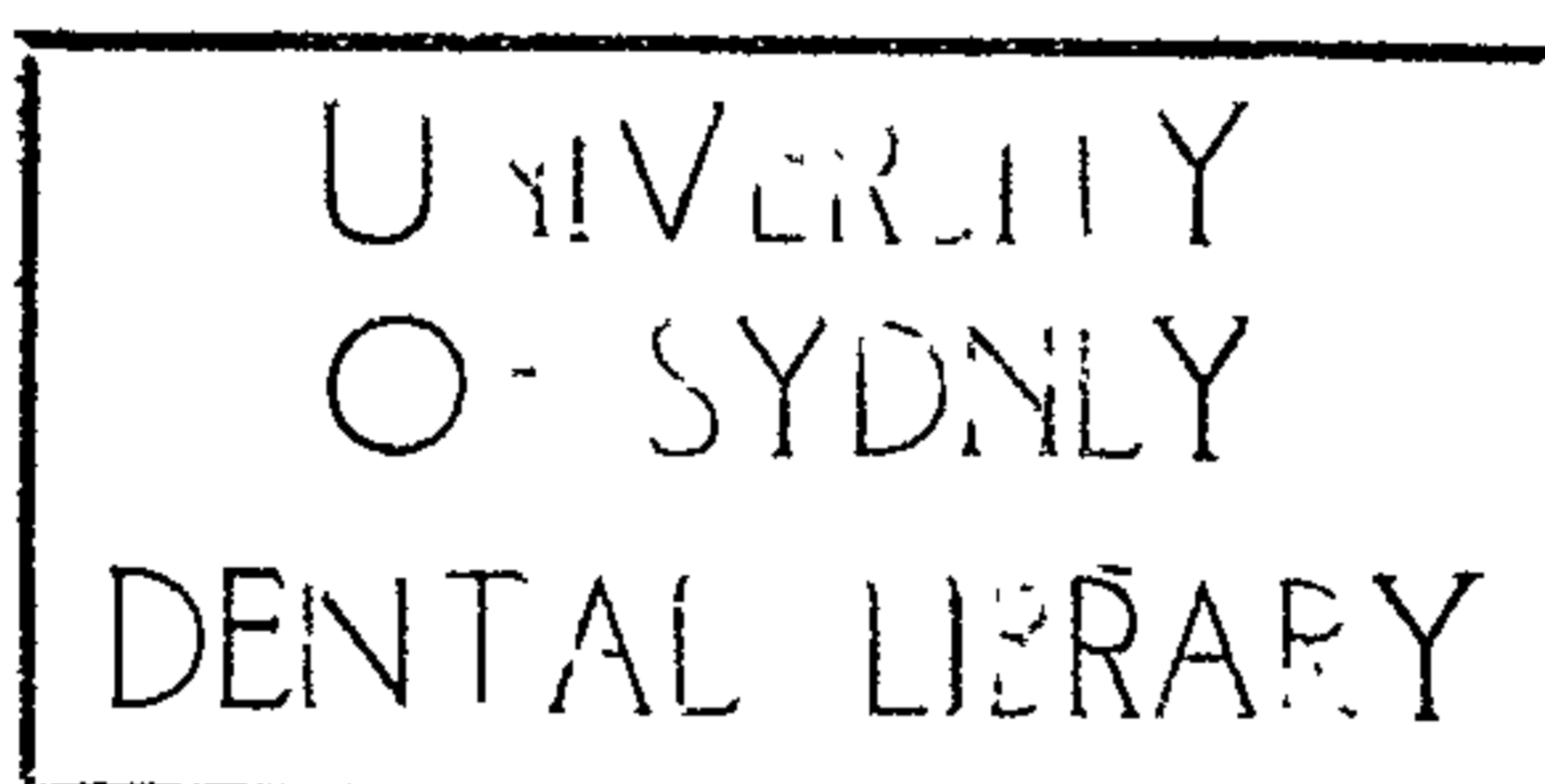
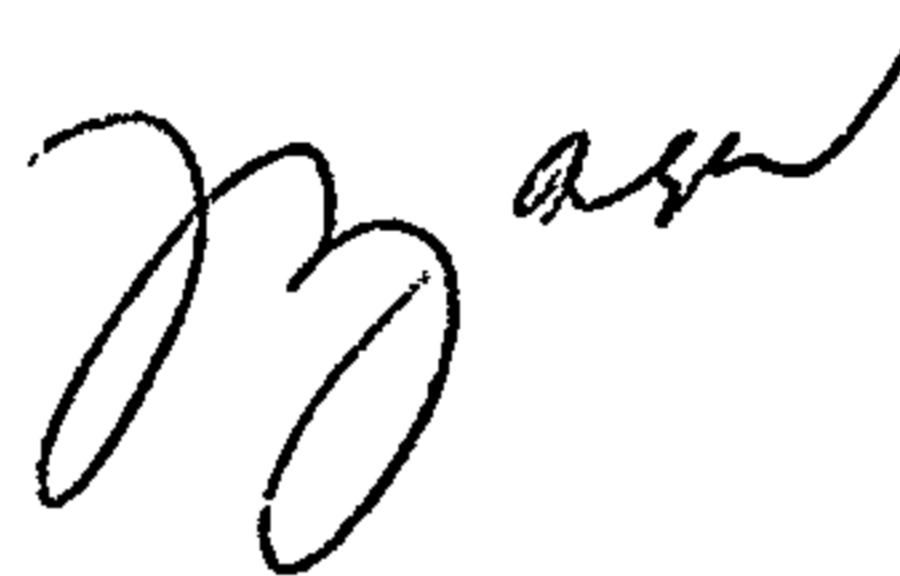
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EDUCATIONAL APPROACH TO DENTAL HEALTH  
GUIDELINES FOR PLANNING A  
NATIONAL DENTAL HEALTH EDUCATION UNIT  
IN FIJI

by

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## 1. INTRODUCTION

Education for dental health has as its first function, to *transmit information*, information which will lead to a better understanding of the problems of dental disease, of the possibilities of early preventive action, and of the advances that are being made in dental research and clinical practice (Davis, 1974). Dental health education is an integral part of any dental public health programme and is defined as "the provision of dental health information to a total population in such a way that people will apply it in everyday living" (Young and Striffler, 1969). Fiji has been engaged in dental health education for many years but, like many countries, there is a need for effective, coordinated planning, development and implementation at a national level by having its own Dental Health Education Unit within the Primary Health Care Unit as dental health education is a primary function of preventive dentistry.

### 1.1 AIM OF THESIS

The purpose of this thesis is to review planning of dental health education unit programmes in:

- (1) Australia,
- (2) New Zealand,
- (3) Singapore,
- (4) Malaysia,

to help plan a guideline for a National Dental Health Education Unit that can be incorporated into the Primary Health Care programme already existing in Fiji.

## 1.2 THE FIJI ISLANDS

Fiji comprises 332 islands of which one third are inhabited.

The total area is 18,333 square kilometres. Situated in the hub of the Southwest Pacific, Fiji has become the crossroads of air and shipping services between North America and Australia-New Zealand (Fiji Today, 1980a).

Fiji became independent in 1970 and accepted a democratic system of constitutional government based on the British Westminster model.

Considering the topography, the facilities and the distribution of islands with very difficult access and means of transportation, dental health care delivery in these places is indeed a problem.

### 1.2.1 Population

Fiji's population on 30 June 1979 was 618,979. The average annual growth rate for the last five years has been 1.8 per cent. The Indians total 50.1 per cent, Fijians 44.6 per cent and the remainder is made up Part-Europeans, Europeans, Rotumans, Chinese and other Pacific Islanders (Fiji Today, 1980b).

### 1.2.2 Economy

The economy of Fiji is primarily agrarain and sugar is its backbone. Other high export earnings are copra, coconut oil and fish. Pine is expected to be of primary importance by the 1980's and it is hoped that lumber will match sugar in export revenue. Secondary industries have grown rapidly and have provided a widening range of goods for home consumption and export to other Pacific island countries. Government continues to strive for a substantial growth of the overall economy and the encouragement of all business and investment (Fiji Today, 1980c).

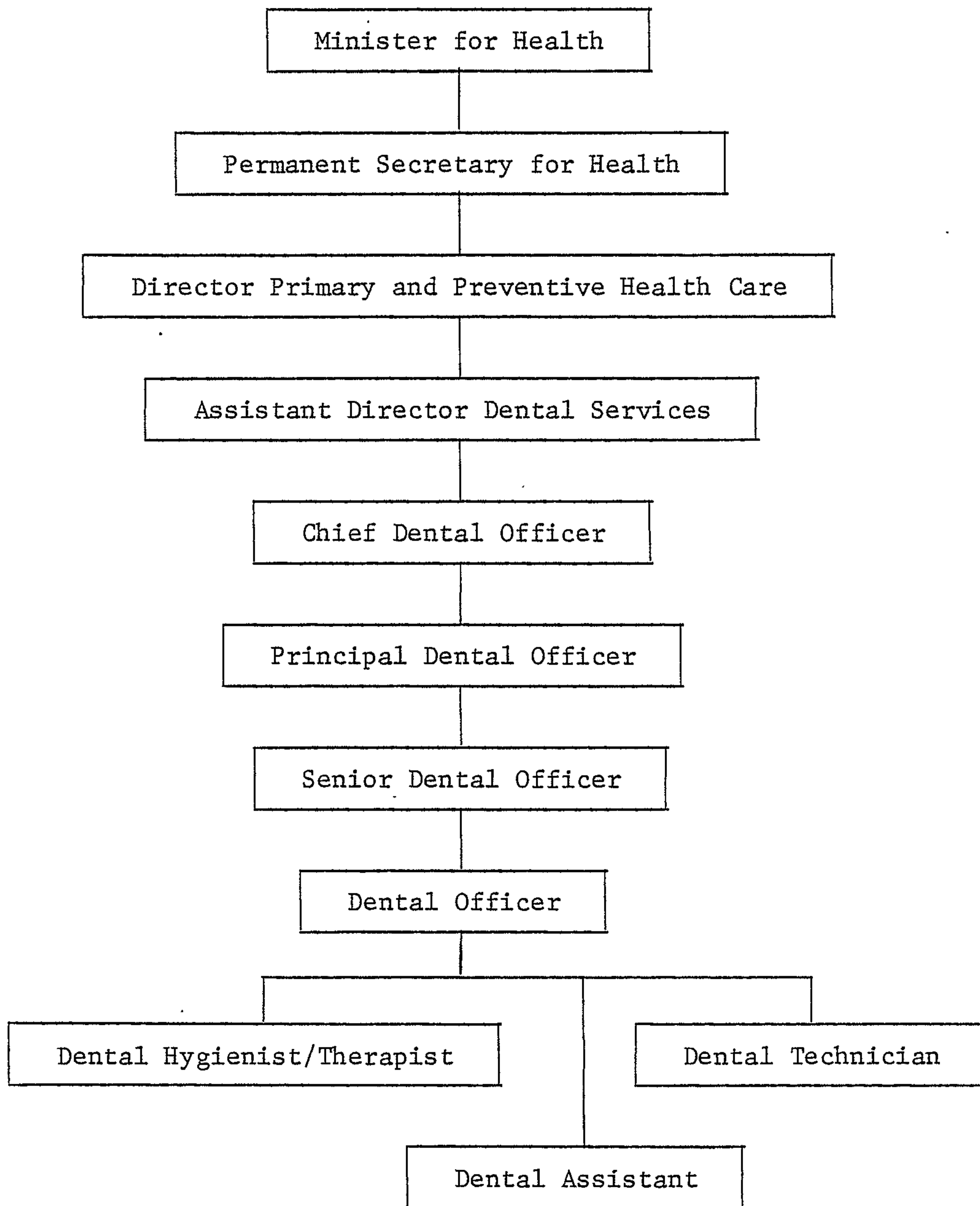
### 1.2.3 Health

Fiji is a healthy country and free from most tropical diseases including malaria. Public health services are of high standard and infectious diseases are not a problem. National health planning is concerned with providing the people with the service of the highest possible standard within the limited resources available. The Minister for Health is responsible for the formulation of health policies. The Permanent Secretary is responsible to the Minister for professional and administrative functions, control and direction of the Ministry. He is assisted by the Director of Hospital Services and the Director for Preventive and Primary Health Services. The Assistant Director of Dental Services is under the latter office as seen in the organisational chart (Table 1).

TABLE 1

ORGANISATIONAL CHART

Dental Division



#### 1.2.4 Dentistry in Fiji

The beginning of dental services in Fiji was in 1921 when Mr Leslie Bruce Hart, an Englishman, established his practice. He was followed by another Englishman, Mr H.J. Mount, who in 1930 set up his practice in Suva. As Honorary Dentist of the Colonial War Memorial Hospital he was, in 1941, instrumental in the dental training of medical students. In 1943, Ratu Vosailagi graduated with a Bachelor of Dental Surgery from the University of Otago in New Zealand. He took over the training of dental students and 1945 saw the graduation of the first dental students from the Central Medical School, later renamed the Fiji School of Medicine (San Juan, Dentistry in Fiji, 1982).

##### 1.2.4.1 Dental Education

Fiji School of Medicine has four dental programmes.

- (1) Diploma in Dental Surgery - this four-year course awards a Diploma in Dental Surgery (D.S.D) and graduates are commissioned as dental officers. After six years of satisfactory government service, they may elect to go into private practice.
- (2) Dental Hygienist/Therapy Courses - this is a three-year course designed to train operating dental auxiliary with sufficient skills and knowledge in simple fillings, prophylaxis, simple extraction and dental health education to both children and adults.

- (3) Dental Technology Course - this is also a three-year course, a non-operating dental auxiliary, and designed to assist the Dental Officers in carrying out certain technical laboratory procedures in the fabrication of orthodontic and prosthodontic appliances. Graduates are also expected to help in the service and maintenance aspects of dental equipment.
- (4) Junior Dental Assistant Course - this course is a one-year apprenticeship training by Dental Hygienist/Therapist with some theoretical exposures. They will work as chairside assistants upon completion of the course for both Dental Officers and Dental Hygienist/Therapists.

#### 1.2.4.2 Dental Services

As of 1981 there are 36 Dental Officers, two full-time tutors, 13 active Private Dental Practitioners, 36 Dental Hygienist/Therapists, eight Dental Technologists and 49 Junior Dental Assistants. The dentist population ratio is 1:12,000. Twenty seven per cent of Fiji dentists are in private practice and they cater for the majority of adults who purchase dental care on a direct fee for service basis. This paper will concentrate on the services provided by the government dentists.

There are 19 static and eight mobile dental clinics used by the government dental service. The present dental services include:

- (1) School dental service - all children up to the age of 15 years are given free dental treatment as they are the priority group of the government. Services to schools are provided by mobile clinics manned by Dental Hygienist/Therapists and Junior Dental Assistants under the supervision of Dental Officers.
- (2) Clinics and hospital services - these services provide dental care for both adults and children and types of treatment include:
  - (i) relief of pain,
  - (ii) minor oral surgery,
  - (iii) conservative dentistry,
  - (iv) periodontics,
  - (v) orthodontics,
  - (vi) prosthodontics.

#### 1.2.4.3 Dental Health Status

Epidemiological surveys were conducted on request by the Fiji Government in 1965 by Wong; 1978 by Speake, J.D. et al.; 1980 by Speake, J.D. & McKegg, R.N. Results show an increase in the prevalence of dental caries amongst school children from a 'low' in 1965 to a 'moderate' status in 1980. This is based on World Health Organisation classification (W.H.O., 1980) where low: 1.2 - 2.6 DMFT and moderate: 2.7 - 4.4 DMFT.

TABLE II (Abridged)Dental Health Status - Fiji

Age Yrs	1965 - Wong Mean DMFT	1978 - Speake et al. Mean DMFT	1980 - Speake, McKegg Mean DMFT
7-8	0.5	1.0	0.8
10	0.9	1.7	1.8
12	1.6	3.0	4.0
14	2.5	4.0	4.7
	Urban and Rural	Urban	Urban and Suburban

Adapted from: Hussein, 1981.

#### 1.2.4.4 Projects being undertaken

- (1) Flouridation of water supply - the water supply of Suva City, benefiting a population of 186,843 has been fluoridated since 1969. A dam, presently under construction, will supply fluoridated water to another four towns and its surrounding areas by 1983.
- (2) Toothbrushing programmes - organised toothbrushing programmes to control plaque are in operation in most schools. This was started in 1957.
- (3) Topical fluorides in non-fluoridated areas - this is a pilot project conducted with the help and advice of South Pacific Commission. These methods are used.
  - (i) NaF rinse (3000 children 6-13 years). NaF is available in powder and tablets. They are dissolved in water to give a 0.2% NaF solution. The children are asked to rinse the solution in their mouths for one minute before throwing it out. There are about 20 rinsing sessions per year and they are supervised by members of dental staff and teachers.
  - (ii) SnF<sub>2</sub> Brush-In programmes (1000 children, 6-13 years). A 10% SnF<sub>2</sub> paste is used and the children brush their teeth for about three minutes. This is done six times a year.
  - (iii) APF - SnF<sub>2</sub> Double Brush-In programme (1500 children, 6-13 years). A 1.23% APF gel followed by 10% SnF<sub>2</sub> paste are used for brushing and this is repeated three times a year.

Both of these brush-in programmes are supervised by dental staff, teachers and mothers.

*Results* - After one year of the implementation of the above programmes it was found that NaF rinse produced a 33% reduction in caries, SnF<sub>2</sub> 34% reduction and APF and SnF<sub>2</sub> paste a 41% reduction in dental caries. The programme is still being continued (Hussein, 1981).

(4) Dental health education - this is directed mainly at the school children. Dental health talks with emphasis on choice of diet and toothbrushing after meals are given regularly. Other target groups for dental health talks are:

- (i) Mothers' clubs via meetings and broadcasts,
- (ii) participants of Primary Health Care Seminars,
- (iii) ante-natal mothers,
- (iv) post-natal mothers,
- (v) teachers,
- (vi) adult community during dental health week.

The problem lies in the lack of suitable locally-produced media and materials. After the 1965 epidemiological survey, K.K. Wong, a W.H.O. consultant on dental health, recommended, "To cope with problems it is hoped that programmes in dental health education and hygiene be instituted to prevent condition from worsening."

### 1.3 COMMENTS

In Fiji, the magnitude of dental problems is increasing and it seems reasonable to forecast that the increase will continue. Industrialisation and urbanisation have always given rise to changes in nutritional patterns with ingestion of more refined foods. Refined foods, especially sugar, lead inevitably to more caries and more periodontal disease.

The dental problems of the future will not be solved only by provision of preventive and curative services. The hope lies in effective health education.

### 1.4 PRIMARY HEALTH CARE - FIJI

The minister of Health is the political head of the Ministry with the Permanent Secretary for Health in charge of the day-to-day administration of the ministry. They are supported by Headquarters based staff who are administratively divided into three Directorate or Divisions, namely:

Preventive and Primary Health Services,  
Hospital and Support Services,  
Nursing Services.

Fiji has begun its VIIth Development Plan period which covers 1981-1985. In recognition of the importance of Primary Health Care, the Ministry of Health has redirected and emphasised its Health Development Plan to give priority to the development and promotion

of Primary Health Care. This is part of its national commitment to achieve the target of Health for All by the year 2000. In short, the Ministry of Health has divided its five-year development programme into three areas namely:

- Primary Health Care Services,
- Hospital Services,
- Manpower Development.

In its redirected effort to develop Primary Health Care, the Ministry has listed nine components of Primary Health Care which it will develop. The nine components are as follows:

- Nutrition,
- Safe Water Supplies,
- Environmental Sanitation/Refuse Disposal,
- Family Planning,
- Control of Communicable Diseases and Chronic Disabilities,
- Immunisation,
- Appropriate Health Care,
- Essential Drugs,
- Health Education.

Primary Health Care is defined as the provision of health care by the people in villages, who are bound together by customs and traditions and under traditional leadership system which is practised on the basis of community participation and cooperation. This had been practised amongst Fijians for many years and was part of early Colonial administration health development work. The involvement and role of the community in village health promotional work declined as the Colonial Medical administration developed. This concentrated

on building hospitals, health centres and nursing stations together with training of personnel to work in these institutions. The nine components of the Primary Health Care programme have well planned objectives, activities and targets to be achieved. The team that work the programme is seen in the organisational chart in Appendix I.

It is envisaged that the implementation of Primary Health Care as a strategy would bring about self sufficiency and improved standard of family health (Bavadra, 1981).

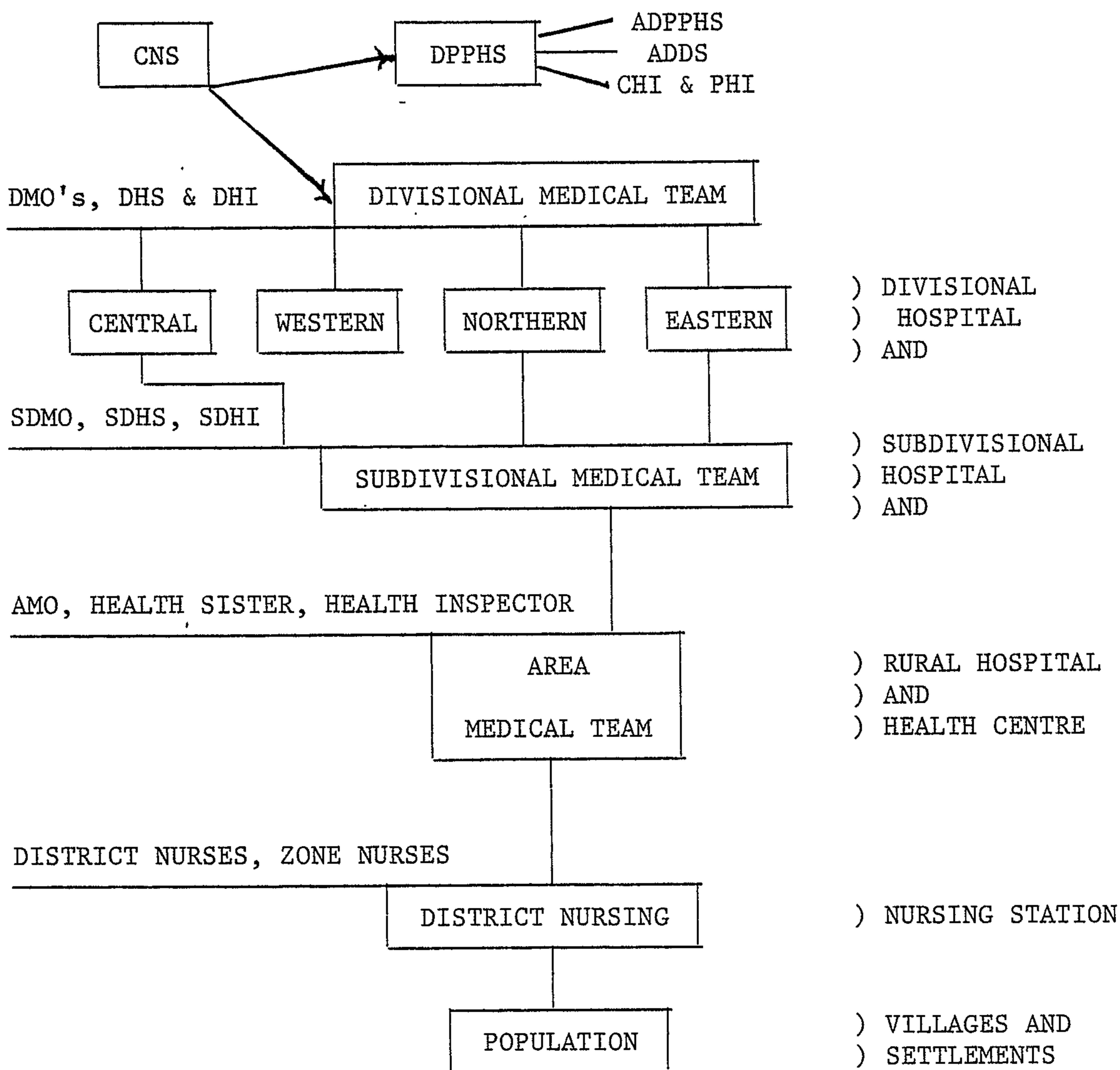
#### 1.4.1 Comments

- (1) The components of the Primary and Preventive Health Care Programme does not include dental health, and the organisational chart has only the top most dental post, i.e. the Assistant Director of Dental Services (see Appendix I).
- (2) The only reference that the Primary Health Care programme has to dental health is the school toothbrushing scheme as an activity of the school lunches project under the nutrition programme.
- (3) However, dental health is recognised as a primary health care programme, and, therefore, members of the dental staff from the Divisional Hospital level down to the Health Centre are very much involved in the activities of the Primary Health Care Services.

- (4) Dental Health must be achieved to acquire a high standard of Family Health and, therefore, should be recognised as an important component of Primary Health Care.
- (5) The organisational structure of public health dentistry as seen in Appendix II could fit very well into the organisational structure of Primary and Preventive Health Care as seen in Appendix I. This is because public health workers in dentistry work with the medical team. Therefore Appendix II should be integrated into Appendix I to show a more correct structure and also give dentistry a more formal recognition in primary health care services.
- (6) Nutrition plays an important role in the prevention of dental caries and periodontal disease so that an objective of "Nutrition", a component of primary health care could be:
- reduction of dental caries and periodontal disease.
- The activity will be:
- nutrition education, both formal and informal to school children, mothers and the general public.
- (7) Fluoridation has been proven as the most effective method of preventing dental caries. Under "Safe Drinking Water" a component of primary health care, an objective could be:
- fluoridation of all major supplies.
- (8) In the component "Appropriate Health Care" an objective could be:
- to provide comprehensive dental care, covering dental promotion, prevention, treatment and dental education.

APPENDIX 1

Primary and Preventive Health Care

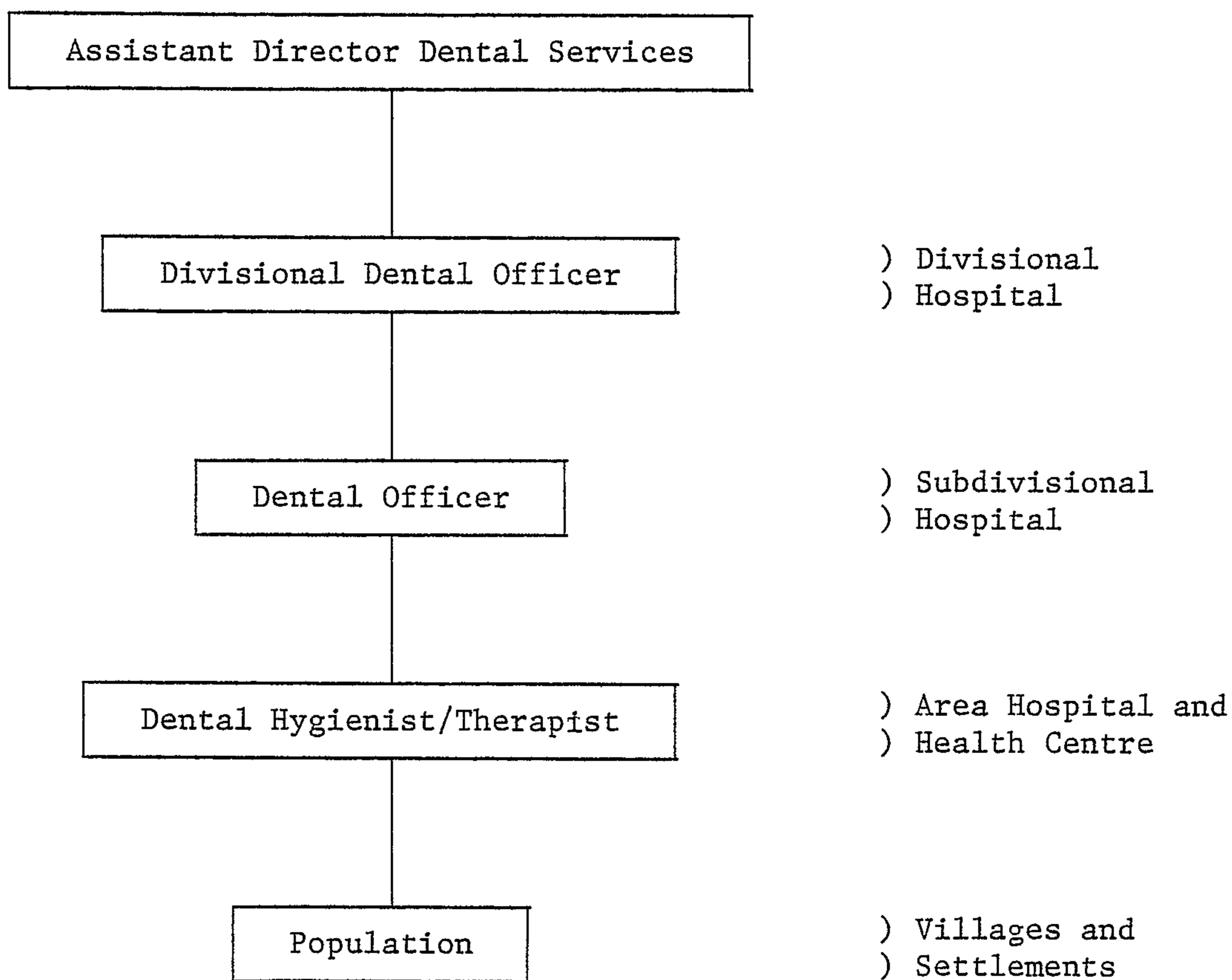


Key

- DPPHS - Director of Primary and Preventive Health Services
- ADPPHS - Assistant Director Primary and Preventive Health Services
- ADDS - Assistant Director of Dental Services
- CHI - Chief Health Inspector
- PHI - Principal Health Inspector
- CNS - Controller Nursing Services
- DMO - Divisional Medical Officer
- DHS - Divisional Health Sister
- DHI - Divisional Health Inspector
- SDMO - Subdivisional Medical Officer
- SDHS - Subdivisional Health Sister
- SDHI - Subdivisional Health Inspector
- AMO - Area Medical Officer.

APPENDIX II

Public Health Dentistry



## 2. GUIDELINES FOR PLANNING OF DENTAL HEALTH EDUCATION PROGRAMMES

It can be said that success in programmes for dental health education is an exception rather than the rule. Health education is long and tedious and its rewards are slow in coming. The task is made less difficult, though, if the plan for the educational programme is carefully designed. The incidence and prevalence of dental caries and periodontal disease may vary from one community to another and all age groups may be affected. Dental caries tends to be more prevalent in the young while periodontal disease more commonly affects the adult population. In the light of present knowledge, the prevention of both these diseases requires education in three main areas. W.H.O. lists these as:

- (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 (W.H.O. TRS, 1965).

## 2.1 BROAD AIMS OF NATIONAL PROGRAMME

The aims are:

- to arouse interest in dental aspects of health,
- to make people aware of the prevalence and distribution of dental disorders in the population,
- to communicate information about causes of dental diseases and deformities,
- to communicate information about measures for promotion of positive dental health,
- to persuade people that positive dental health should be valued as a community asset and to help people to make decisions, both individually and collectively, to improve their own dental health status and that of the total population,
- to persuade people to adopt and sustain dental health practices conducive to positive dental health,
- to make people aware of the existence of dental health services and to promote use of available services

(Logan, 1976).

In planning guidelines for organising dental health education programmes, Barbers has suggested five basic concepts to consider.

*Concept One:* A dental health education programme is an integral part of an overall dental health programme, be it promotional, preventive or therapeutic.

*Concept Two:* Health education will result in increasing demands for dental care, hence dental health care services must be made readily available to meet these demands.

*Concept Three:* Provision is made for the development of proper attitudes of dental health personnel towards their work and their clientele, their knowledge is updated, skills are developed and their duties and responsibilities in the implementation of the programmes are well understood.

*Concept Four:* The operations specified in the programme plan are elaborated in detail for proper guidance of the dental health personnel.

*Concept Five:* The administrative unit with full responsibility for dental health education is centralised (Barbers, 1976a).

Considering these concepts, planning of dental health education programmes is organised under five phases.

## 2.2 Phase 1: Preplanning

*Guideline One: Collect, assemble and analyse necessary information to form a basis for the programmes and against which it may be measured.*

The definition of the educational problem, the assessment of available resources for dental health education and the establishment of priorities in relation to health objectives in a dental health plan are basic steps in planning. The information helps planners determine educational objectives, content and methods, channels of communication, target populations to reach, intermediaries to tap, motivational forces to use, barriers or constraints to overcome and strategies and approaches to apply. Information is needed on several points as follows:

- (a) Knowledge, attitudes and practices of the people in relation to dental health - to help determine content of the programme.
- (b) their channels of communication and the persons they believe and respect most, the places they frequent and wherein they exchange their ideas - to help in deciding on the best means of reaching them.
- (c) Other interests of higher priority than dental health that are currently being promoted - to point out appropriate areas of assistance and integration of the dental programme.
- (d) Geographic isolation or distances from source of dental care - to provide answers to the problem of poor utilisation of dental care.

- (e) Capacity and economic ability of people to take the necessary actions for dental health, and other competing forces that tend to relegate actions for dental health to the background - so as to determine areas for action.
- (f) Religious, cultural and social characteristics of the people - to provide insight into their behaviour and determine how best these characteristics could be used to advantage.
- (g) Capacity of society and government to finance new programmes and adaptation of existing resources to a new programme - to help alert planners regarding the financial and physical feasibility of their envisioned programme.
- (h) Peoples' attitudes to the providers of dental care services and to programmes of education and prevention - to develop a more amicable relationship to facilitate acceptance of programme.
- (i) Provider's level of knowledge and attitudes to their work on dental care, education and prevention - to help in determining educational content for personal development.
- (j) Identification of local leaders, medical practitioners and other agencies constituting valuable resources for assistance and cooperation and for access to target populations.

### 2.3 PHASE 2: PLANNING

*Guideline Two: Dental health education objectives should be defined adequately and specifically.*

Objectives serve as the starting point in the blueprint of a programme and provide direction for the remaining aspects of the plan (including evaluation). It is imperative that objectives be adequately and specifically stated to serve their purpose. Pollock suggested three criteria when defining an educational objective (Pollock, 1970).

- (a) It is stated in terms of the learner, not in terms of the teacher's intent.
- (b) It is operational in that the learner can practice the behaviour measurably.
- (c) It specifies a single behaviour and a single content area.

"Behavioural objectives should be so chosen as to enable the target population and the intermediaries to carry them out into action physically, socially and psychologically. They should be simple enough to succeed" (Knutson, 1956).

At the phase of planning objectives, the evaluation component of the programme must also be prepared.

Steps to be taken in formulating objectives

*Step 1:* Write a general goal for your programme. This may include a reference to the subject matter, your philosophy about the subject matter, and the characteristics of the learners to whom it is directed. *For example:* the unit of instruction concerned with the preparation of a poster will be taught in one practical session to a group of first-year dental assistants.

*Step 2:* Identify a situation in which the students will be required to perform what they have learnt from the instruction. From this, a description of the desired terminal behaviour is derived. *For example:* The dental assistant will prepare a dental health poster for classroom teaching of a correct toothbrushing technique.

*Step 3:* Divide this terminal behaviour into its component parts. This has been called a "task description" by many educators.

*For example:*

- (i) selects the paper,
- (ii) designs the symbol,
- (iii) selects the appropriate messages,
- (iv) draws roughly on paper,
- (v) checks to see if the symbols and messages are likely to move the reader to the action intended,
- (vi) applies poster colours with water colour brushes.

Each of these components in the task description forms the basis for a specific behavioural objective.

*Step 4:* Determine conditions and criteria for acceptable performance of each of these operations and incorporate them into the stated objective. *For example:* Given the required materials for making an instructional poster, the student produces a coloured poster to motivate correct toothbrushing techniques in 6-8 year old school-children by illustrating the methods described in the Public Health Manual under "Guidelines for the Correct Use of a Toothbrush".

*Step 5:* Check that your objective meets the criteria for a good objective by devising a test situation which will measure what you have specified in the objective. *For example:* If your objective is "Appreciates the method of producing a poster" you will have difficulty in devising a test which will show you that the student does appreciate it. On the other hand if your objective is similar to the one stated in Step 4 you will not only be able to test it but you will be able to compare the students' performance with the level of performance you have specified and easily determine whether he satisfies your criteria for performance of the task (Garrick, 1976a).

### 2.3.3 Criterion for appraisal of objectives

The main criterion for appraising your objectives is the one stated below from *Preparing Instructional Objectives* by Robert F. Mager (Fearon, Calif. 1962).

"Can another competent person select successful learners in terms of the objective so that you, the objective writer, agree with the selections?"

In other words have you successfully communicated the intent of your instruction so that there is no doubt about what you wish the students to be able to do as a result?

*Guideline Three: Plan activities and link them to the objectives.*

Activities relate to the functions of dental personnel, so that by their action intermediaries perform what is expected of them as planned:

- (a) Identify those activities that make it necessary for dental personnel to carry out enabling intermediaries to achieve their pre-determined behaviours.
- (b) Establish the locus of responsibility for each specified activity. This will help eliminate the practice of "passing the buck" in unsuccessful programmes.
- (c) Plan only those activities that are *necessary*.
- (d) Be sure that activities are sufficient in number to ensure attainment of planned behaviours of intermediaries.

*Guideline Four: Develop the detailed plan of operations, deciding on content, methods and techniques, channels of communication and motivational forces to use, approaches and strategies to apply, and time-table for action - all in relation to programme objectives, activities and loci of responsibilities.*

- (a) Ensure that instructional content is scientifically valid, realistic and applicable.
- (b) Ensure that methods, techniques and channels of communication are the best possible within the resources available, for spreading the message and stimulating action.
- (c) Utilise motivational forces that fit into the cultural patterns and value systems of those being reached and influenced.
- (d) Involve higher authorities or agencies, key leaders and "gate-keepers" in the process of planning the operations as this will help ensure broader cooperation from intermediaries (Barbers, 1976b).

#### 2.4 PHASE 3: PRE-IMPLEMENTATION

*Guideline Five: Prepare the operations manual, the educational materials, tools and equipment, the dental personnel and intermediaries and the settings in which the programme is to be implemented.*

- (a) Prepare educational tools and materials in accordance with available or procurable equipment and supplies. Information should be simple and illustrative of the thought contained in the message.

- (b) Prepare a procedural manual for those in staff and line functions describing in further detail the nature of the programme, its operations including evaluation, the educational materials to be used and how and when to use them, the prescribed methods and strategies, and the loci of responsibilities. All these points should be arranged in meaningful sequence.
- (c) Train dental health personnel and brief intermediaries on their respective roles and responsibilities in the programme.
- (d) Prepare the community for the coming implementation of the programme (their leaders having taken part in the planning and decision-making), so they are continuously aware of the progress of the programme and cooperate accordingly.

## 2.5 PHASE 4: IMPLEMENTATION

*Guideline Six: Do a dry run on a pilot area prior to national expansion.*

A dry run on a pilot basis may be essential for a programme of national proportion in order to thrash out unforeseen problems and to modify areas as indicated.

The programme plan and the operations or procedures manual serves as a guide during the actual implementation of the dry run.

*The Dry Run:*

- (1) Promote the programme through identified channels of communication and motivational forces.
- (2) Follow preplanned timetable working with higher authorities and key leaders of pilot area.
- (3) Implement operations with personnel knowing their exact responsibility.
- (4) As the operations progress, apply necessary evaluation procedures to identify problems and noting areas where modification are indicated.
- (5) Modify the programme after the dry run before expanding it on a national basis.
- (6) Evaluate and replan.

## 2.6 PHASE 5: EVALUATION

*Guideline Seven: Develop the plan of evaluation and the criteria upon which to measure progress and achievement of the educational programme.*

It is assumed that a plan of action for health education is effective. Whether true or not the assumption has to be tested, hence the imperative need for periodic and terminal evaluation.

Often, early and at points in the operations phase of the plan, defects and unforeseen problems are detected. With periodic evaluation, provision for resolving these defects or problems could be made and necessary modifications of the operations be planned. In particular, criteria for evaluation are to be stated clearly in the objectives and activities of the programme.

Dennison et al. (Dennison et al., 1968) have provided guidance for evaluation of the extent to which objectives are attained and the extent to which activities and resources play a role in attainment of the objectives and the like.

- (a) Note the extent to which objectives were attained and to do the same for the activities and resources.
- (b) Find the ratio of the attained objectives to the planned objectives and do the same for activities and resources.
- (c) Find the extent to which materials and channels of communication meet their targets.

It is stressed that in addition to ensuring feasibility of content, method and approach in health education programmes, a precise statement of the expected outcome and linkage of the objectives with the activities is equally important.

## 2.7 COMMENTS

All sections of the community are responsible in one way or other for a comprehensive dental health education programme for the population. The primary objective of the educational approach as regards the promotion of dental health in a developing country is to obtain public support for programmes under preventive dentistry in competition with other more attractive and dramatic schemes operating in the country. Our concept emphasises the need to reach the nation by the person to person approach with the purpose of arousing the people to an awareness of dental health, informing them of their unmet dental needs, and motivating them to want and seek better dental health. It also stresses the need to promote desirable dental health habits in the community through a behaviour-centred educational approach.

### 3. SOME DENTAL HEALTH EDUCATION UNITS

#### 3.1 THE DENTAL HEALTH EDUCATION AND RESEARCH FOUNDATION - UNIVERSITY OF SYDNEY, AUSTRALIA.

##### 3.1.1 Historical Background

In the years up to 1960 the Dental Health Education Committee of the New South Wales Branch of the Australian Dental Association, recognised the enormity of the dental disease problem in this state. They felt a growing frustration that their efforts were achieving very little because of a meagre budget and a lack of organisation. It appeared that the only logical solution was to establish an independent body with a substantial income and a permanent staff. It so happened that the Dental Alumni Society of the University of Sydney was also considering the need for a scholarship scheme to encourage and prepare young dental graduates to take up research careers. In 1962, the two organisations formed the Dental Health Education and Research Foundation operating under the auspices of the University of Sydney. The organisation agreed that it was necessary to teach people the value and benefit of having and maintaining good oral health throughout life (Woolley, 1976). The enormity of dental disease during this period was shown after Peter D. Barnard conducted a survey in 1954-1955 on 6,787 children in 54 representative Sydney metropolitan and country schools. He found that 89.5% of the eight year old children had dental caries in their permanent dentition while 99.3% had permanent or deciduous teeth affected by decay. On average each child had 6.6 teeth either decayed, missing or filled due to caries (Barnard, 1956, p.59).

### 3.1.2 Administration

The management and conduct of the business and affairs of the Foundation is vested in:

- (i) councillors from the University,
- (ii) representatives of the N.S.W. Australian Dental Association,
- (iii) representatives of the Dental Alumni Society of the University of Sydney,
- (iv) dental members elected at the Annual General Meeting,
- (v) limited number of governors from commercial companies which have donated \$3,000 or more in the year under review.

The administration and implementation of all directives handed down by Council and various Committees are under the control of the Executive Director who administers Foundation Staff and programmes.

Foundation staff include dental health educators who have undergone eight weeks of training in the Foundation office in conjunction with the Department of Education. The training programme includes the following topics:

Administrative responsibilities,

Prescribed reading for background information,

Principles of learning and teaching,

Child development,

Teaching methods including practical work,

Preventive dentistry,  
Observe Puppet Theatre and Educators in schools,  
Selection and use of teaching aids (Woolley, 1982).

There are five members of the Foundation Staff.

One Executive Director,  
One Puppeteer,  
One Financing Director,  
One Coordinator,  
1 Clerk/Receptionist (Woolley, 1982).

### 3.1.3 Finance

The Foundation has been financed through the efforts of members of the dental profession. Dentists give an annual contribution of \$52 or more. Government and commercial organisations also generously support the Foundation and fund raising activities are a continuing project of the fund-raising committee (Woolley, 1976).

### 3.1.4 Publications

Professor N.D. Martin and the Preventive Dentistry Department of the Faculty of Dentistry, University of Sydney, have always assisted the Foundation in the production of its publications. In 1969 the Foundation produced the first of a series of authoritative

publications for use by dentists in the surgery and for distribution to patients.

Some of the books written for dentists are:

- (1) Diet and Dental Caries. A Review of Research.
- (2) A Guide to the Practice of Preventive Dentistry.
- (3) Preventive Periodontics.
- (4) Chairside Instructor.

Those written for patients are:

- (1) Food, Drink and Your Teeth.
- (2) Help Yourself to Good Teeth.
- (3) A Smile Says You Care for Your Smile.

The Foundation published two books focusing on children's teeth.

- (1) Baby's Smile.
- (2) Smiley's Cook Book. (This contains 53 interesting fun recipes for children.)

The Foundation's publications have made a marked impact, not only in New South Wales, but also throughout Australia and other countries of the world (Woolley in Achievements, 1982a).

### *Education Materials*

The Foundation produces and distributes many thousands of dental educational items each year for use by teachers and dentists. A Foundation journal "Dental Outlook" is published regularly to bring to the dentist the latest information in Dentistry. It is sent to all dentists in N.S.W. and to organisations and members outside the state. Slides covering a wide range of topics are also prepared and also badges and balloons with dental messages to children. These motivational aids are purchased by dentists for distribution to his patients (Woolley, 1976).

#### 3.1.5 School Educational Programmes

##### 3.1.5.1 Primary Level

The Foundation has implemented a programme whereby young, attractive ladies are trained to become Dental Health Educators and their training is conducted with the cooperation of the Dental Faculty of the University of Sydney, the New South Wales Health Commission and the Department of Education. These educators give six to eight 25-minute lessons daily to children in the under 12 years of age classes.

Teaching aids are continuously updated and to the migrant population pamphlets are prepared in their native language. Dental Health Educators grade their lessons according to age and standard of the class. Class teachers are encouraged to sit in while the

lessons are in progress and practical demonstrations are organised to involve children.

Teaching aids include:

- (1) models of teeth,
- (2) toothbrushes,
- (3) animated illustrations,
- (4) films,
- (5) slides,
- (6) posters,
- (7) flip charts,
- (8) posters and follow-up material were left with the teacher for later 'reminder lessons'.

Each child is given a pamphlet "A message to any Parents" which summarised the lesson and they are taken home to involve the parents and secure their cooperation. After meals each day the child is encouraged to fill in the "Clean Teeth Chart" on the reverse side of the pamphlet and to return it to the classroom at the end of the week.

To help teachers the Foundation has produced a specially illustrated booklet "Dental Health Facts for Teachers" which covers the objectives of a teaching programme.

In 1974 the Australian Government made a grant to the Foundation to enable Dental Health Educators of Aboriginal descent to work in schools and with Aboriginal communities. The Foundation

wrote a specially illustrated booklet "They're Your Teeth - Smile" which focuses on the oral hygiene needs of Aborigines. One of the Foundation's most imaginative and successful ventures in child education is the "Good Teeth" Puppet Theatre. The hero of the puppet theatre is a boy called "Smiley". He is shown visiting his dentist and receiving a talk on tooth care. The audience participates with "Smiley" in defeating "Danny Decay", the villain of the story by repeating the four golden rules for good teeth. The scene changes to the "Good Teeth Circus" where "Smiley" is entertained by various performers - fruit and vegetable jugglers and other good food characters including the Master of Ceremonies "Bristles Toothbrush" who helps "Smiley" to maintain decay-free teeth.

Children who attend performances of the Puppet Theatre are invited to write letters about what they saw and to send drawings of characters represented.

An early evaluation study of the Puppet Theatre Programme carried out by the University of Sydney, revealed that after six months, children were able to recall as much as 74% of the dental message. At the same time a study of the Dental Health Educator Programme indicated children were recalling more than 70% of what they had been taught.

The School Dental Health Education programmes already described were the features of the Foundation's entry that shared First Prize in 1977 F.D.I. International Preventive Dentistry Community Programme Awards (Woolley in Achievements, 1982b).

### 3.1.5.2 Secondary Level

To take the dental health message to secondary schools and community groups the Foundation introduced a specially constructed Dental Health Education Mobile Unit. This is manned by a Dental Health Educator and up to three dental assistants made available to the Foundation for the day by local dentists or the Health Commission. In this Unit, students undergo practical demonstrations of seeing plaque in their own mouths. This is done by rinsing with a fluorescent dye and then looking into a mirror under ultraviolet lights in a Plaque Disclosing Tunnel. They are then shown the correct method of toothbrushing and flossing so as to successfully remove plaque.

In the same unit is an audiovisual area where closed circuit television and daylight slide projection are used to aid the Dental Health Educator in oral hygiene instruction.

In two years, the unit visited 86 secondary schools, and more than 70,000 people participated in the programme (Woolley in Achievements, 1982).

### 3.1.5.3 Community Involvement

The Foundation actively participated in the campaign to fluoridate Sydney's water supply and water fluoridation in New South Wales now covers about 80% of the population. Dental Health

education presentations are given to Departmental Health Clinics throughout the state especially to baby health clinics, school medical and dental service doctors and nurses, health education officers.

Each year a concentrated mouthguard campaign is launched. Posters are distributed to dentists and all major football associations sporting organisations, National Fitness Council and Physical Education Division of the Department of Education.

The Foundation regularly carries out community dental health displays and preventive dentistry promotions in which the plaque-disclosing service is well utilised as it creates great interest in the community.

### 3.1.6 Post-Graduate Seminars

The Foundation has organised well attended seminars, workshops in preventive dentistry and clinical demonstrations throughout New South Wales and Canberra. Speakers are invited from interstate and the Dental Faculty (Woolley, 1976). All dentists who are members of the Foundation are invited to attend and attendance usually ranges between 100 and 200 people.

### 3.1.7 Research activities

From time to time Research Training Scholarships are awarded to graduates of the University of Sydney in the Faculty of Dentistry and they are given the opportunity to further their research training in other parts of the world.

Several studies into community attitudes towards dental health education at adult and primary school levels have been carried out and results have been particularly helpful in determining the direction of dental health education in Australia.

### 3.1.8 Comments

(a) The Dental Health Education and Research Foundation has planned out a very successful formula for raising dental standards in New South Wales. The target groups include:

- (1) primary schools,
- (2) secondary schools,
- (3) dentists,
- (4) patients,
- (5) community,
- (6) health agencies,
- (7) teachers.

(b) The Foundation uses the concept of practical involvement of the consumer through such aids as:

- (1) Puppet Theatre,
  - (2) Plaque-Disclosing Service,
  - (3) Children's participation in
    - (a) drawing of characters from puppet theatre,
    - (b) designing posters,
    - (c) practical demonstrations on brushing and flossing,
    - (d) filling in "Clean Teeth Chart" after brushing at home,
    - (e) supervised "Brush-Ins" with fluoride paste,
  - (4) Fluoridation of water supply.
- (c) One cannot question the success of the Foundation when one realises that it is managed by very keen and enthusiastic members of the Council, the majority of which, are dentists.
- (d) Once again, as in the Singapore Dental Health Education Unit, the much needed generous support of commercial companies come to the fore in as far as financing the unit is concerned. Together with the grant given by government and voluntary contribution by dentists the Foundation is able to have an annual working budget. However, the budget is still insufficient to cover total costs and the Health Commission acquired the Dental Health Education Mobile Unit in 1980 so it could operate this project in a larger scale than the Unit can afford.

- (e) Having professionals, in both dentistry and the commercial organisations, as members of the Council who plan and approve publications, it is not surprising that the Foundation produces some of the best dental health educational publications which have made marked impact not only in Australia but also in many parts of the world. These publications are also acquired by the Department.
- (f) It is also interesting to note that to implement a programme in an area, the Foundation staff is helped by:
- (i) Dental Assistants on loan from surrounding dental practitioners,
  - (ii) Dental Assistants from Health Commission.

The success of the Foundation certainly follows the saying - "More tolerable to the human mind, and subsequently less prone to failure, is the type of planning which includes that which is good from the past, is pertinent to the present and has meaning for the future" (Giorgi-Stoll, 1977, p.73).

### 3.2 THE NEW ZEALAND DENTAL HEALTH FOUNDATION

In the days following World War II, New Zealand dentists were pre-occupied with the control of dental disease; they had little time to devote to prevention, and dental health education was almost unheard of. In 1980 a New Zealand Dental Health Foundation was inaugurated as it was realised that only an organisation such as this would have the potential to provide an enormous boost to the progress of community dental health in this country (New Zealand Dental Journal, 1980).

#### 3.2.1 Historical Background

The New Zealand Dental Health Foundation was established as a result of a recommendation of the 1978 Dental Health Workshop of the Department of Health. This workshop lasted six days and was organised to review the nation's oral health and make recommendations for future oral health care. This review was based on a report of the Survey of Adult Oral Health conducted in 1976 by T.W. Cutress, P.B.V. Hunter, P.B. Davis, D.J. Back and L.J. Croxson. A great deal of preliminary work was done by a steering committee, led by Dr D.W. Holbonow, Chairman of the N.Z.D.A. Committee on Dental Health. The steering committee consisted of representatives of the manufacturers of dental health products, school dental nurses and the Department of Health. This committee produced a Constitution and Rules which, with some amendments, were adopted at the inaugural meeting of the Foundation (New Zealand Dental Journal, October 1980).

No overseas model could be considered entirely suitable for the New Zealand scene, but the "example of the successful University of Sydney Dental Health Education and Research Foundation provided much to which the New Zealand body can aspire" (New Zealand Dental Journal, 78:37).

### 3.2.2 Objectives

The broad objects of the Foundation is to promote, advance and generally work for an improvement in the oral health of all or any persons in New Zealand.

More specifically the objectives are:

- (1) To promote attitudes in the community that lead to a desire for healthy, natural teeth for life.
- (2) To develop programmes of health education and health promotion that will achieve an improvement in the oral health of all persons in New Zealand.
- (3) To coordinate dental health promotional activities of independent groups in order to achieve maximum efficiency of effort and to minimise unnecessary duplication of effort.
- (4) To provide persons engaged in the provision of dental care with an up-to-date knowledge of preventive dentistry, and to provide them with health education materials of all kinds to enable them to educate their patients and the general public.

- (5) To encourage commercial groups to develop and promote products that will lead to improvement in dental health (New Zealand Dental Journal, 76:346).

### 3.2.3 Membership

Categories of membership are:

- (a) Student - dental, school dental nurse and others,
  - (b) Dental - including dentists, school dental nurses and dental technicians,
  - (c) Supporting - persons or bodies corporate paying a minimum annual subscription set at \$200 in 1980.
  - (d) Governing - persons or bodies corporate paying a minimum annual subscription set at \$2,000 in 1980
- (New Zealand Dental Journal, 76:346).

### 3.2.4 Organisation

The setting up of the Foundation has been possible through the combined efforts of the Association, the Department of Health and the dental supply and associated companies. The control of the Foundation is invested in a Board consisting of:

- (a) One member each appointed by:
  - (i) New Zealand Dental Association,
  - (ii) Association's Committee on Dental Health,
  - (iii) State Dental Nurses Institute,
  - (iv) Faculty of Dentistry of University of Otago,
  - (v) Department of Health.
- (b) Four members elected by Supporting Members,
- (c) All Governing Members or their nominees will be on the Board.

The immediate tasks of the Board are to establish priorities, canvas for membership to ensure broad support and a solid financial base, and to commence activities that will show to all that the Foundation will have a positive effect in dental health promotion (New Zealand Dental Journal, 76:346).

### 3.2.5 Comments

- (1) The New Zealand Dental Health Foundation has been inaugurated and members of the Board are, undoubtedly, planning programmes to achieve its objectives. It will take a few years before the benefits will be evident.
- (2) Highlighted in the organisation of this Foundation is the teamwork comprising

- (i) the lay group,
  - (ii) the health product manufacturers and distributors,
  - (iii) the providers of care.
- (3) The example of the successful University of Sydney Dental Health Education and Research Foundation initiated the move to establish the New Zealand Dental Health Foundation which will certainly reach the same stature given the enthusiastic support by its members.

### 3.3 DENTAL HEALTH EDUCATION UNIT, SINGAPORE

In recent years Singapore has experienced rapid urbanization, a steady increase in affluence and in the number of dental graduates, but the standard of dental health has not improved correspondingly. The slow rate of improvement is found to be due to apathy on the part of the public towards dental health as a result of ignorance, superstition, misconceptions and traditions. This apathy has also resulted in lack of demand for treatment, thus causing the migration of dental graduates to other countries. The solution, therefore, lies in intensive and extensive dental health education of the entire community (Wong, 1975).

### 3.3.1 Historical Background

In 1969 a Dental Health Education Unit was established within the dental services provided by the Government. This was preceded by the institution of a mass toothbrushing campaign at all primary schools by the Minister of Health. The Unit is responsible for

- (i) planning, directing and coordinating all dental health educational activities,
- (ii) the training and advising of dental health educators,
- (iii) production of educational materials and audiovisual aids for teaching purposes (Wong, 1975).

### 3.3.2 Objectives and Staffing

The Unit has on its staff, two full-time dental officers, one dental nursing officer, a team of twelve dental nurses and two clerical staff. The objectives of the Unit are:

- (a) To motivate the community to maintain lifetime dental health,
- (b) To carry out a sustained programme of educating the public to practise preventive care and to seek dental check-ups and treatment regularly,
- (c) To teach the entire population, especially school children, the basic skill of toothbrushing and to cultivate in them the habit of maintaining good oral hygiene.

- (d) To collect regularly for programme planning and development data on barriers such as habits, beliefs and attitudes that may hinder the individual from attaining positive dental health (Wong, 1975).

To meet the above objectives, various dental health education activities have been developed and introduced to the community in Singapore.

The Dental Health Education Unit is fortunate as along with support from the Government it also receives a significant contribution from commercial firms.

### 3.3.3 Activities

#### 3.3.3.1 Toothbrushing

Toothbrushing - This activity was introduced in schools to help children develop toothbrushing skill and habit. Teachers, from all primary schools, who were to take charge of the drill were briefed on the importance of toothbrushing for dental health and given some training on toothbrushing technique and procedures to be adopted in the daily toothbrushing drill. These teachers were given teaching charts and models of jaws produced by the Dental Health Education Unit.

This exercise allows each child to brush his teeth at least once a day.

### 3.3.3.2 The role of classroom teachers

Teachers in primary school are now responsible for:

- (a) the teaching of toothbrushing technique to their class of children and supervising their tooth brushing at school.
- (b) the teaching of dental health in the classroom.

The Dental Health Education Unit regularly supplies teachers with authentic professional information and teaching aids. It also organises an annual competition for teachers and attractive prizes are awarded to those that present the best trained class in tooth-brushing technique.

### 3.3.3.3 Adults

For the adult population, teaching dental health is carried out by indirect education through mass communication media such as pamphlets, posters, newspapers, radio and television and through the holding of exhibitions regularly in a central locality in the city during the Dental Health Week.

Posters and pamphlets are regularly replaced with new ones with different messages. These are produced by the Dental Health Education Unit.

### 3.3.4 Motivation

As a means of motivating the public and in particular the younger generation to maintain dental health throughout life, dental health contests based on the contestants' oral health status are held annually. The contest is open to school children in different age groups and also for the 17-20 year old. In these contests, the condition of teeth and gums and the state of oral hygiene are considered.

As a result of these contests, the Dental Health Education Unit now has several hundred children with perfect sets of teeth as members of the Dental Health Club. Membership is renewed every year. Members who qualify are given free supply of toothpastes, toothbrushes and other oral hygiene aids to last the whole year.

Poster competitions are also held annually for school children.

#### 3.3.4.1 Dental Health Week

A Dental Health Week is observed annually with a mammoth exhibition held in the Town Hall. The various competitions held throughout the year have their final judging during the week and prizes are awarded to winners on the final night of the week (Wong, 1975).

### 3.3.5 Evaluation

The steady increase in demand for dental services shows that the public is becoming more conscious of their dental health.

A survey in 1974 showed a significant reduction in the mean combined dmf and DMF rate of seven and eight year old children as compared to the survey conducted in 1957. Whether this reduction is due in part to the national dental health education programme, or due mainly to the stabilisation of fluoridation procedures which have enabled a continued beneficial action on the teeth of children resident continuously in Singapore, or even to the rise in the use of fluoridated toothpaste, is debatable (Vignessa, 1981).

### 3.3.6 Comments

The education of the community in dental health requires full-time staff responsible for:

- (i) planning, directing and coordinating all dental health educational activities,
- (ii) the training and advising of dental health educators,
- (iii) production of educational materials and audiovisual aids for teaching purposes.

Involving the Minister of Health at the initial stage helped spearhead the whole project and the unit must work very closely with the Education Department.

This dental health education unit is fortunate as it could acquire the support of commercial firms along with that of the government. Programmes to regularly motivate the consumer are essential to ensure continual interest.

Evaluation of success due to education can only be done indirectly as it is not possible to measure success due to education against that due to fluorides.

### 3.4 THE DENTAL HEALTH EDUCATION UNIT - MALAYSIA

#### 3.4.1 Historical Background

The promotion of dental health education of the public in Malaysia was retarded by the absence of organisational planning, specifically for the educational approach to dental health. The various activities in the programme tended to be sporadic and dispersed without predetermined objectives. To coordinate the various activities, a Dental Health Education Unit was formed in 1979.

#### 3.4.2 Objectives

The main function of the National Dental Health Education Unit is to formulate policies for dental health education programmes and coordinate activities in the States.

"Dental Health Education Units are set up in the various states to ensure that the various activities are carried out at ground level" (Dental Services Malaysia, 1981).

These Sub-units are the responsibility of Senior Dental Officers who are under the control of the State Directors. These Senior Dental Officers are helped by dental nurses.

### 3.4.3 Staffing

A senior dental officer has been appointed to coordinate activities at the national level. The officer uses the clerical staff of the administrative office to compile reports on dental health education programmes from the States. All state dental health education activities are now being standardised and intensified at this level.

In each state, responsibility for the total dental health programme rests with a principal dental officer known as State Directors.

The major portion of the dental health education activities is carried out by the operative dental nurses of the public dental health service (Sundram, 1975).

### 3.4.3.1 Training of Staff

The senior dental officer selected to coordinate activities at the national level has done post-graduate training and holds a Diploma in Public Health Dentistry.

Working under the control and direction of the State Directors are Senior Dental Officers and dental nurses who have been trained to be dental health educators. Their training include:

- (1) 50 lectures in the methods, techniques, objectives and tools of the educational approach to dental health.
- (2) Spends a total of 50 hours learning to use the various tools of communication and producing simple visual aids.
- (3) Prepare posters with a dental health message.
- (4) Give talks to the pre-school child, the school child and parents (Sundram, 1975).

### 3.4.4 Dental Health Education Activities

#### 3.4.4.1 Activities in the Primary Schools

Most of the primary schools with a fairly large enrolment have their own school dental clinics manned by one or more school dental nurses. Activities include:

- (a) Practical instruction and demonstration on oral hygiene. This is given to small groups using various wall posters, pamphlets and educational models as teaching aids.
- (b) Lectures and classroom talks on oral health are given during classes on health science or related subjects. Films, film-strips, slides and pamphlets are used.
- (c) Toothbrush drills are often carried out under the supervision of the school dental nurse as routine activity before actual treatment starts in her clinic. (Topical application of fluorides is part of treatment of school children.) The drill is usually conducted (by the whole school) after recess.
- (d) Toothbrushes and toothpastes are often given free to primary school children either by the Ministries of Health and Education or by independent public organisations such as the Child Welfare Council of Malaysia.
- (e) Teaching of elementary aspects of dental health is now officially included in the syllabus of health science for primary schools throughout the country (Johari, 1976).

#### 3.4.4.2 Preschool Children

The preschool children together with their parents are given elementary understanding of dental hygiene supported by demonstration on the correct technique of toothbrushing. These are conducted at

the kindergarten or in the dental clinics. Puppet shows are also staged in both English and Malay and this programme is run by dental nurses.

#### 3.4.4.3 Expectant and Nursing Mothers

Mothers receive free dental treatment, except prostheses, at health centres and are also given dental talks and demonstrations individually or in groups by dental nurses. Other health personnel such as public health nurses and doctors often include dental health education in their counselling.

#### 3.4.4.4 Teachers

Inservice courses on health education and nutrition for teachers from all over Malaysia are organised as a joint effort of both the Ministries of Health and Education. Dental Officers are involved in the lectures on dental health.

#### 3.4.4.5 Dental Health Education Campaigns

Dental health education campaigns are held to coincide with:

- (a) important meetings of associations such as the Annual Malaysian Dental Association Conference and the Parent-Teacher Association meetings.

- (b) important public occasions such as World Health Day, Children's Day, Youth Day and Women's Day.

Wherever possible education for dental health is conveyed over Radio and Television Malaysia for the general public.

#### 3.4.5 Comments

Training of dental officers as dental health educators is minimal - not enough practical experience to apply it effectively to begin with. However, they soon acquire the necessary experience when exposed to the field.

Training of dental nurses include special emphasis on dental health education having spent over 100 hours on theoretical training alone.

Dental health education activities were being implemented haphazardly without specific objectives planned at the national level. These activities were also not standardised in all states so that similar benefits could be achieved by the whole Malaysian community.

The Dental Division of the Ministry of Health realised that there was a need to set up a Dental Health Education Unit. The function of this Unit is to formulate policies for dental health education programmes and coordinate all activities in the States. Consequently, monthly returns have been modified to include reports on dental health education programmes carried out during the month

in all States. This information is compiled by the Dental Health Education Unit which presents reports and recommendations to the National Dental Division.

The establishment of the Unit has given dental health education specialised recognition realising the need to work towards a high minimum standard of competence and achievements.

"Dental health education for parents and children has proved to be the most promising approach to the problems of dental disease" (Stoll, 1977).

#### 4. GUIDELINES FOR PLANNING A NATIONAL DENTAL HEALTH EDUCATION UNIT,

##### FIJI

#### 4.1 INTRODUCTION

The world wide prevalence of dental diseases is a constant reminder of the almost universal need for effective dental health education programmes. In Fiji, some dental health materials have been distributed and countless number 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. This could perhaps be due to the disorganised, dispensed way dental health education programmes, without predetermined objectives, are being carried out. The educative approach makes it possible to develop the dental health of the community by creating in the community the desire for good dental health. One of the initial steps towards developing more effective dental health education services is the setting up of an administrative unit with responsibility for dental health education for the community within the dental health services provided by the government. This is because continued government support, interministry cooperation and coordination with other health administrators are all essential for the successful implementation of any ambitious programme involving the whole community.

The main *aim* of the Unit is to formulate policies for dental health education programmes and coordinate activities in the Dominion.

#### 4.2 FUNCTIONS

- (1) Planning and directing dental health education activities independently as well as through various agencies such as the school dental service, the maternal and child welfare service, the primary health care unit and the Ministry of Education.
- (2) Training, advising and giving assistance to dental health educators.
- (3) Producing dental health educational materials for general distribution and constructing and producing audiovisual aids for distribution or loan to dental health educators.
- (4) Investigating problems of new activities and finding solutions for them.
- (5) Collecting data on local attitudes and interests that influence dental health behaviour.
- (6) To promote, advance and generally work for an improvement in the oral health of all persons in Fiji.
- (7) To encourage commercial groups to promote products that will lead to improvement in dental health.

#### 4.3 STAFFING

The Unit should be staffed by a dental officer with specialised training in public health, educational technology and the use of audiovisual aids. Support staff such as dental hygienist/therapist are needed to assist in preparing audiovisual aids and giving dental health talks to groups of people and in the manning of various types of dental health activities. Other members of dental staff that man the various clinics in the Dominion provide the Sub-units for dental health education activities.

It is suggested that Unit staff should initially be made up of one Senior Dental Officer and one Dental Hygienist/Therapist and any others the dental department can afford.

#### 4.4 FINANCE

Traditionally, emphasis has always been given to curative services only. Since poor dental health is just as much an educational problem as a dental service problem an annual and distinct budget of 5% to 10% of the budget for curative dental services should be allocated for dental health education service. This will ensure that the service commenced can be sustained. All other resources in the community should also be tapped to provide additional logistics.

## 4.5 TRAINING

While it may be possible or even desirable for the key personnel in the dental health education service to receive training and gain experience in countries more advanced in this specialised field of preventive dentistry, it is always desirable to provide training facilities within each country. This enables personnel to meet its own requirements of dental health educators because of the large number of trainees involved and the different socio-economic, cultural and educational backgrounds in other countries.

### 4.5.1 Training for dentists

Imaginative undergraduate training programmes for dentists are sorely needed so that the preventive aspects of dentistry can receive proper emphasis. The curriculum of dental schools should provide opportunities for participation in a variety of dental health education activities, in the school, hospital, clinic and industry. In addition, basic concepts of education and motivation must be taught to dental students (W.H.O., 1970).

Postgraduate courses in public health dentistry are also desirable.

#### 4.5.2 Training for other dental health educators

Since dental hygienist/therapists are normally expected to devote part of their working time to dental health education, their undergraduate curricula do provide training in this aspect of work. Special emphasis should be placed on individual face-to-face methods and procedures applicable with small groups such as school children and women in prenatal clinics.

If the unique position of school teachers for dental health education is to be fully exploited, all should be provided with adequate instruction in this field during their preservice training. For teachers in service, specific courses should be arranged during vacations.

#### 4.6 COMMUNICATION MEDIA

People learn through their various senses and visual aids are very useful tools for teaching. The national dental health education unit must continually produce visual aids to, not only aid educators, but also to arouse interest in the community and to be able to sell the concept of good dental health. However, the Unit will have to select the type of media it can make the best possible use of and can afford.

All communication media can be separated and classified according to the particular presentation form they employ and these can be discussed as follows.

(Taken from W.H.O. presentation to working group on Dental Health Education.)

(1) *Still pictures and graphics displayed directly.*

Photographic reproductions or still pictures, graphics prepared by marking processes on paper or acetate sheets displayed directly belong to this category. Handouts, the printed page, sketches, drawings, charts, graphs, diagrams and posters and other varied types of still graphics are also included. School competitions and community competitions in the production of some of these aids will help the Unit in producing new ideas in concepts of dental health. The good ones can be reproduced for distribution.

(2) *Still projection media.* This group includes overhead projection slides, film strips and opaque projection. The first two use transparent materials while the opaque projection is used with opaques and graphics. This media is more expensive and if acquired could be used by Unit staff only or under supervision.

(3) *Audio media.* The most common audio media used in teaching are the tape and disc recordings. The radio and telephone are two audiomedias that transmit via telecommunications. Almost all hospitals in Fiji have facilities whereby tapes could be used. The Unit could produce dental education

tapes for distribution to maternity hospitals.. The Unit could also prepare serials on dental health for broadcast especially for housewives' programmes.

- (4) *Motion Pictures.* The popular sizes of motion pictures with sound tracks commonly used in education are the 16 mm and super 8 mm. The audio portion is obtained from either an optical or magnetic track located on the side of the film. This media is very expensive to produce but the Unit may obtain help from the Ministry of Information for filming of some dental education programmes in Fiji. However, some commercial firms produce educational films for use in the promotion of their dental products.

- (5) *Television.* Among the various forms of television are broadcast television, video tape television, closed circuit and the lesser known telewriting. Electronic processes are used to record, transmit and display the picture unlike the motion picture.

The video-cassette television is now very popular in Fiji and the Unit with the help of experts, may be able to produce programmes on video cassettes.

- (6) *Interactive Media.* In this group the learner interacts with the media during learning. Three levels of interaction can be identified:

*First* level is where the learner interacts with a programme such as when he fills in the blanks in a programme text. This method can be used to test knowledge of the learner before and after an educational programme.

*Second* level is when the learner interacts with a machine such as a teaching machine or a computer terminal.

*Third* level is in various educational games without a set profile of correct answers. One must constantly react to the moves of actions of "opponents" or "allies".

These games could be used in children's clinics or while they are waiting for treatment. Clinic staff could produce their own games given the materials needed (Sundram, Garrick, 1976).

#### 4.7 SUGGESTED ACTIVITIES FOR DENTAL HEALTH EDUCATION UNIT

##### 4.7.1 School children

- (1) Prepare checklist for different informations to aid educators with talks to different age groups.
- (2) Plan means of improving toothbrushing drill considering:

- (a) time for the drill,
  - (b) method of toothbrushing,
  - (c) ensuring 100% participation of children,
  - (d) train leaders from the students so that teachers,  
do not have to always supervise drill,
  - (e) advice on care of toothbrushes.
- (3) Acquire commercial aid for provision of toothbrushes,  
toothpastes and other educational aids.
- (4) Organise posters and art competitions and make publications  
out of winning ones for use in all other schools by
- (a) dental health educators,
  - (b) distribution to schools.
- (5) Organise screening of films available.
- (6) Plan means of evaluating school programmes.
- (7) Plan monthly returns for use by dental staff.

#### 4.7.2 Teachers

- (1) Arrange set of lectures to undergraduates and perhaps free  
dental treatment.
- (2) Produce teachers handbook for distribution.
- (3) Working with Teachers' Association and Education Department,  
organise short courses for teachers in service.

- (4) Advice on school lunches and food sold in school canteens.  
Emphasis on other means of fund-raising.
- (5) Advise curriculum unit about dental subjects to be included in health curriculum.

#### 4.7.3 Expectant and Nursing Mothers

- (1) Prepare checklist for information especially for education of mothers by doctors, nurses, dental educators.
- (2) Prepare posters for distribution to maternity units.
- (3) Tape dental talks for distribution to maternity units.

#### 4.7.4 Primary Health Care Seminars

- (1) Prepare relevant topics for use by the dental representative.
- (2) Prepare accompanying visual aids.
- (3) Organise dental projects for the community.
- (4) Plan means of evaluating this programme.

#### 4.7.5 General

- (1) Prepare serials of different topics on dental health for presentation via broadcast or information bulletins.
- (2) Organise poster competitions for adult group - may be sponsored so that prizes are available as incentives.

#### 4.8 PATIENTS OF DENTAL SERVICE

- (1) Some educational talk should be given to each patient according to the patients' oral health. This should be recorded on the card so that the patient can be questioned on it on the next visit. This could be done while waiting for the anaesthesia to take effect.
- (2) Prepare monthly return for each member of operative dental staff so that both curative and preventive work are recorded.

#### 4.9 EVALUATION OF PROGRAMME

The objectives of a programme, if properly stated, should provide a standard against which the behaviour of the population can be measured. In addition, objectives may serve as criteria for evaluating the effectiveness and efficiency of the educational programme. If few of the target population have achieved the objectives of the programme then it is most likely that the programme needs to be redesigned.

#### 4.9.1 Aims of evaluation

In general, evaluation has two main aims.

- (a) to discover whether learning and behavioural change has occurred.
- (b) to improve the instructional programme.

To these ends evaluation instruments are usually designed to measure only the outcomes of an educational programme. These outcomes may then be compared with the objectives or expected outcomes of the programmes. However, there is a need to measure the effectiveness of a programme in terms of the processes involved and the unintended or incidental outcomes as well as the intended outcomes stated in the objectives.

#### 4.9.2 Outcomes

Differences between intended outcomes and actual outcomes should be taken into account in relation to three main areas - antecedents, transactions and outcomes.

*Antecedents* include factors such as the population's attitude to the educational programme, level of knowledge before the programme, environmental considerations, etc.

*Transactions* signify the process of the programme such as methods of information transmission, population response and characteristics, teacher-population interaction.

*Outcomes* are the observable effects of the programme, e.g.

- (a) instructor's report on the programme,
- (b) independent descriptions of conditions prevailing after the programme,
- (c) plaque counts, toothbrush sales, tests of knowledge gains,
- (d) cost benefit analysis - if the measured outcomes were sufficiently great to justify the expenditure invested (Garrick, 1976b).

#### 4.10 COMMENTS

Dental health education programmes must enlist the cooperation and support of the people for whom they are intended, and should be developed and carried out on a multidisciplinary basis. Major emphasis in all dental health education programmes should be placed on primary prevention, and special focus given to motivating people to seek and use dental care services.

Coordination of all different dental health activities in the community is essential. Therefore the establishment of a Dental Health Education Unit in Fiji for this purpose should be highly recommended.

## 5. SUMMARY

*Topic: Educational Approach to Dental Health - Guidelines for Planning a National Dental Health Education Unit in Fiji*

Education for dental health has as its first function, to *transmit information*, information which will lead to a better understanding of the problems of dental disease, of the possibilities of early preventive action, and of the advances that are being made in dental research and clinical practice.

*Dental health education* is the provision of dental health information to a total population in such a way that people will apply it in everyday living.

Fiji has been engaged in dental health education for many years but, like many countries, there is a need for effective, coordinated planning, development and implementation at a national level by having its own Dental Health Education Unit within Primary Health Care as dental health education is a primary function of preventive dentistry.

In recognition of the importance of primary health care, the Ministry of Health has redirected and emphasised its health development plan to give priority to the development and promotion of primary health care. This is part of its national commitment to achieve the target of health for all by the year 2000. The components of primary health care are:

nutrition,  
safe water supplies,  
environmental sanitation/refuse disposal  
family planning,  
control of communicable diseases and chronic disabilities,  
immunisation,  
appropriate health care,  
essential drugs,  
health education.

The setting up of a dental health education unit under the health education component should allow dental health to be an important requirement of family health. Although dental health care and education is very much an activity of the primary health care services it is, unfortunately, not given the recognition due to it in the planning programme of primary health care.

The *aim* of this thesis is to review planning of dental health education unit programmes in Australia, New Zealand, Singapore and Malaysia to help plan a guideline for national dental health education unit for Fiji. Fiji is comprised of more than 300 islands with a total area of 18,333 square kilometres. The population is just over 600,000 and the economy is primarily agrarian with sugar as its backbone. It is a healthy country, free from most tropical diseases, and its national health planning is concerned with providing the people with the service of the highest possible standard within the limited resources available. The beginning of organised dental service was in 1921. It has developed through the years and now has

49 dental officers, 36 dental hygienist/therapists, eight dental technicians and 49 junior dental assistants. The dentist population ratio is 1:12,000. Dental problems continue to be on the increase and it is realised that these cannot be solved by preventive and curative services alone. The hope lies in effective dental health education.

#### *Guidelines for Planning Dental Health Education Programmes*

Prevention of dental caries and periodontal disease 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 application of specific preventive measures such as application of fluorides to prevent dental caries or professional cleaning of the teeth to prevent periodontal disease.
- (3) Application of community-wide measures such as fluoridation of water supplies.

The planning of a dental health education programme should take into consideration the following suggested guidelines.

*Guideline One:* Collect, assemble and analyse necessary information to form a basis for the programme and against which it may be measured.

*Guideline Two:* Dental health education objectives should be defined adequately and specifically.

*Guideline Three:* Plan activities and link them to the objective.

*Guideline Four:* Develop the detailed plan of operations, deciding on content, methods and techniques, channels of communication and motivational forces to use, approaches and strategies to apply and timetable for action - all in relation to programme objectives, activities and loci of responsibilities.

*Guideline Five:* Prepare the operations manual, the educational materials, tools and equipment, the dental personnel and intermediaries and the settings in which the programme is to be implemented.

*Guideline Six:* Do a dry run on a pilot area prior to national expansion.

*Guideline Seven:* Develop the plan of evaluation and the criteria upon which to measure progress and achievement of the educational programme.

The primary objective of the educational approach as regards the promotion of dental health in a developing country is to obtain public support for programmes under preventive dentistry in competition with other more attractive and dramatic schemes operating in the country. It also stresses the need to promote desirable dental health habits in the community through a behaviour-centred educational approach.

*DENTAL HEALTH EDUCATION UNITS*

In *Australia* there is the Dental Health Education and Research Foundation of the University of Sydney. This was founded by the Dental Health Education Committee of the New South Wales Branch of the Australian Dental Association and the Dental Alumni Society of the University of Sydney. The dental health education committee was frustrated at the growing enormity of dental diseases in the state and their efforts were achieving very little because of a meagre budget and lack of organisation. At the same time the Dental Alumni Society was considering the need for a scholarship scheme to encourage young dental graduates to take up research careers. The Foundation was established funded by members of the dental profession, the government and commercial organisations. Numerous excellent publications and dental health education materials were produced, dental educators were trained and dental health education programmes were set up for primary schools, secondary schools, dentists, patients, the community, health agencies and teachers. There are five members of the Foundation staff - one Executive Officer, one Puppeteer, one Financing Director, one Coordinator and one Clerk/Receptionist.

In *New Zealand* a New Zealand Dental Health Foundation was inaugurated in 1980 as it was realised that only an organisation such as this would have the potential to provide an enormous boost to the progress of community dental health in this country. The Foundation followed the example of the successful University of Sydney Dental Health Education and Research Foundation and funds were obtained from subscriptions from its members, i.e.

- (1) Students both dental and school dental nurses.
- (2) Dentists, school dental nurses and technicians.
- (3) Supporting persons or bodies corporate paying a minimum annual subscription set at \$200.
- (4) Governing - persons or bodies corporate paying a minimum annual subscription of \$2000.

This foundation was set up on the recommendation of a dental health workshop organised by the Department of Health.

The broad objects of the Foundation is to promote, advance and generally work for an improvement in the oral health of all or any persons in New Zealand. The setting up of the Foundation has been possible through the combined efforts of the Association, the Department of Health and the dental supply and associated companies. It will take a few years before benefits will be evident.

*The Dental Health Education Unit Singapore*

This unit was established when the dental department realised that although there was a steady increase in the affluence of society along with the increase in the number of dental graduates, the standard of dental health did not increase correspondingly. The public had developed an apathy towards dental health and resulted in lack of demand for treatment. This caused a migration of dental graduates to other countries. The solution to these problems lay in intensive and extensive dental health education of the entire community.

The Dental Health Education Unit was established in 1969 with specific responsibilities laid out. The objectives of the Unit are:

- (a) to motivate the community to maintain lifetime dental health,
- (b) to carry out a sustained programme of educating the public to practise preventive care,
- (c) to teach the entire population, especially children, the basic skill of toothbrushing and maintenance of good oral hygiene,
- (d) to collect data on barriers that may hinder the individual from attaining positive dental health.

To achieve the above objectives the Unit, with its staff of two full-time dentists and a number of nurses and clerical officers, developed a number of dental health education activities. The target groups for these activities are the school children, teachers and adults. As a means of motivation the Unit organises contests in which the state of oral health are considered. Winning become members of a Dental Club which supply them with free toothpastes and toothbrushes and other dental aids for one year.

There has been a steady increase in demand for dental services in the past few years as the community is becoming aware of their dental health.

This Unit is directly under the dental department and is financed by the government and also donations from commercial firms.

*The Dental Health Education Unit Malaysia*

This was formed in 1979 when it was recognised that promotion of dental health education of the public was retarded by the absence of organisational planning specifically for the educational approach to dental health. The main function of this National Unit is to formulate policies for dental health education programmes and coordinate activities in the states. The Unit is staffed by a senior dental officer who uses the clerical staff of the administrative office. Dental health education programmes in each state is the responsibility of the State Directors. Each dental officer and dental nurse send in monthly individual returns of dental health education activities that each has undertaken during the month. The Unit compiles these reports and tries to standardise and intensify activities in the states from the national level. The Unit relies very much on the training in dental health education that dentists and dental nurses received during undergraduate studies.

Dental health education activities are directed mainly to

- (1) school children,
- (2) preschool children,
- (3) expectant and nursing mothers,
- (4) teachers,
- (5) general public via radio and television.

*Guidelines for Planning a National Dental Health Education Unit for  
Fiji*

In Fiji countless numbers of dental health information programmes have been conducted for decades in school and other settings. However, these efforts have not succeeded in influencing behaviour to the extent expected. One of the vital steps towards developing more effective dental health education services is the setting up of an administrative unit as has been realised by Australia, New Zealand, Singapore, Malaysia and many other countries. Dental problems in Fiji will continue to increase with urbanisation which brings forth changes in nutritional patterns with ingestion of more refined foods especially sugar. The *aim* of the unit is to formulate policies for dental health education programmes and coordinate activities in the Dominion.

*Functions* are designed to promote, advance and generally work for an improvement in the oral health of all persons in Fiji. The Unit should be *staffed* by a dentist with specialised training in public health and a dental hygienist/therapist and should represent both the major ethnic groups of Fiji.

To ensure that dental health education service is sustained 5%-10% of the *budget* for curative services should be allocated to dental health education. Other resources in the community should also be tapped.

There are so many different visual aids that can be used as *communication media* and the Unit will have to make the best of what

it can afford. Members of the dental staff can produce their own visual aids if provided with the materials required. It may be an idea to organise clinical and school dental services so that one day a week is used for preventive dentistry and dental health education. The Unit can begin with producing graphics, slides, tapes, radio programmes, motion pictures usually provided by commercial firms and by the use of interactive media whereby questionnaires are prepared and also educational games for children. Publications produced by other Units could be purchased.

*Suggested activities* by the Unit for different target groups are:

*School children*

- (1) Prepare checklist for different information to suit different age groups for use by educators.
- (2) Devise means of improving toothbrushing drill .
- (3) Acquire commercial aid for provision of toothbrushes, toothpastes and other educational aids.
- (4) Organise screening of films and posters competitions.
- (5) Plan means of evaluating school programmes.
- (6) Design monthly return forms for use by dental staff to record dental health education activities performed.

*Teachers*

- (1) Arrange set of lectures to undergraduates and perhaps free dental treatment.
- (2) Produce teachers handbook for distribution to schools.
- (3) Organise short courses for teachers.
- (4) Advice on school lunches and canteens.
- (5) Advise curriculum unit on dental subjects for the health science curriculum.

*Expectant and Nursing Mothers*

Prepare posters, tapes on talk on dental health and checklist for information especially for mothers.

*Primary Health Care Seminars*

Prepare relevant information for use by dental representative, and also accompanying visual aids. Organise projects for the community and then plan means of evaluating this programme.

*General*

Prepare serials of different topics on dental health for presentation via broadcast or information bulletin.

*Patients treated in Government Service*

Some educational talk should be given to each patient seen according to the state of his dental health. Each member of operative staff should submit monthly returns for both curative and preventive work done.

*Evaluation of Programme*

The objectives of a programme should provide a standard against which the behaviour of the population can be measured. The objectives may also serve as criteria for evaluating the effectiveness and efficiency of an educational programme.

For every programme organised by the Unit the means of evaluating should be planned along with it.

It is therefore realised that dental health education activities require careful planning, development and coordination to achieve the required effect. The effect that will lead to better dental health for the community. This role can only be successful if played by a full time staff of dental health education unit.

## 6. RECOMMENDATIONS

- (1) Dental health education programmes must enlist the cooperation and support of the people for whom they are intended, and should be developed and carried out on a multidisciplinary basis. The administrative responsibility should be vested on a full-time staff that could form a dental health education unit.
- (2) New, imaginative undergraduate training programmes for dentists are sorely needed at the Fiji School of Medicine so that the preventive aspects of dentistry, especially dental health education, can receive proper emphasis.
- (3) In addition to dental personnel, other health and educational personnel need to be trained to accept responsibilities in the broad programme of dental health education.
- (4) A short intensive course of about two months duration to prepare staff of the dental health education unit, especially for the preparation of material for communication media, should be made available.
- (5) Major emphasis in all dental health education programmes should be placed on primary prevention and special focus given to motivating people to seek and use dental care services.

- (6) Much greater emphasis needs to be given to adult dental health education with particular focus on the role of parents in influencing their children to develop desirable dental health behaviour.
- (7) The toothbrushing drill, as a school activity, should be reinforced with support from the Ministry of Education. It should be used as a dynamic activity to promote general dental health education.
- (8) Since education and services go hand in hand, dental health education programmes should assist, where necessary, in creating additional services and in improving the quality of existing services.
- (9) Dentists and other dental personnel and organised dental societies, e.g. Fiji Dental Association, should become more actively involved in community activities. They should lend their prestige and expertise to the support of all programmes designed to improve the general and oral health of the public.

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