REPORT ON THE THIRD JOINT WHO/SPC SEMINAR:
DENTAL HEALTH SERVICES

Noumea, New Caledonia
26 January - 2 February 1971
THIRD JOINT WHO/SPC SEMINAR: DENTAL HEALTH SERVICES

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WORLD HEALTH ORGANIZATION REGIONAL OFFICE FOR THE WESTERN PACIFIC

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NOUMEA, NEW CALEDONIA

26 January - 2 February 1971

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1. INTRODUCTION

At the twelfth session of the WHO Regional Committee for the Western Pacific, held in Wellington in 1961, the subject for the technical discussion was dental health. Following this meeting a programme in dental health was established, the central idea of which was that data on dental disease would be collected as a basis for future dental health planning.

Courses in dental epidemiology were held in Singapore and Suva (Fiji) in 1964 and 1965, respectively. By 1970 data were available for most of the South Pacific countries.

Since the South Pacific Commission had taken the initiative of appointing a dental public health officer, WHO sought a combined seminar, which was held at Commission Headquarters, Noumea, New Caledonia, from 26 January to 2 February 1971, to consider these data. The World Health Organization provided most of the finance and the South Pacific Commission the administrative services.

Participants from Australia and New Zealand were invited to attend the seminar because of their experience in dental public health services and in dental education. These participants contributed in a major way to this report, including the conclusions, but unless otherwise stated, these conclusions apply more specifically to the other Pacific island countries and territories.

In 1968 the South Pacific Commission and the Department of Public Health of Papua New Guinea held a joint Seminar on Dental Health Services Development and Co-operation in the Pacific. At that seminar details of dental health programmes were discussed, and are available for reference in the report.*

The Noumea Seminar was opened officially by Médecin Général J. Rondet, Director of Health and Public Hygiene, New Caledonia.

Afioa Afoafouvale Misimoa, Secretary-General of the South Pacific Commission, spoke on behalf of the South Pacific Commission, and Dr K.K. Wong on behalf of the World Health Organization. The official opening concluded with the presentation of the opening theme by Brigadier J. Ferris-Fuller and Dr J. Barnaud.

The members of the Order of Dentists of New Caledonia were invited to be present as unofficial observers and several attended the seminar sessions which were of particular interest to them. Dr Arnold and Dr Mura who had carried out dental surveys in the area (partly financed by the South Pacific Commission) gave accounts of the results of their work.

2. OBJECTIVES OF THE SEMINAR

(1) To review the available epidemiological data on dental diseases in the South Pacific, especially those collected in the WHO inter-country dental health project (WPRO/0115/0160);

(2) To draw out the implications of these data for dental public health services and basic health services, especially for the control of caries and periodontal diseases;

(3) To assess the desirable and feasible patterns of dental staffing, and the training requirements for dental staff; and

(4) To draw conclusions on the role of basic health services and school health services in relation to dental health, especially dental health education.

3. SUMMARY OF DISCUSSIONS

The information assembled in country reports is summarized in Annex 4.

Topic 1 - Oral Diseases and Abnormalities in the South Pacific

A. Dental Epidemiology in the South Pacific

1. The data

Data were available from all but two (Guam and Norfolk Island) of the countries and territories represented at the seminar. The methods used in the surveys differed but since the criteria used for common items were similar, generally comparable results were obtained. The methods used were:

(a) WHO document WPR/334/64 Training Course on Dental Epidemiological Methods, Singapore (American Samoa, Fiji, Tonga and Western Samoa).
WPRO 0160 Assignment Report K.K. Wong (Gilbert and Ellice Islands).

(c) WHO Technical Report Series No. 242 (French Polynesia, Cook Islands and New Caledonia).

(d) WHO Basic Oral Health Survey Method (New Hebrides).

Other methods were used in Papua New Guinea, and the Trust Territory of the Pacific Islands.

2. Dental caries

The prevalence of dental caries in the South Pacific area is between low and very low. The exceptions are in French Polynesia and the Cook Islands where the dental caries prevalence is high.

There are differences in dental caries prevalences in rural-urban-coastal areas within some countries and territories.

In Fiji, Cook Islands, and in some rural areas of the Highlands of Papua New Guinea, and in all urban situations in countries where more marked changes are occurring in dietary pattern, dental caries constitute a public health problem.

In the permanent dentition in children in rural coastal areas of Papua New Guinea a DMF mean of 1.0-2.0 is found. Similar age groups in the Highlands and some other well defined areas show a DMF of 5.0-6.0.

For the permanent dentition, children aged 13-14 had DMF values of approximately 10.0 in French Polynesia and the Cook Islands. The value for the same age group in Fiji was 2.5, and in other countries and territories it was about 1.0.

For adults aged 45-54 years Western Samoa had the lowest DMF (3.8); the DMF in Tonga was 9.0 and in Fiji it was 11.0 for this age group.

3. Periodontal disease

Gingivitis among children appeared to be less prevalent in Tonga and in Western Samoa than in American Samoa and Fiji. The percentages affected were 36-60% in Fiji and 75-100% in American Samoa.

Gingivitis was more prevalent in adults, 75-100% of all persons in the area being affected, with little difference between the island states.

The highest recording of pocket formation in adults occurred in American Samoa. A range of 33-82% of persons had pockets deeper than 3 mm.
and 4-31% deeper than 6 mm. Scores decreased in the order, Fiji, Tonga and Western Samoa. On the basis of these data periodontal diseases constitutes a public health problem throughout the entire area despite the variations in prevalence reported.

4. **Handicapping dento-facial anomalies**

Throughout the whole area there is a low prevalence of handicapping dento-facial anomalies: 21% in Fiji; 7% in Tonga; 7% in Western Samoa; and 2% in American Samoa required treatment. The highest prevalence was observed among Indians living in Fiji.

5. **Prosthetic and other needs**

Because of the relatively high average number of teeth per person present in adults, the prosthetic needs in the area can be said to be comparatively small. This is particularly so in Western Samoa. The data were, however, limited to persons aged 54 or less.

B. **The Etiology of Dental Caries and Periodontal Disease**

1. **Dental caries**

The etiology of dental caries is based on the acid-decalcification theory, that is that bacteria in the dental plaque metabolize fermentable carbohydrates to produce lactic acid which is responsible for the demineralization of tooth enamel.

Two major considerations in dental caries are the quality of the tooth structure and the nature of the dental plaque.

(a) **Tooth structure**

The quality of tooth structure is determined by pre- and post-eruptive nutritional factors as well as the genetic constitution of the individual. It is unlikely that any group of people in this area has a racial or natural immunity to dental caries. The role of fluorine as a nutritional element is very important. Fluorine may be incorporated into the tooth structure during tooth formation or after tooth eruption and may be derived from foods, from water, or from various topical applications. There is growing evidence that other elements and groups of elements could influence caries susceptibility.
(b) **Plaque**

Dental plaque is essentially an organic matrix containing bacteria. The principal components of the matrix are proteins and carbohydrates. The composition and rate of formation of plaque are intimately related to the form, composition, and frequency of ingestion of foods.

The distinguishing feature of plaque associated with dental caries is the presence of sucrose within it and the metabolism of that sucrose to produce both lactic acid, dextrins and levans.

There is considerable evidence that the introduction of sucrose into the diet of people consuming unrefined foods favours an increased prevalence of dental caries. The factors involved include the amount of sugar consumed, the frequency and form in which it is consumed, and the other dietary items which are mixed with it. Other refined carbohydrate foods appear to be of secondary importance in these relationships.

An attempt should be made to reveal causative factors in dental caries in the various, sometimes unique, and changing oral and environmental conditions which are being observed in the region. The characteristics of smooth surface and cemental lesions which distinguish them from other dental caries lesions also require further investigation.

2. **Periodontal disease**

The aetiology of periodontal disease is related to irritation and inflammation of the gingival and periodontal tissues resulting primarily from accumulation of plaque and sub- and supragingival calculus. The effects of these local factors are modified by nutritional and other systemic factors.

Gingivitis and periodontitis are associated with poor oral hygiene habits and observations in this region provide no exception. A result of poor oral hygiene together with a diet containing soft and starchy foods is the formation of plaque on the tooth surface.

Bacterial metabolism within the plaque can produce toxins which irritate soft tissues, or the plaque may calcify and the calculus so formed may itself be a source of irritation of the gingival and periodontal tissues and facilitate bacterial action by providing relatively undisturbed sub-gingival areas.
It is not necessary to have refined carbohydrate in the diet to produce the type of plaque which is associated with periodontal disease. Populations in both rural and urban areas eating refined and unrefined foods may experience a high prevalence and intensity of periodontal disease.

While natural foods eaten after simple preparation are often thought to have self cleansing properties and to inhibit plaque formation, little evidence of this action has been produced.

One of the factors which may interfere with self cleansing mechanisms is malocclusion but, due to the absence, generally, of serious malocclusions in the people of this area, this factor is not a vital one in the populations under consideration.

Topic 2 - Prevention of Dental Diseases and the Treatment of their Consequences

Dental health programmes must have a strong preventive component to prevent an increase in the prevalence of dental diseases in the South Pacific. Prevention must be the major and constant concern of the dental health services, which must be able to share their problems with governments and with populations. Indeed it is a well established fact that prevention is cheaper than cure. Preventive services should include activities in each of the following areas:

(a) health education, which must take into account local traditions and customs;
(b) nutrition. For example excessive use of products with a high sugar content should be discouraged; use of foods rich in fluorides should be encouraged;
(c) oral hygiene. People must be taught how to use a toothbrush properly;
(d) fluoridation, or other methods of fluoride application which can be applied either individually or to large groups;
(e) early conservative treatment of carious lesions.

Fluoridation of drinking water, as advocated by WHO, is at present a preventive method which greatly reduces the prevalence and incidence of dental caries. Its main advantage is that it does not require the active participation of the individual. In New Zealand, Australia, Papua New Guinea and Fiji, fluoridation has been implemented following decisions taken
by the governments concerned on the advice of the health services. However, populations have not, in all instances, accepted these measures readily, either because they had not been properly informed or because of traditional habits. Similar problems have arisen in many countries and have been overcome by:

(a) persuading the layman through health education;

(b) overcoming the apathy of governments; and

(c) persuading local authorities that fluoridation is justified and that they should themselves initiate the required action in this field.

It is desirable that investigations be made to discover what sources of fluoride exist in South Pacific countries and territories, what intake occurs from food and water and what the optimal fluoride level in public water supplies should be for these specific conditions.

It was noted that there was little opposition to fluoridation in Suva and Port Moresby. It is desirable that research be undertaken to ascertain the optimal fluoride level required for local conditions in the South Pacific countries and territories. The research done in countries with high dental caries prevalence has shown the greatest reduction in smooth surface lesions. In the Pacific islands, pit and fissure caries predominate in most groups and especially in children. Thus the role of fluoridation in such areas lies in preventing a rise in caries prevalence, especially smooth surface lesions, rather than a reduction in the already low caries prevalence.

There are other methods of supplying fluoride but these are in general more expensive and more difficult to dispense and control. They include fluoride tablets,* mouthwashes, topical application of solutions and gels, electrolytic treatment, dentifrices and prophylactic pastes. The very fact that all these methods are available shows that, as yet, thinking is not unanimous as to which are the most effective. Most programmes of topical application of fluoride have required a considerable dental staff and in some cases several patient visits each year. Recent developments in the self application of fluoride preparations may have an important bearing on future preventive dental programmes in the region.

Toothbrushing needs to be taught. Fiji described its programme in which low cost toothbrushes are sold to children for two cents Fijian each, and kept at school so that the teeth can be brushed each day under supervision. Similar programmes are conducted in other countries.

* The Cook Islands reported a successful fluoride tablet programme in schools.
The use of occlusal sealants was described and they were thought to have a big potential in the prevention of pit and fissure caries which predominate in the Pacific. It would be worthwhile to investigate fluoridated resin sealants, considering the length of time between successive treatments, numbers of staff required, costs, etc. The effect of the resin on maturation of enamel is unknown.

The use of prophylactic paste containing fluoride was discussed. The principal advantage is that fluoride can be applied without an increase in the operator's time devoted to each patient, since all programmes now include a prophylaxis, but many with a non-fluoride paste. The use of this paste has been shown to reduce the incidence of dental caries by 20-30 per cent. However, the cost tends to be high, estimated by Papua New Guinea to be $A100 per 1000 children.

The place of dental health education in public health education

Dental health cannot be segregated from general health or health education from education in general. Yet there is a lack of co-ordination in a number of countries and territories in both of these respects.

Several South Pacific countries have adopted a dental health education programme. Such an undertaking cannot succeed unless there are enough health educators, unless both the Health and the Education Departments participate actively, and there is the active participation of doctors, nurses and teachers as well as practising dentists and dental auxiliaries. Many dentists feel they know little about health education methods. It is recommended that amongst dentists some should be trained as specialists in health education, and that in the curriculum for dentists, provision should be made for a sound basis in health education.

There are many groups to which education can be applied: the patient in the chair, schoolchildren, expectant mothers, women's groups, etc. There is a need to identify and educate the most influential groups in the community.

Amongst the territories represented, some already have health educators and health centres. But it would seem that few deal with dental health. It would be desirable that these health educators should provide advice and assistance to dental personnel in what they should teach and how it should be taught, and health staff should include some dental health education and advice among their activities, as a support to the specialized dental personnel.

Statistically it would be interesting to compare, in each country, the health education budget with the health budget.

It was interesting to hear a description of the Singapore dental health education programme sponsored by the Government of Singapore, the World Health Organization and UNICEF. A Dental Health Education Unit was set up
consisting of one dentist, one health educator and six dental auxiliaries. This team is responsible for dental health education of community personnel, school teachers, other health workers and women's society leaders. They in turn are in charge of the health education of all those groups which they can teach, mostly children. This they do according to a programme they have been taught to follow: supervision of toothbrushing, advice on the way to use a toothbrush, oral health habits, nutrition, etc. Of course, such an undertaking would have to be supplemented by close-by facilities for dental care and this presupposes that the Government fully understands what is required. Although the Singapore experiment probably cannot be fully reproduced in the South Pacific countries and territories, it can be used as a basis for their dental health programmes. For best results the planning of such a programme by the health services must be supplemented by close collaboration with other services which make up the environment of the individual and of groups. Populations must be motivated to change their activities; changes in knowledge alone are insufficient.

A health education programme must provide for evaluation from time to time, to make the way for future action and prevent serious mistakes being made. The WHO report on Dental Health Education1 should be studied in developing dental health education programmes.

Topic 3 - Education, Training and Utilization of Dental Personnel

A. Dental Manpower and Dental Health Planning

1. Present state of manpower

All territories reported the employment of professional dental personnel; all but two reported the use of non-operating auxiliaries; and eight reported the use of operating auxiliaries.

The countries and territories in the South Pacific can be divided into three groups by the way they utilize dental manpower.

(a) All operative services are performed by university graduates. The majority of the personnel is either expatriate or of European origin recruited locally; the principal disadvantages are staff shortages and cost.

(b) Most operative services are performed by graduates of the Fiji School of Medicine. Some territories employ a few university graduates and a limited number of operating auxiliaries as well. The territories generally have well developed services but the supply of dentists may be affected by the incorporation of the Fiji School of Medicine into the University of the South Pacific.

(c) Most operative services are provided by operating auxiliaries. The dentists supervise the auxiliaries and provide services beyond the competence of operating auxiliaries.

Although some countries and territories were satisfied that at present they have no serious manpower shortages, most of them did have shortages. They are taking remedial steps but are facing various problems.

Common problems discussed were:

(a) a difficulty in recruitment of suitable personnel at necessary education levels to undergo the desired training course;

(b) a lack of financial reward, absence of a promotional advancement system, and unsatisfactory working conditions;

(c) a lack of public awareness of the necessary and important place of dentistry in community health and welfare and the associated need for educated personnel;

(d) an apparent failure of some governments to appreciate the dental needs of their country and the amount of finance needed to organize the necessary dental programmes in balance with other health programmes; and

(e) a lack of legislation in some cases either for dental health as a whole or particularly governing the use of operating auxiliaries and limitations on their duties and activities.

2. Future manpower needs

Each country and territory should consider the types of dental personnel best suited to its conditions in developing a dental health programme. The duties of the personnel should not be bound by traditional restraints. Priorities should be recognized and manpower trained to meet them. Some factors which will affect the types of personnel are:

(a) geographic and demographic factors of the territory or country,

(b) dental disease pattern,

(c) standard of education in the territory or country,

(d) economic factors,
(e) for small territories the availability of training facilities in other territories or countries,

(f) whether staff should be male or female,

(g) legal restrictions if these cannot be altered.

The professional

Some countries and territories stated that the present course at Fiji produced the dentist best fitted to their needs, whereas others preferred graduates of courses at university level.

Methods for determining the number of professionals required in a country were discussed. It was noted that throughout the Western Pacific Region of WHO the existing overall ratio of medical to dental professionals is 3:1. The appropriate ratio for a particular country or territory should be calculated according to factors such as the prevalence of dental disease, the demand for other health services, socio-economic factors, etc.

The auxiliaries

The use of auxiliaries, their position in the dental team and their relationship with the professional leader of the team are important planning considerations. The professional is the key person in any dental programme and without him no programme can be expected to succeed. The ratio of dentists to auxiliaries will depend upon the types of auxiliaries used and other factors which vary from territory to territory. Supervision of auxiliaries must be considered at the planning stage. The degree of supervision possible will affect the type of auxiliary employed and the training given.

All dental personnel should be able to perform the duties within his sphere of competence, to the same high level.

The purpose of the auxiliary is to undertake the frequently occurring operations thereby releasing the dentist from the performance of routine operations so that he may concentrate on the more complex and less common diagnostic procedures and treatments. Auxiliaries should be trained in the least possible time commensurate with developing the needed skills, including adequate repetition of operative procedures. Therefore in defining their duties it is desirable that:

(a) the number of duties be kept to a minimum; and

(b) the duties only include operations which have to be performed frequently.
B. Dental Education and Training

This topic was divided into the following areas of training:

(1) the professional; and

(2) the auxiliaries.

A distinction was drawn between education and training; education to provide professional leadership and direction, training to provide technical skills or to meet a specific function.

1. The professional

The existing Pacific courses provided in Fiji and Papua New Guinea were described and compared.

Some countries and territories expressed concern at the rapid raising of entry standards which could result in their being unable to send students to one of these dental courses. The number of students graduating from high school with the Cambridge School Certificate, or New Zealand School Certificate or their equivalents, was low in some places. Even fewer students were reaching the level of New Zealand or Australian matriculation.

Within the next five years it is likely that the Fiji School of Medicine and the Port Moresby Dental College will be incorporated within the University of the South Pacific and the University of Papua New Guinea (respectively). The course at the Port Moresby Dental College has been recently re-organized so that it will eventually lead to the granting of a degree. The type of dental course that will be given within the University of the South Pacific has not been determined.

2. The auxiliaries

Once the duties of auxiliaries have been defined, the curriculum can be planned. The degree of field supervision is an important factor in the educational methods used and the degree of training required.

Where possible it is desirable that auxiliaries be trained in the same institutions as professionals, so that they learn to work with one another. This is done both at the Fiji School of Medicine and the Port Moresby Dental College. However, many countries and territories thought the idea impractical because sending students overseas when they could be trained locally was too expensive.
It was considered that non-operating auxiliaries and perhaps the dental hygienist could be trained locally, by the dentist, primarily by in-service training. Several participants stated a need for a common curriculum in basic subjects for non-operating auxiliaries. It is preferable that operating auxiliaries be trained in a dental training institution.

The courses for auxiliaries and the countries and territories conducting them at present within the area of the South Pacific Commission are listed below:

- **Dental Nurse**
  - Papua New Guinea
  - Trust Territory of the Pacific Islands

- **Dental Therapist Type**
  - Guam

- **Dental Hygienist**
  - Fiji
  - French Polynesia
  - Western Samoa

- **Dental Technician**
  - Fiji
  - Papua New Guinea

Dental assistants are generally trained within each territory as required.

For countries and territories which cannot train their own operating auxiliaries, the following plan is suggested:

1. **define duties of operating auxiliary.**
2. **send students to the school which includes the largest number of the prescribed duties.**
3. **give additional training on return of the auxiliary in those subjects not included in the course.**

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**Topic 4 - Organization and Planning of Dental Public Health Services within General Health Services**

It is recognised that although each country or territory within the South Pacific area has certain specific problems, they share a great number of common problems with regard to the organization and planning of dental public health services.

A common factor to all is that dental health services must be considered within the framework of basic general health services.
This framework of basic general health services is of vital importance. If it is weak then all health disciplines, including dental, will have difficulty in providing even basic services.

Thus the first priority of a health administration is to provide a sound basic health structure in the development of which there should be participation by the dental administrator.

This principle of involvement of the dental executive in general health administrative procedure must be carried throughout all subsequent planning and development of the general health service at all levels.

For example, the chief dental administrator should form part of the central planning committee of the health department and this principle applied throughout the whole hierarchy of the field service in all areas or district health planning committees.

There is a need to provide governments with information regarding dentistry generally and specifically regarding dental health services for the community at large.

Dental health services and planners should be aware that differences exist in community demand for dental care as opposed to medical care. These differences can be related to a number of factors such as cost, aesthetics, etc. The power of the cost factor in affecting demand and provision of services is common to all communities, but in developing populations a factor such as regard for personal appearance may change rapidly and exert a strong effect on demands.

In designing and implementing dental programmes the scarce resources of manpower and finance must be utilized as efficiently as possible. This implies that governments must provide efficient working conditions, and for their part health workers should be aware of the cost of dental health services and encouraged to use resources economically.

Dental health programmes must have an emphasis on prevention and the promotion of oral health with the involvement of the patients both as individuals and as members of the community.

Many programmes at present involve captive groups, particularly schoolchildren, who receive incremental services. As resources permit, other captive groups can be included in the programme. The community at large requires relief from pain and oral conditions imimical to their general health and well-being, and if practicable, incremental care on demand. Services for schools will in some countries and territories be provided by private practitioners, and in others by both private practitioners and government services. Government-provided services for adults need not necessarily be free of charge.
In the provision of dental health services, particularly in rural areas, it should be realized that the community relates to the general health services provided and seeks attention at rural health centres or hospitals.

Dental services should be provided in these situations, either by the full time attendance of dental workers at the larger centres or hospitals or by attendance at regular intervals by personnel mainly concerned with the provision of school health services.

There should be close liaison and co-operation between dental health workers and other health workers in health centres and hospitals. Dental personnel, particularly the professionals, should be educated to be able to work with other health workers.

A resource which must not be forgotten in the planning of public dental health programmes is the private dental practitioner. Every attempt must be made to gain the interest and the co-operation of the private practitioners in community dental health problems. In all countries, particularly those relying mainly upon private practitioners for the provision of services, every endeavour should be made by governmental agencies to involve them in community health planning and health education activities.

**Symposium 1 - Child Dental Health Services**

1. **Identification of Needs**

The data showed that all countries required programmes for children to combat dental caries and periodontal disease. A better awareness amongst the public of what dentistry is trying to do in child health services is necessary. The demand for these services would increase and a better chance of attaining objectives would follow. Examples of agencies which can assist in promoting dental health are women's committees who have child care in the forefront of their minds. Local services clubs have played a valuable role in some territories.

If an attempt to implement too ambitious schemes is undertaken, disappointments will follow; but if progress comes within the facilities on hand, achievements will be recognized and it is likely that public support and sympathy will be obtained. Because of generally limited facilities, ideal treatment often cannot be given for any given patient, so that compromises have to be adopted.

Some countries and territories reported a demand for specialized services in pedodontics and orthodontics.
It was recognized that the six-year-old is a person who is at a critical stage in his development. This emphasizes the need for dental examinations at an earlier stage to ensure that interceptive care will avoid unnecessarily extensive treatment.

Special effort should be made to extend dental services to preschool children. A suitable occasion for this is during school vacation when dental personnel are generally free from school dental service duties.

2. Existing organizations to meet these needs

The existing programmes were described. Most countries and territories had programmes for schoolchildren; but in the case of children not attending school - be they pre-schoolchildren or children of school age - they were generally not included in these programmes except when services to relieve pain were required. Caries control was the prime concern of the programmes. There was an increasing tendency to use auxiliaries to provide the services.

3. Additional resources required to meet these needs in the future

It was agreed that dental services for children are most efficiently provided by treating children at school. Where schools are large enough, permanent school clinics are desirable. Smaller schools can be serviced by mobile clinics where roads are present. Where large central clinics have been established, the movement of children from schools to clinics should be provided either by public health or education authorities.

The provision of services in remote areas is in some cases being neglected. These areas can be reached by sea or air. There is a need for the development of portable dental equipment to serve such areas.

The assistance of departments of education and school teachers can play an important role in the efficiency of dental programmes. Their co-operation should always be sought by dental personnel.

Fluoridation of water supplies and the other methods of prevention of dental caries using fluorides were fully supported. Action and initiative were urged in developing programmes of prevention using selectively the effective methods available. Such programmes should achieve ever-increasing coverage of the child population until the ultimate goal of complete coverage is reached.

Symposium 2 - International Aid and Future Dental Health Activities in the South Pacific

Future dental health activities in the South Pacific were discussed with special reference to area programmes, co-operative effort and the place of international and governmental aid and assistance.
Attention was drawn to the particular geographic and demographic nature of the South Pacific Commission area which raised problems always to be kept in mind when planning services. The South Pacific Commission area is situated in the world's water mass, embraces 12 million square miles and contains 4 million people located among ten thousand islands. This creates great problems in communication not only with one another and with the outside world but also within territories themselves. It also raises problems of transportation and portability as was discussed at length in the Seminar.

The South Pacific is an area comprising three main ethnic groups of Pacific Islanders - Polynesian, Melanesian and Micronesian - who are becoming more and more independent. The whole area is in a process of rapid social and economic change and it requires all the aid and assistance the outside world is willing to provide.

The sources of aid were discussed under the following headings:

1. Metropolitan Governments

   Direct aid is given by metropolitan governments to their territories and former territories.

2. South Pacific Commission

   The Commission was established in 1947 as an inter-governmental agency for aid and assistance in the three areas: economic, social and health.

   For dental health the Commission has provided:

   (a) assistance to research projects;

   (b) publication of documents; and

   (c) finances and services for seminars.

   It has recently appointed a dental public health officer who will be available to the territories who request his services. Where a request for assistance in dental health cannot be met by the dental public health officer, the Commission might consider the appointment of a short-term consultant. Requests for the services of the dental public health officer can usually be met in the year they are made. Requests which involve special financial provision, seminars, consultants, etc. must be made twelve months in advance, and with a forthcoming change in programming an indication of requirements should be made three years in advance.

   The Commission has a public health engineer, and shortly will appoint a health educator. The services of these two officers may be requested for assistance in dental programmes.
3. **World Health Organization**

The World Health Organization was established in 1948. It has its Headquarters in Geneva, and for the Western Pacific Region a Regional Office in Manila. The WHO Representative's Office in Suva covers all Pacific Island territories except Guam which is covered from Taipei. Assistance for dental health has been provided to territories in the South Pacific as follows:

(a) consultant services;
(b) assistance in the conduct of dental health surveys;
(c) fellowships for education and training of national dental health staff;
(d) advisory services and lecturers at dental schools;
(e) seminars and meetings; and
(f) data processing facilities.

WHO acts at the request of governments only, and the budget is normally set two years in advance.

The Commission and WHO have agreed that since the Commission has a dental public health officer, it should play a leading role in dental public health advisory services in the South Pacific, in close liaison with WHO. WHO does not have a full time dental officer at the Manila Regional Office, but has dental officers at the Geneva Headquarters whose assistance is available. Data-processing facilities are also available at Headquarters.

4. **Other United Nations Specialized Agencies - UNICEF, United Nations Development Programme (UNDP), FAO**

These agencies have in the past assisted with programmes which have dental aspects - UNICEF and UNDP in the development of water supplies, FAO in nutrition. UNICEF has assisted in child dental health programmes but recently has indicated that greater emphasis will be given to programmes in education. In the assistance given by these agencies preference is given to programmes which lead to the development of complete health services.

WHO acts as adviser on health to the other United Nations Specialized agencies.

5. **Private and Government Programmes**

There are numerous private and government programmes which provide assistance and dental personnel should become familiar with those available to their territory.
6. **Educational Institutions**

The developed countries concerned with the area provide places in their universities, technical institutes, hospitals and auxiliary training institutions for dental personnel from the Pacific Islands, at both undergraduate and post-graduate level.

The question was raised concerning the desirability of the two dental schools within the South Pacific establishing a permanent relationship with a dental school in Australia or New Zealand. Benefits which could accrue would be in the fields of staff and student exchange, and in the provision of teaching materials.

7. **Dental Associations**

At present there was little communication between dentists in the Pacific, The Fédération Dentaire Internationale and dental associations of Australia and New Zealand. One problem was that many territories did not have a dental association. Brigadier Fuller undertook for the participants as private individuals to bring to the notice of the appropriate people the desirability of establishing a South Pacific Section of the Asian Pacific Dental Federation.

The general conclusion was that considerable aid was available and that dental personnel should be aware of the forms of aid available to their territory and make requests through the appropriate channels for the assistance they require.

4. **CONCLUSIONS OF THE SEMINAR**

Immediately following the seminar the contents of this section were distributed by the Commission as the recommendations of the seminar. In this chapter the conclusions are identical in substance to those recommendations but the order has been changed.

4.1 **Dental surveys**

4.1.1 That whenever future surveys are contemplated in the territories of the South Pacific Commission these be performed in accordance with the principles of WHO Basic Oral Health Survey Methods Manual (WHO/DH/69.84), the results to be tabulated in a standard form. Furthermore, that the South Pacific Commission's and/or the World Health Organization's advice be sought at an early stage. The question of the inclusion of age groups after 54 should be considered so that an assessment of prosthetic needs can be made.

4.1.2 That future surveys be programmed for computer processing and tabulation. The Seminar noted that assistance in planning and analysis is available from the World Health Organization, Geneva, and that French Polynesia possesses well developed computer services.
4.1.3 Since in most surveys there is an absence of data on the location of dental caries by tooth surfaces although evidence suggests a predominance of occlusal caries throughout the area, and since this is a factor with an important bearing on the types, numbers and training of dental personnel and on the preventive techniques to be taught and used, a study should be launched to obtain this information, and future re-evaluation surveys should also include this information.

4.2 Preventive dentistry and dental health education

4.2.1 Health services ought to consider prevention as their most important concern. Anyone with responsibilities in dental health should be educated to this end, in order to achieve full integration of preventive and curative measures when planning and implementing dental health programmes.

4.2.2 Health education is an essential part of any dental health programme and the organization and planning of dental health services must be community-based and orientated in oral health promotion. Full use of existing community groups should be made in developing the health educational programme.

Target populations for dental health education are as follows:

- preschool
- school
- adults: expectant mothers
- nursing mothers
- other groups.

Expectant mothers and nursing mothers should be priority groups.

4.2.3 The appointment of a qualified health educator by the South Pacific Commission to co-ordinate, advise and guide health educators in the territories of the area would enable effective programmes to be devised and evaluated.

4.2.4 The area health educator should be responsible for research in the content and methods to be used, and should investigate the cultural, social and environmental factors influencing these educational methods and materials.

4.2.5 Where a public health service employs a health educator, dental health education should be part of his duties.

4.2.6 All dental personnel should be involved in the health education programme which should be under the direction and guidance of a health educator.
4.2.7 Each territory should engage a health educator, who should integrate
dental health education in the general health education programme.

4.2.8 **Fluoridation procedures**

Community programmes for the promotion of fluoridation must be based on
a health education programme directed to the political, civil,
administrative and community leaders. It is an accepted scientific fact
that fluorides are effective in the prevention of dental caries. The Seminar therefore considers that:

(a) governments and local authorities should institute
drinking water fluoridation programmes whenever it
is possible;

(b) where fluoridation of public drinking water is not
possible, fluorides should be dispensed by other
means (e.g. tablets, school fluoridators, etc.);

(c) the use of topical applications should be considered;

(d) the South Pacific Commission should prepare and distribute
literature on the use of fluorides;

(e) The South Pacific Commission should encourage research
on other vehicles and optimum fluoride levels.

(f) Research. The Seminar suggests that the South Pacific
Commission might sponsor research in two specific areas:

1) the use of fluoridated resins for filling
fissures; and

2) the use of fluoridated prophylactic paste.

4.2.9 **Changes in diet**

The dental health authorities should be consulted when major
policies affecting national or regional diets are under consideration
because any change in basic diet may have fundamental effects on the
occurrence of oral diseases. This has specific relevance to the
consumption of refined carbohydrates, either overall or in respect of
certain population sectors, for example, those served by school or
preschool canteens. All possible measures should be employed to reduce
the harmful dietary effects of increased consumption of sugars.
4.2.10 Oral hygiene programmes

In consideration of the high prevalence rate of periodontal disease in this area, intensive oral hygiene programmes should be instituted. These should include toothbrushing, prophylaxis, scaling and dental health education.

4.3 Education and training

4.3.1 Degree courses

The Seminar noted the intention of the dental schools at Port Moresby and Suva to develop within the next five years curricula that will lead to a university degree course. It considers therefore that territories and countries should examine the educational level from which they draw their dental student recruits to ensure they will be able to meet the higher level of entry that a degree course will entail. Territories and countries which consider they will be unable to meet the requirements should indicate their difficulties and educational deficiencies to the South Pacific Commission and indicate also the level to which they want their immediate professional dental work force educated. These territories and/or countries are advised however to prepare for the long-term movement towards the degree course.

4.3.2 Auxiliaries

The Seminar noted a dissimilarity of views on the training and duties of operating auxiliaries and differences in their utilization. It believes that in any particular programme their duties should be clearly defined.

4.3.3 Fellowships

The Seminar noted that several territories are in need of their own local expert guidance in the field of dental public health. It supports the development of a corps of dental officers educated at the post-graduate level on this subject by means of WHO fellowships.

4.3.4 Evaluation

In view of the problems revealed during the discussions, dental education and training for the South Pacific should be evaluated and assessed, possibly by or through the South Pacific Commission. This might include the desirability and feasibility of pooling educational facilities for the English-speaking sector into one school and the establishment of a school for non-operating auxiliaries for the French-speaking territories.
4.3.5 Co-ordination

In view of the need to ensure adequate information and co-ordination between principals of dental training schools and heads of dental services, there should be close co-ordination between the dental schools and the dental health services in countries or territories through an adequate knowledge of the level of qualifications required for entry into the schools, the qualifications obtained on leaving, and, in particular, a knowledge of the resources which must be planned for students when they leave the training school. This co-ordination could be obtained through a bi-annual or annual information bulletin, edited by the schools and circulated either directly or through the South Pacific Commission to the heads of dental services.

4.4 Organization of dental public health services

4.4.1 The organization of dental public health services should be structured around the dentist who provides direction, purpose and optimal supervision for the basic treatment team, including operating dental auxiliaries and other supporting staff.

4.4.2 Accent should be placed on programmes for captive groups of all ages and types, in particular incremental school services, orientated to prevention and the promotion of oral health awareness. Where comprehensive services for schoolchildren cannot be provided, first priority should be given to the permanent dentition.

4.4.3 The senior dental officer in a territory and country should be included in the central policy, planning and administrative committee of a health department or ministry.

4.4.4 In rural areas, static facilities should be provided within the health centre or dispensary complex with as much liaison as possible with medical staff.

4.4.5 The private sector of the profession should be encouraged to become involved in community health problems.

4.4.6 Strenuous efforts should be made to create conditions conducive to retention of local staff and recruitment, where necessary, of expatriate staff.

4.4.7 Operating and non-operating auxiliary function should be supported by legislation which not only provides a framework within which they can function at the present level of development but would be sufficiently flexible to allow for possible changes in the role and actual duties of auxiliary personnel.
4.4.8 When adjustments are made to salary scales, conditions of service and promotional incentives in Departments of Public Health in the South Pacific Commission area, negotiated advances for medical personnel should be extended automatically to dental personnel on a basis of parity, grade for grade, with medical personnel.

4.4.9 Attention is drawn to the extensive development in French Polynesia using modern data processing and scientific methods of organization in the field of dental health which can be used effectively to bring about an improvement in dental health planning and in medico-dental research. The Seminar recommends that these methods be used and that they be implemented in collaboration with the World Health Organization, with the South Pacific Commission, and also with territories or countries which already have experience in this field.

4.4.10 School dental health services

(a) As a general principle, school dental services should be provided in the school grounds. An alternative is to provide transport to a central clinic.

(b) Since the effectiveness of the dental personnel in school health is dependent upon the equipment with which they are supplied, the South Pacific Commission might undertake to produce a specification of the minimum equipment required by dental personnel.

(c) When the South Pacific Commission appoints a health educator this officer and the dental public health officer might be asked to advise territories on the development of curricula in dental health education suitable for islanders, and organize training courses for dental personnel.

(d) Since toothbrushing is an essential procedure to attain oral health for the whole community, supervised toothbrushing programmes should be carried out particularly in schools, as a measure for educating children as well as parents and school teachers in the development of a good health habit.

5. ACKNOWLEDGEMENTS

The members of the Seminar wish to express their thanks to the Secretary-General of the South Pacific Commission, Afioga Afaarouvala Misima, for the welcome encouragement he has given to them; to Médecin-Général J. Rondet, Director of Health and Public Hygiene in New Caledonia, for his welcome to New Caledonia and for opening the Seminar.
The Seminar members are indebted to the members of the South Pacific Commission staff who worked so hard administering the Seminar:

the Conference Officer, Mme S. Exbroyat

the Travel Officer, Mme C. Gautier

the Interpretation/translation team: Messrs G. Chandler, C. Stenersen and R. Compton-Smith, and Mlle G. Bazinet

the Stenographer, Mme H. Ventrillon

Mr I. Boyd and Miss Z. Hogan of the Finance Section;

and to all who helped before, during and after the Seminar.

Finally, the members of the Seminar wish to thank the two organizations, the World Health Organization and the South Pacific Commission, for providing the finance, staff and facilities for the Seminar.
PROGRAMME DETAILS

Opening Session

See WPR/DH/Informal 1

Opening Discussion

Chairman: Dr K.K. Wong
Chief Rapporteur: Dr J. Johnston

1. Briefing on Seminar administrative procedure - Dr M.J. Hollis
2. Principal points of opening theme - Brigadier J.F. Fuller and Dr J. Barraud
3. Dental statistics - Dr K.K. Wong

Country Reports

Chairman and Rapporteur: Dr M.J. Hollis

Participants were told in Bulletin No. 1 that they would be asked to give a very brief oral country report. Very brief means five minutes.

Participants are asked to write out their report and hand it to the Chairman at the end of the session. If there are more than one participant from a territory only one country report is required.

Topic 1 - Oral diseases and abnormalities in the South Pacific

Chairman: Brigadier J.F. Fuller
Rapporteur: Professor N. Martin

Working Papers:

WPR/DH/11/1 - Dental epidemiology in the South Pacific
Dr K.K. Wong

Reactor: Dr D. Narayan

WPR/DH/11/2 - The etiology of dental caries and periodontal disease
Dr M.J. Hollis

Reactor: Dr T. Malaki
Topic 2 - The prevention of dental diseases and the treatment of their consequences

Chairman: Dr H.C. Fields
Rapporteur: Dr A. Trotet

Working Papers:

WPR/DH/11/3 - Prevention of dental diseases and the treatment of their consequences
Dr J. Barnaud

Reactor: Dr P. Moreau

WPR/DH/11/4 - The place of dental health education in public health education (South Pacific area)
Dr G. Loison

Reactor: Dr S. Kilisimasi

Topic 3 - Education, training and utilization of dental personnel

Chairman: Dr Chassary
Rapporteur: Dr R. Camrass

Working Papers:

WPR/DH/11/5 - Dental manpower and dental health planning
Brigadier J.F. Fuller

Reactor: Dr J. Helkana

WPR/DH/11/6 - Dental education and training
Dr A.H. Thomson

Reactor: Dr A. Vele

Topic 4 - Organisation and planning of dental public health services within general health services

Chairman: Dr J. Helkana
Rapporteur: Dr D. Anderson
Working Paper:

WPR/DH/11/7 - Organisation of dental public health services
Dr D. Barnes

Reactor: Dr H.C. Fields

**Symposium 1 - Child dental health services**

Chairman: Dr R.K. Logan
Rapporteur: Dr D. Narayan
Panel: Dr K.K. Wong and Dr J. Barnaud

**Symposium 2 - Future dental health activities in the South Pacific**

Chairman: Brigadier J.F. Fuller
Rapporteur: Dr J. Johnston (Chief Rapporteur)
Panel: Dr K.K. Wong and Dr M.J. Hollis

N.B. Rapporteurs must complete their reports each day (even though a topic may not be completed) on time for the Chief Rapporteur to check the copy and give it to the Conference Officer by 8:00 a.m. the following day.

It is possible that on some days the session may continue until 5:00 p.m.
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<tr>
<th>Time</th>
<th>Tuesday 26 January</th>
<th>Wednesday 27 January</th>
<th>Thursday 28 January</th>
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<th>Saturday 30 January</th>
<th>Monday 1 February</th>
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<td>8:00 a.m. to 9:45 a.m.</td>
<td>9:00 a.m. Opening Session</td>
<td>Topic 1 Working Paper 2</td>
<td>Topic 2 Discussion</td>
<td>Topic 3 Working Paper 5</td>
<td>Consultants' meeting</td>
<td>Topic 4 Working Paper 7</td>
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<td>Consideration of report and recommendations</td>
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<td>Symposium 1</td>
<td>Topic 3 Working Paper 6</td>
<td>Consultants and all participants</td>
<td>Symposium 2</td>
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<td>Topic 2 Working Paper 4</td>
<td>Symposium 1</td>
<td>Topic 3 Discussion</td>
<td>Free Discussion Questions</td>
<td>Symposium 2</td>
<td>Closing Address</td>
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</table>
LIST OF PARTICIPANTS

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Programme Director (Health)

SPC Staff who serviced the Seminar:

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Interpreter/Translator

Mr. R. Compton-Smith
Interpreter/Translator

Mr. C. Stenersen
Interpreter/Translator

Mlle S. Exbroyat
Conference Officer

Mme H. Ventrillon
Stenographer
LIST OF WORKING PAPERS AND DOCUMENTS

A. Working papers

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<td>WPR/DH/11</td>
<td>Epidemiology of Oral Diseases and Abnormalities in the South Pacific</td>
<td>Dr K.K. Wong</td>
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<td>WPR/DH/12</td>
<td>Aetiology and Prevention of Oral Diseases and Abnormalities in the South Pacific</td>
<td>Dr M.J. Hollis</td>
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<td>WPR/DH/13</td>
<td>The Prevention of Dental Disease and the Treatment of its Consequences</td>
<td>Dr J. Barnaud</td>
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<td>WPR/DH/17</td>
<td>Organization of Dental Public Health Services</td>
<td>Dr D.E. Barmes</td>
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B. Documents available to each participant upon arrival

- Expert Committee on Auxiliary Personnel (WHO TRS No. 163)
- Periodontal Disease (WHO TRS No. 207)
- Standardization of Reporting of Dental Diseases and Conditions (WHO TRS No. 242)
- Dental Education (WHO TRS No. 244)
- Organization of Dental Public Health Services (WHO TRS No. 298)
- Dental Health Education (WHO TRS No. 449)
Fluorides and Dental Health, Geneva (World Health Organization; Monograph Series No. 59)

Fluoridation and Dental Health - Twenty-Second World Health Assembly (A22/P&B/7)

Inter-Regional Seminar on the Training and Utilization of Dental Personnel in Developing Countries, New Delhi, 1967

International Classification of Diseases Application to Dentistry and Stomatology (WHO/DH/69.83)

Report of the Seminar on Dental Services Development and Co-operation in the Pacific (Port Moresby, 1968)

C. Documents available in conference library

Report on a Dental Survey in Western Samoa (WPRO 0115) by Dr R.L. Siu and Dr K.K. Wong

Report on a Survey of Dental Diseases and Conditions in Fiji (WPRO 0115) by Dr K.K. Wong

Report on a Dental Survey in Tonga (WPRO 0115) by Dr N. Moi Tapealava and Dr K.K. Wong

Assignment Report (South Pacific Area) by Dr K.K. Wong

Assignment Report (French Polynesia) by Professor L.J. Baume (French only)

Training Course on Dental Epidemiological Methods for Countries of the Western Pacific Region (WPRO 0115) Singapore - Malaysia
### SUMMARY OF COUNTRY REPORTS

#### GEOGRAPHICAL AND POPULATION DATA

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</table>

1 Sq kilometres

2 Main Islands only
<table>
<thead>
<tr>
<th>Country</th>
<th>Conducted</th>
<th>By whom</th>
<th>Method</th>
<th>All ages applicable to whole country</th>
<th>df age 5-6</th>
<th>DME age 13-14</th>
<th>Prevalence periodontal disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Samoa</td>
<td>Yes</td>
<td>Staff</td>
<td>0115^1</td>
<td>Yes</td>
<td>1.0</td>
<td>1.1</td>
<td>98.8%</td>
</tr>
<tr>
<td>Australia</td>
<td>Yes</td>
<td>-</td>
<td>242^2</td>
<td>No</td>
<td>2.5-6.0</td>
<td>9-13</td>
<td>90%</td>
</tr>
<tr>
<td>Cook Islands</td>
<td>Yes</td>
<td>Hanson</td>
<td>242</td>
<td>Yes</td>
<td>8.5</td>
<td>9</td>
<td>-</td>
</tr>
<tr>
<td>Fiji</td>
<td>Yes</td>
<td>Wong</td>
<td>0115</td>
<td>Yes</td>
<td>4.2</td>
<td>2.5</td>
<td>58.7%</td>
</tr>
<tr>
<td>French Polynesia</td>
<td>Yes</td>
<td>Baume</td>
<td>242</td>
<td>Yes</td>
<td>8</td>
<td>8.2</td>
<td>27.2%</td>
</tr>
<tr>
<td>GiC</td>
<td>Yes</td>
<td>Wong</td>
<td>0160^3</td>
<td>Yes</td>
<td>N/A</td>
<td>1.0</td>
<td>37.4%</td>
</tr>
<tr>
<td>Guam</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>New Caledonia</td>
<td>Yes</td>
<td>Muru</td>
<td>242</td>
<td>Yes</td>
<td>7.4</td>
<td>9.0</td>
<td>-</td>
</tr>
<tr>
<td>New Hebrides</td>
<td>Yes</td>
<td>Hollis</td>
<td>0115</td>
<td>Yes</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Yes</td>
<td>Other</td>
<td>5-19</td>
<td>Yes</td>
<td>6</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>Norfolk</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>Yes</td>
<td>Dept. of Health</td>
<td>0115</td>
<td>Yes</td>
<td>N/A</td>
<td>2.20</td>
<td>-</td>
</tr>
<tr>
<td>Tonga</td>
<td>Yes</td>
<td>Tapeta-lava</td>
<td>0115</td>
<td>Yes</td>
<td>1.2</td>
<td>1.0</td>
<td>40.2%</td>
</tr>
<tr>
<td>Tuvalu</td>
<td>Yes</td>
<td>Dept. of Health</td>
<td>5-18</td>
<td>Yes</td>
<td>-</td>
<td>3.7</td>
<td>-</td>
</tr>
<tr>
<td>Western Samoa</td>
<td>Yes</td>
<td>Health</td>
<td>0115</td>
<td>Yes</td>
<td>1.5</td>
<td>0.9</td>
<td>41.3%</td>
</tr>
</tbody>
</table>

1 WPRO 0115
2 WHO TECHNICAL SERIES 242
3 WPRO 0160
<table>
<thead>
<tr>
<th>DENTAL PERSONNEL</th>
<th>TREATMENT IN GOVERNMENT SERVICE</th>
<th>SCHOOL DENTAL SERVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Professional</td>
<td>Operating Auxiliaries</td>
</tr>
<tr>
<td>AMERICAN SAMOA</td>
<td>7/0</td>
<td>-</td>
</tr>
<tr>
<td>AUSTRALIA</td>
<td>710/3100</td>
<td>48/0</td>
</tr>
<tr>
<td>COOK ISLANDS</td>
<td>9/0</td>
<td>8/0</td>
</tr>
<tr>
<td>FIJI</td>
<td>31/8</td>
<td>21/0</td>
</tr>
<tr>
<td>FRENCH POLYNESIA</td>
<td>8/15</td>
<td>7/0</td>
</tr>
<tr>
<td>GEIC</td>
<td>3/0</td>
<td>0/0</td>
</tr>
<tr>
<td>GUAM</td>
<td>4/9</td>
<td>0/9</td>
</tr>
<tr>
<td>NEW CALEDONIA</td>
<td>7/25</td>
<td>0/0</td>
</tr>
<tr>
<td>NEW HEBRIDES</td>
<td>0/4</td>
<td>1/0</td>
</tr>
<tr>
<td>NEW ZEALAND</td>
<td>120/900</td>
<td>1340/0</td>
</tr>
<tr>
<td>NORFOLK</td>
<td>1/0</td>
<td>3/0</td>
</tr>
<tr>
<td>PAPUA NEW GUINEA</td>
<td>27/5</td>
<td>68/2</td>
</tr>
<tr>
<td>TONGA</td>
<td>9/0</td>
<td>0/0</td>
</tr>
<tr>
<td>TITI</td>
<td>27/1</td>
<td>15/0</td>
</tr>
<tr>
<td>WESTERN SAMOA</td>
<td>5/0</td>
<td>5/0</td>
</tr>
</tbody>
</table>

1. The answer is yes if the majority of adults can receive dental services other than relief of pain on demand. Some territories answering no do provide services for selected groups of adults.

2. Number before stroke refers to number in government service, number after stroke the number in private practice.
These questionnaires, the first two being standard WHO questionnaires for seminars, and the third designed specifically for this seminar, were given to each participant. The questionnaires were to be filled in and returned unsigned. Twenty-four sets of questionnaires were returned, but not all questions were answered by every participant.

Most of the questions asked for an evaluation on a three or four point scale. The questions and the number of answers received for each point on the scale are stated below.

**Questionnaire No. 1**

**Travel Arrangement were:**

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Satisfactory</th>
<th>Reasonably</th>
<th>Unsatisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>6</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Physical Arrangement of Site and Seminar were:**

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Adequate</th>
<th>Fairly good</th>
<th>Unsatisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>8</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

**Accommodation and Services were:**

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Adequate</th>
<th>Reasonably</th>
<th>Unsatisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>6</td>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>

**The Amount of Free Time Available for Personal Matters and Rest was:**

<table>
<thead>
<tr>
<th>Adequate</th>
<th>Just enough</th>
<th>Not enough</th>
<th>More than enough</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>11</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

**The Total Length of the Seminar was:**

<table>
<thead>
<tr>
<th>Very</th>
<th>Satisfactory</th>
<th>Too short</th>
<th>Too long</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>12</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**The Schedule of the Seminar was:**

<table>
<thead>
<tr>
<th>Very</th>
<th>Satisfactory</th>
<th>Too crowded</th>
<th>Too loose</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>13</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**The Working Hours were:**

<table>
<thead>
<tr>
<th>Very</th>
<th>Satisfactory</th>
<th>Too short</th>
<th>Too long</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>18</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
The Information Bulletins and Circulars were:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very helpful</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Helpful</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Of some help</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Of no help</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Library and Reference Facilities were:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Just right</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Limited</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Poor</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Opportunities to Become Acquainted with the Other Participants and the Staff were:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ample</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Not enough</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The Leadership at the Seminar was:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Fairly good</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Poor</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Questionnaire No. 2**

Were you interested in the Seminar?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very much</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Quite a bit</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>To some extent</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Very little</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Did you gain any new ideas or concepts?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>Some</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Very few</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>None at all</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Did you have enough opportunity to express your own ideas at the Seminar?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ample</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Just enough</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Not enough</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>None at all</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Did you have enough opportunity to exchange knowledge and experience with other participants and staff outside seminar hours?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ample</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Just enough</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Not enough</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>None at all</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Each of you came with specific objectives and expectations. To what extent do you feel that these have been attained.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completely</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>For the most part</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Some</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>A little part</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

The scope of the discussion was:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequately covered</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>Just right</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Too large</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Too small</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
The Seminar has been for you

<table>
<thead>
<tr>
<th>Highly valuable</th>
<th>Valuable</th>
<th>Of some value</th>
<th>Of little value</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>6</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Questionnaire No. 3

<table>
<thead>
<tr>
<th>Working Paper WPR/DH/11/1</th>
<th>Dental Epidemiology in the South Pacific</th>
<th>Very much</th>
<th>Much</th>
<th>Little</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>13</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Working Paper WPR/DH/11/2</th>
<th>The Aetiology of Dental Caries and Periodontal Disease</th>
<th>Very much</th>
<th>Much</th>
<th>Little</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>10</td>
<td>7</td>
</tr>
</tbody>
</table>

| Working Paper WPR/DH/11/3 | Prevention of Dental Disease and Treatment of their Consequences | Very much | Much | Little |
|---------------------------|                                                                     | 8         | 8    | 8      |

| Working Paper WPR/DH/11/4 | The Place of Dental Health Education in Public Health Education | Very much | Much | Little |
|--------------------------|                                                                     | 7         | 7    | 10     |

| Working Paper WPR/DH/11/5 | Dental Manpower and Dental Health Planning | Very much | Much | Little |
|--------------------------|                                           | 10        | 6    | 7      |

| Working Paper WPR/DH/11/6 | Dental Education and Training | Very much | Much | Little |
|--------------------------|                             | 6         | 9    | 9      |

| Working Paper WPR/DH/11/7 | Organization of Dental Public Health Services | Very much | Much | Little |
|--------------------------|                                               | 10        | 5    | 9      |

| Symposium 1               | Child Dental Services | Very much | Much | Little |
|--------------------------|                      | 5         | 9    | 10     |

| Symposium 2               | Future Dental Health Activities in the South Pacific | Very much | Much | Little |
|--------------------------|                                                      | 9         | 10   | 5      |
Each questionnaire also had questions which asked for comments. Many comments were made and the following is a summary of the points mentioned by more than one participant.

Questionnaire No. 1

Question No. 13. What improvements would you suggest for future meetings of this nature?

Three improvements were suggested:

1. All participants be accommodated together.

2. Working papers be distributed to participants earlier.

3. Recommendations be edited before being brought to the plenary session.


Most of the participants stated that the seminar was a success.

Questionnaire No. 2

Question No. 9. What do you consider were good features in the content of the seminar?

The features mentioned most often in the replies were:

1. Prevention

2. Communication with other dentists.

Question No. 10. What features did you consider not so good?

Sixteen participants did not answer the question. Presumably they did not consider that there were any notably poor parts of the seminar.

Question No. 11. How will this seminar be reflected in your plan for development and improvement of dental health services in your country?

Two participants answered little.

Fifteen states that at least one aspect of their dental health planning would be affected by the Seminar.

Seven did not answer the question.
Comments

Eleven made no comment.

The remainder made generally favourable comments.

Questionnaire No. 3

Comments

Thirteen had no comment to make.

From the answers to the questions and the comments made, the following conclusions are drawn:

(1) The participants considered the Seminar a success.

(2) The good features were:
   (a) The meeting of people and the exchange of ideas.
   (b) The working papers and discussions were helpful.
   (c) The organisation was satisfactory.

(3) Points that needed improvement:
   (a) Accommodation.
   (b) Working papers distributed earlier.
   (c) The method of considering the recommendations.