SOUTH PACIFIC COMMISSION

THIRD REGIONAL TECHNICAL MEETING OF CHIEF DENTAL OFFICERS

Noumea, New Caledonia, 27 — 31 August 1990

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PLEASE ADDRESS REPLY TO
THE SECRETARY-GENERAL

PRO 4/6/1

December 16th, 1992

CIRCULAR LETTER

Please find enclosed the erratum to be inserted in the report of meeting of the Third Regional Technical Meeting of Chief Dental officers.

Yours sincerely,

Sitaleki A Finau

Dr S. Finau
Health Coordinator

Attch.

Erratum

On page 14, Table 1: Column *'Dental therapist' 1991*, line *French Polynesia*, read **0** instead of 10.

On page 65, Table 1: Column *Dentist Population ratio*, line *French Polynesia* read **1:2200**, instead of 1:7300.

On page 66, Table 2: Column *Professionals, Private*, line *French Polynesia*, read **60** instead of 9.
Total number: **86** instead of 35.

On page 79, Table 1, Column *DMF, Current*, line *French Polynesia*, read **3.19** instead of 3.6.

Erratum

A la page 14 : Colonne *Thérapeutes dentaires, 1991*, ligne *Polynésie française*, lire **0** au lieu de 10.

A la page 56, Tableau 1 : Colonne *Nombre de dentistes :* lire **86** au lieu de 35.

A la page 56, Tableau 1 : Colonne *Nombre de dentistes rapport à la population* : lire **1/2200** au lieu de 1:7,300

A la page 57, Tableau 2 : Colonne *Dentistes, Secteur privé*, ligne *Polynésie française* : lire **60** au lieu de 9.

Page 67 : Colonne *CAOD, Actuel*, ligne *Polynésie française* : lire **3.19** au lieu de 3.6

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III. SUMMARY OF DISCUSSIONS

A. INTRODUCTION

1. The Twenty-eighth South Pacific Conference recommended and approved the holding of a Regional Technical Meeting of Chief Dental Officers (TMCDO) as part of the evaluation of the South Pacific Commission's (SPC) Dental Health Programme.

2. Four short-term consultants were hired by SPC in 1990 to conduct an assessment and analysis of the oral and dental health needs of the island countries. The consultants visited eighteen countries and territories in May and June 1990 and compiled the information obtained into four working papers covering major regional issues. These papers are presented as Annexes to this report.

3. The main objective of the Third TMCDO was to discuss regional dental health needs based on background working papers prepared by the Secretariat and consequently to propose strategies for future dental health programmes in the 1990s. This included recommendations on the reactivation of the South Pacific Commission's dental health activities.

4. The specific objectives of the Meeting were to:

- Analyse the results of the consultants' investigations on oral health status in individual countries;
- Review current training opportunities for dental staff;
- Discuss the manpower situation and prepare strategies for the future;
- Evaluate the types of dental equipment and material utilised by the various Pacific Island countries and investigate possibilities of selecting the best supplies and maintenance;
- Discuss appropriate methods in Pacific Island nations to improve the efficacy of preventive dental programmes;
- Evaluate progress made since the 1982 TMCDO and the follow-up on its recommendations;
- Discuss and make recommendations with regards to reactivating the SPC Dental Health Programme.

5. The major theme of the meeting was prevention of oral health diseases. Participants were requested to provide country statements describing the current prevention programmes being carried out in their own countries.

6. Funding for the Third TMCDO as well as for the initial regional dental review was generously provided by the Government of France through an extra-budgetary grant to the South Pacific Commission.

B. OPENING SESSION

7. The opening ceremony was chaired by Dr Misi Tuala (Western Samoa), retiring chairman of the Second TMCDO held in 1982. The Secretary-General of the SPC, Mr Atanraoi Baiteke, welcomed the participants (Annex 1) and the meeting was formally opened by Mr Bernard Grasset, High Commissioner for the Territory of New Caledonia.

8. The meeting elected Dr Terepai Tairea (Cook Islands) as Chairman and Dr Bais Gwale (Papua New Guinea) as Vice-Chairman. The members of the drafting committee were Dr Peter Hunter (New Zealand), Dr Asu Pulu (Niue) and Dr Ronald Ziru (Solomon Islands).

9. The SPC Secretariat was headed by Mr Atanraoi Baiteke, SPC Secretary-General. The meeting co-ordinator was Dr François Bach, Epidemiologist and Acting Health Co-ordinator. The reporters were Mrs Letupu Hunt, Dr Jean-Paul Gaugin and Dr Makasini Malolo.

C. STATUS OF ORAL AND DENTAL HEALTH IN THE PACIFIC ISLANDS

10. Not all countries had data available to allow them to evaluate their current oral health status and monitor changes. The representativeness and comparability of samples was a major difficulty in assessing differences in the state of oral health within the region. To address this problem, the meeting highly recommended the standardised methods proposed by the World Health Organization (WHO) for carrying out epidemiological surveys in the Pacific region. Participants emphasised the need to carry out these surveys every five years for monitoring purposes.

11. International organisations such as WHO and SPC have provided financial and technical assistance when carrying out epidemiological surveys in the island countries and should continue to do so in the future.

12. The participants discussed the value of more specific DMFT indices — in terms of whether the caries occur on smooth surfaces or in pit and fissure surfaces — so that appropriate preventive programmes could be implemented. This, however, was an issue only applicable to the most developed island nations.

13. There was a need to gather and compile epidemiological information about the current oral health status of the Pacific Island countries. Many unpublished reports were sometimes lost in the countries themselves a few years after the studies had been conducted.

D. DENTAL SERVICES, CARE AND EQUIPMENT PROBLEMS: STRATEGIES FOR THE PACIFIC

14. The regional study (attached as Annex 3) underscored the lack of funds in many island countries for dental care and, in particular, the shortage of suitable equipment as well as the existence of considerable problems relating to maintenance of dental equipment.

15. The concept of standardising equipment was attractive but difficult to put into practice, since many factors specific to each country needed to be taken into account. These factors could be economic and political as well as technical, e.g. some countries enjoyed privileged trade relations with metropolitan countries while others were short of resources.

16. Some metropolitan countries, such as New Zealand and Australia, were able to buy equipment through bulk purchasing bodies; many participants suggested that SPC should either act as a regional purchasing body or as a clearing-house for information on countries' needs and on international or regional suppliers able to meet these requirements. By creating competition between suppliers, lower prices and sometimes even training of technicians for the buyer countries could possibly be obtained. International dental meetings provided excellent opportunities for purchasing materials and equipment at very competitive prices.

17. Some participants expressed their satisfaction with the roving technicians' visits organised by WHO, but many countries did not have the benefit of such a visit. In view of the current diversification of equipment, it was desirable to train local technicians. It was also important that practitioners be trained in basic preventive procedures for maintenance of equipment.

E. PREVENTION OF ORAL DISEASES

18. To promote dental hygiene the participants strongly urged governments to exempt toothpaste and toothbrushes from import and sales taxes. The adverse effect on the level of dental hygiene greatly outweighed the small amount of income generated from such taxation.

19. Concern was expressed over the introduction of smokeless tobacco in the region. Because of its relationship with mouth cancer it has been banned from countries such as the United Kingdom.

20. Participants supported the current WHO fellowship programme which provided training in the prevention of oral diseases for dental personnel in Guam, Singapore and Malaysia.

21. The increasing consumption of sugar in soft drinks, sweets and refined carbohydrates was a concern. Dental services needed to be involved in school nutrition education programmes, community awareness campaigns, and Food and Nutrition Committees to influence national policies.

22. Dental disease prevention relies heavily on efficient health education methods. Education materials must be culturally and socially appropriate. When initiating dental health education one must first make a community diagnosis of the knowledge, attitudes and practices of the target audience. All communication channels must be employed in planned campaigns using interpersonal communication and mass media.

23. Several Island school dental programmes had long relied on regional organisations to supply toothbrushes and paste for distribution, but had to stop this practice when the external support ceased. The relatively high cost of commercial toothpaste in a family budget was discussed and the value of dispensing free samples was questioned.

24. Dental sealant programmes have been very effective in all countries which adopted them, reducing the incidence of decayed, missing and filled teeth by up to 50 per cent; however the cost involved and the training requirements often limited their general use.

25. Systemic fluoridation through community water supplies or fluoridated salt was effective although impractical in most Pacific Islands. Dietary supplements for children suffered from a lack of compliance by parents. Topical fluoride applications (gels, solutions, prophylactic paste, varnishes) were too labour intensive for understaffed dental programmes. Fluoride toothpaste and mouth rinsing programmes were usually the preferred methods.

26. There was a sense of pessimism amongst many participants who were experiencing long-term difficulties with their prevention programmes. Lack of proper planning based on monitoring oral health status in the community, lack of practical objectives and evaluation of interventions were often to blame.

27. The highest priority in most countries was placed on treatment with little time available for prevention programmes. Despite plans for prevention, limitations in human and financial resources often prohibited preventive activities.

F. SETTING UP PREVENTIVE PROGRAMMES: PROBLEMS AND SOLUTIONS

28. This was discussed in three workshops. The main problems mentioned by the countries were related to lack of funds and lack of staff. In addition, the scattered nature of island groups of many countries entailed high transport costs. The great majority of countries were short of personnel with no real immediate solution in view due to the general lack of funds for training.

29. It was difficult, and sometimes impossible, to carry out proper fluoridation of community water supplies, as topical fluoride applications were labour intensive. From the technical viewpoint, countries encountered two major difficulties: choosing the preventive programme to be set up and maintaining an efficient long-term programme.

30. The first priority was to ensure, even with scant resources, the good oral and dental health of future generations. The long-term goal should be to bring about a decline in oral and dental diseases by urgently educating the younger population groups and by organising primary prevention for the youngest children, with the help of parents and teachers.

31. It appeared that some of the failures of dental programmes in fact stemmed from the multitude of specific technical skills required of a single, isolated dentist (fluoridation, nutrition, health education, etc.). It should be possible to call on the services of appropriate specialists more often through other national health staff and regional organisations such as the SPC, particularly in connection with preventive programmes.

32. Preventive programmes should be implemented for the following groups:

(a) Children with low level of caries (DMF $\leq$ 1): dental health education, brushing (with fluoride), plaque control;

(b) Children with moderate level of caries (DMF $\leq$ 3): dental health education, brushing, rinsing, sealant for children at high risk of caries;

(c) Children with high level of caries (DMF >3): dental health education, brushing, rinsing, sealants and topicals, fluoridated water (when possible);

(d) Adults: dental health care, dental health education (community), brushing and self-care, preventive yearly dental care visits.

33. Considering the specific problems of the South Pacific region (population, environment, manpower and equipment), it was recommended that the following priority actions be adopted:

(a) dental health education promoting self care on a daily basis for a large range of the population, especially children;

(b) control of dental caries and periodontal diseases through education, brushing, fluoride and sealant, scaling, etc.;

(c) implementation, by all means at our disposal, of a ban on smokeless tobacco in the Pacific, in view of the increased risk of cancer it involves.

34. All dental programmes were to be established with clear objectives and evaluation of programme effectiveness.

G. FIELD VISIT

35. Visits were made to several dental practices in Noumea and in Paita, a semi-rural centre. Participants saw both highly sophisticated and simple, easy-to-maintain equipment in various private practices. Participants also visited non-profit insurance companies serving public servants and workers of the Nickel Mining Company (SLN), to observe and discuss their insurance systems. School dental programmes could not be visited because of the mid-term school holidays. The stomatology and oral surgery unit of the Territorial Hospital Gaston Bourret was also visited.

H. DENTAL EDUCATION, TRAINING AND MANPOWER IN THE SOUTH PACIFIC

36. There was no current dental training programme available for dental officers within the Pacific Island region, with training being done in Australia, New Zealand, the United Kingdom, France and the United States. The suspension of the Fiji School of Medicine course and of the University of Papua New Guinea dental officer's programme was due to lack of funding to run these courses and also to the limited number of students enrolled to undertake such dental training.

37. Participants noted that the sophisticated training of dentists in overseas universities was not appropriate to the needs of the Pacific Islands. These highly qualified dentists would not often be able to apply their skills at the grass-roots level and this type of care would also be very expensive. Such training was also associated with a very high drop-out rate. In addition many graduates did not return to their countries and few of those that did return actually made use of their new skills.

38. Training dental therapists in the region was more appropriate for the basic oral and dental health needs of the Pacific Island countries, and also affordable.

39. The meeting strongly supported the re-establishment of a dental training programme for dental officers within the Pacific Island Region. The estimated number of Pacific Island students in dental training for the years 1991—95 is presented below (Table 1). There was a need to train around 24 dental officers per year for the next five years and 51 dental therapists per year for the next three years.

40. There were enough potential trainees to fill at least the Fiji and Papua New Guinea dental school programmes. The Micronesian Dental Association had also made some inquiries about starting dental training in Pohnpei following the current medical officer programme.

41. The meeting felt that the training offered should be of international standard to attract potential candidates.

I. REPORT ON THE RECOMMENDATIONS OF THE SECOND TMCDO

42. The action taken on the recommendations was presented by the Secretariat and endorsed by the meeting. Three of the recommendations had not been directly implemented by SPC but were achieved by member governments and research institutions such as the New Zealand Medical Research Council Dental Research Unit. These included studies among school children in French Polynesia using highly fluoridated toothpaste (Recommendation no. 3), a study of the cariogenicity of milk biscuits (Recommendation no. 5) and a pilot preventive project for periodontal diseases in Tonga (Recommendation no. 7). Reports on the field trial conducted with Dr Cutress from 1986 to 1989 in Tonga were to be forwarded to member countries in the near future.

J. FUTURE OF THE SPC DENTAL HEALTH PROGRAMME

43. The meeting outlined the impressive level of assistance provided by the SPC Dental Programme to its member countries from 1970 to 1985 (detailed in Information Paper 3). In the past, the presence of a dental officer within SPC had contributed greatly to raising the standard of dental health in the South Pacific region.

44. The representatives expressed the need for a regional dental officer dedicated to the Pacific Islands to co-ordinate dental activities and provide the continuity that was lacking with short-term consultants. The meeting requested that SPC act as a clearing house for information and prevention materials and provide support in English and French.

TABLE 1: ESTIMATED NUMBER OF PACIFIC ISLAND STUDENTS IN DENTAL TRAINING - 1991-95

	DENTAL OFFICERS					DENTAL THERAPIST					
Country	1991	1992	1993	1994	1995	In country	Overseas training	Can accept students	1991	1992	1993
American Samoa	2	1	1	1	1	-	+		2	2	1
Cook Islands	1	0	1	0	1	-	+		2	0	0
F.S.M.	4	3	3	2	1	-	+		16	11	10
Fiji	4	4	4	4	4	+		++	4	3	2
French Polynesia	0	0	0	0	0				10	0	0
Guam	0	0	0	0	0			++	0	0	0
Kiribati	2	2				-	+		2	1	1
Marshall Islands	1	1	1	1	1	-	+		1	1	1
Nauru	1	1	1	0	0	-	+		0	0	0
New Caledonia	0	0	0	0	0	-	+		0	0	0
Niue	1	0	0	1	0	-	+		0	0	1
Northern Mariana Islands	5	1	0	0	0	-	+		4	2	2
Palau	2	2	1	1	1	-	+		2	1	3
Papua New Guinea	10	3	3	3	3	+		++ (10)	6	6	6
Pitcairn	0	0	0	0	0	-	+		0	0	0
Solomon Islands	2	2	2	2	2	-	+		2	2	2
Tokelau	0	0	0	0	0	-	+		0	1	0
Tonga	2	3	2	1	1	+			-	6	-
Tuvalu	1	1	1	1	1	-	+		1	1	1
Vanuatu	1	1	1	1		-	+		2	2	2
Wallis and Futuna	0	0	0	0	0				2	0	0
Western Samoa	2	2	1	0	0	+	-	++ (6)	-	15	0
Australia								++			
France								++			
New Zealand								++ (5)			
United-Kingdom								++			
USA								++			
TOTAL	41	27/68	22/90	18/108	14/122				68	54/122	32/154

- Not available; + Available; ++ Students accepted from other countries.

45. The meeting emphasised the importance of the SPC dental health programme to the region and suggested its priorities be to:

— Enhance regional communication, collaboration and co-operation in the field of oral and dental health;

— Provide assistance and advisory services to member countries on the development of dental education programmes both at undergraduate and postgraduate level;

— Act as a resource centre for dissemination of dental information within the region, with emphasis on:

  (a) Publications of general interest, production of a dental newsletter and regular information papers for member countries,
  (b) AIDS and infectious disease information relevant to oral health,
  (c) Training (regional and international),
  (d) Dental manufacturers, supplies and equipment,
  (e) Oral health policies,
  (f) Sources of financial and other assistance available to oral health services.

— Advise member countries on appropriate strategies for planning, monitoring and evaluating oral health services, with special emphasis on programmes for the prevention of oral disease;

— Co-operate with WHO to ensure complementary oral health programmes within the region;

— Support appropriate oral health research in member countries and encourage the use of standard survey methods in accordance with WHO recommendations;

— Convene and support meetings, both in-country and at SPC, of dental health personnel;

— Represent the views of regional dental officers within the Asia Pacific Dental Federation, and encourage its work in the Pacific;

— Examine the feasibility of establishing a position of field technician to maintain dental equipment within the SPC region.

46. The Secretariat presented the administrative and financial constraints of such a programme. The process for hiring of SPC staff was detailed; some participants expressed their support for involving dental specialists in the selection of a suitable candidate. A duty statement was proposed and is attached as Annex 2. The proposed relationship of such a programme with those run by WHO was discussed. The particular strengths and complementary nature of each organisation's work should be stressed. The SPC's role should be to work closely with island dental health officers in order to promote continuity and the rapid implementation of new initiatives.

47. The proposed staffing for the SPC programme was discussed. The positions should include a Dental Public Health Adviser, with qualifications as detailed in Annex 2. In addition a Dental Health Promotion Officer should be appointed to assist in the area of oral disease prevention. Secretarial support will be required to assist with communication of information and administrative matters.

K. SOUTH PACIFIC DENTAL SECRETARIAT

48. This association formed in 1972 was first based in Fiji, then in Western Samoa. It aimed at international recognition of Pacific dentists and is affiliated with the International Dental Federation (FDI). The association has had difficulties in getting affiliations from the dental officers and is now at a standstill. The possibility of using the SPC Dental Public Health Adviser as

the executive officer for the secretariat was raised. This would offer the administrative support required for active co-ordination. The chief dental officers met later in a closed session and elected Dr Ronald Ziru as the new Chairman of the secretariat and Dr Bais Gwale as Vice-Chairman.

L. COMMUNITY PERIODONTAL DISEASE PREVENTION

49. The result of the three-year field trial held in Tonga from 1986 to 1989, presented by Dr Cutress, showed that regular oral hygiene — especially brushing the teeth — could mean a significant improvement in a community's periodontal health. This improvement was more marked in older adults if calculus (mineralised dental plaque) was removed. The findings indicate that involvement and encouragement by community leaders in promoting good dental habits would improve oral health in the community.

M. CARIES PREVENTION

50. Dr Frew summarised the current incidence of caries around the world. The etiology of caries, and the role of fluorides and dental sealants in the prevention of caries on smooth and pit and fissure surfaces were reviewed. The appropriate use of these two techniques, their methods of application and their expected effectiveness in the South Pacific region were covered. The use of epidemiological methods to determine the need to implement caries preventive programmes and evaluate the effectiveness of on-going programmes was emphasised.

N. EVALUATION OF PROGRAMMES

51. Professor Barnard emphasised the need to use simple indices in monitoring and evaluating dental health programmes. Goals had to be set and their attainment documented. Any evaluation was to address the effectiveness, efficiency, appropriateness and adequacy of dental programmes.

O. NEXT TECHNICAL MEETING

52. The first meeting held in Noumea in 1978 recommended that TMCDO be held every three years. The second meeting was held at SPC headquarters in March 1982. The third meeting, originally planned for 1985, had to be postponed when the SPC dental programme was temporarily suspended.

53. The participants felt that these meetings provided a forum for discussion, continuing education, exchanges and information on individual countries' programmes.

54. In the event of the reactivation of the SPC dental health programme in 1991, as recommended by this meeting, the next meeting was tentatively scheduled for early 1992 to follow the appointment of the new Dental Public Health Adviser. Since the Asia Pacific Dental Federation will meet in February 1992 in Auckland, the meeting recommended that SPC explore the possibility of holding the two meetings back to back since a number of dental officers would be attending the Asia Pacific meeting.

IV. RECOMMENDATIONS

The meeting made the following recommendations:

STATUS OF ORAL HEALTH

Recommendation no. 1

It is recommended that all countries carry out regular epidemiological surveys and surveillance using the same standardised data collection systems, as defined by WHO, to facilitate planning and evaluation of dental programmes.

Recommendation no. 2

In countries where betel nut chewing is a common practice, it is desirable to increase community awareness and to intensify screening of pre-cancerous lesions of the oral cavity by dental and general health personnel.

Recommendation no. 3

Because of its known association with mouth cancer it was agreed that Chief Dental Officers within the SPC countries would advise their governments to ban the importation of oral smokeless tobacco into their countries.

DENTAL SERVICES, CARE AND EQUIPMENT

Recommendation no. 4

Each Island country should work towards standardising dental equipment to allow for maintenance and repair. This would assist with the in-country training of technicians.

Recommendation no. 5

SPC should develop and maintain a database of manufacturers, suppliers and purchasing organisations, for dental materials and equipment suitable for use in Island nations.

PREVENTION OF ORAL DISEASES

Recommendation no. 6

All Island countries should develop a national dental health plan. The plan should include information on dental status, problems and resources, set targets and propose appropriate activities. Methods to measure progress towards targets must be integrated in the plan.

Recommendation no. 7

Dental health policies should be elaborated in close collaboration with other sectors such as agriculture, education, law and media. Activities should be implemented with the co-operation of other public health sectors such as statistics, health education, environmental health, nutrition, Maternal and Child Health and hospital services.

Recommendation no. 8

Where dental caries is increasing, prevention should be implemented through the use of appropriate fluorides, for example fluoride toothpaste, water fluoridation and fluoride tablets.

Recommendation no. 9

Information on success and failures of current preventive programmes should be documented and shared between Island nations.

DENTAL TRAINING

Recommendation no. 10

The meeting strongly supports the re-establishment of dental officer training schools within the Pacific Islands. The meeting considers that there will be a demand from Island countries for about 24 dental officers to be trained per year for the next five years. The meeting urges that the unique needs of the Pacific Islands and of the individual countries be taken into account in the design of the dental officer training curriculum. A substantial component of public health, communication skills, programme planning and evaluation should be included.

Recommendation no. 11

The meeting recommends that the qualification to be conferred by the dental officer training schools should be of such quality that it permits international recognition.

Recommendation no. 12

Governments are urged to support the reopening of the dental schools with a commitment to send their students to these schools when reactivated.

Recommendation no. 13

Dental therapists will continue to have an important role in the delivery of dental care and preventive services in the Pacific Islands. Current training courses should be maintained. Where possible, training courses for therapists should be associated with training courses for dental officers.

FUTURE OF THE SPC DENTAL PROGRAMME

Recommendation no. 14

The Third Regional TMCDO meeting unanimously adopted the resolution that the SPC Dental Programme be reactivated. The dental work programme should take as priorities the following :

— enhance regional co-ordination,
— support training and other educational programmes,
— disseminate information,
— advise on programme planning, monitoring and evaluation,
— support appropriate research,
— liaise with other organisations including WHO, Asia Pacific Dental Federation, Unicef,
— liaise with and support the South Pacific Dental Secretariat.

Recommendation no. 15

A Dental Public Health Adviser should be appointed at the earliest possible opportunity together with an additional dental staff member to assist in the area of prevention and oral health promotion. Adequate secretarial support should be provided to assist with communication and information matters. The Dental Public Health Adviser should be a dentist qualified in Public Health with experience in the Pacific Islands as detailed in Annex 2.

Recommendation no. 16

It is recommended that the next Technical Meeting of Chief of Dental Officers be held before the usual three year interval and if possible early in 1992. The South Pacific Commission Secretariat should consider holding the next TMCDO immediately after the February 1992 meeting of the Asia Pacific Dental Federation which will be held in Auckland, New Zealand.

V. LIST OF PAPERS PRESENTED AT THE MEETING

Working Papers

SPC/Dental Health 3/WP.1 Report on the implementation of the recommendations of the Second Regional Technical Meeting of Chief Dental Officers — Secretariat

WP.2 Dental services, care and equipment problems: strategies for the Pacific — presented by Dr Makasini Malolo

WP.3 Prevention of oral health diseases in the South Pacific — presented by Mrs Letupu Hunt

WP.4 Dental education, training and manpower in the South Pacific — presented by Dr Ronald Kuba Ziru

WP.5 Fluoridation — Secretariat

WP.6 Status of oral and dental health in the South Pacific — presented by Dr Jean-Paul Gaugin

WP.7 Diet and dental caries prevention in the Pacific — Secretariat

WP.8 Country statement — Republic of Nauru

WP.9 Country statement — Tonga

WP.10 Country statement — Niue

WP.11 Country statement — Vanuatu

WP.12 Country statement — Cook Islands

WP.13 Country statement — Western Samoa

WP.14 Country statement — American Samoa

WP.15 Health communication — Secretariat

WP.16 Country statement — Northern Mariana Islands

WP.17 Country statement — Guam

WP.18 Country statement — Fiji

WP.19 Country statement — Tuvalu

WP.20 Country statement — Papua New Guinea

WP.21 Country statement — Kiribati

WP.22 Country statement — Federated States of Micronesia

WP.23 Country statement — Republic of Palau

WP.24 Country statement — Marshall Islands

WP.25 Country statement — Australia

WP.26 Country statement — New Caledonia

WP.27 Country statement — Solomon Islands

Information Papers

SPC/Dental Health INF.P/1 The SPC Dental Health Programme — history and prospects — Secretariat

INF.P/2 The training of supervisors in 'first-day orientation techniques' — Secretariat

INF.P/3 Past assistance received by countries from SPC in the oral health areas — Secretariat

INF.P/4 Country statement — Tuvalu (additional to WP.19)

INF.P/5 Proposal for the re-establishment of the post of the Dental Public Health Adviser and the Dental Health Programme in the SPC Budget and Work Programme — presented by Dr Ludwig Keke

ANNEX 1

WELCOMING ADDRESS BY MR ATANRAOI BAITEKE, SECRETARY-GENERAL, SOUTH PACIFIC COMMISSION

It is always a pleasure to welcome you to the South Pacific Commission and to this Third Regional Meeting of Chief Dental Officers. The first meeting was in April 1978 and the second was in April 1982.

You are well aware that SPC used to have a dental health programme between 1970 and 1985. Most of you would have been involved in its activities as well as in previous SPC technical meetings. This programme provided assistance to all our island members in the form of dental surveys, implementation of prevention projects, training of dental staff and publication of educational materials. This programme was managed by a Dental Public Health Officer with the assistance of many dedicated consultants. Today we have the privilege to have with us the last Dental Officer, Dr Keke, and several of our former consultants.

Following the suspension of the programme for financial reasons, several countries continued to ask SPC for technical and financial assistance, especially to conduct training workshops in preventive dentistry.

The 1988 evaluation of the SPC Health Programme recommended that high priority be given to a regional assessment of dental health concerns and needs and that SPC host a regional meeting on dental health to discuss regional strategies and propose a plan of action.

This recommendation was approved by the Twenty-eighth South Pacific Conference in the same year.

To fulfil these undertakings, I wish to express my appreciation to the French Government for its timely and generous provision of extra-budgetary funding for the review and for this third regional meeting. This has enabled the SPC to appoint four short term dental consultants: Dr Ronald Ziru from Solomon Islands, Dr Makasini Malolo from Tonga, Dr Jean-Paul Gaugin from New Caledonia and Mrs Letupu Hunt from Western Samoa. They visited most of the island countries in May and June this year and prepared background papers on major oral health issues for your review.

Three hundred years ago the early explorers such as Captain Cook found for example that Tahitians had 'all fine white teeth' and that Tongans 'had fine eyes and in general good teeth even to an advanced age'. These observations were generally true in most if not all countries of the region at that time.

However in the 1950s the islands' oral health worsened and this was largely because of the excessive consumption of 'modern' diets rich in sugars and insufficient consumption of local foods, as well as poor oral hygiene practices. Through preventive approaches in the 1970s and 1980s the dental health status has generally remarkably improved in a number of islands. One would hope that the goal recommended for all countries at the Regional Dental Meeting in 1978, i.e. 'Natural teeth for a lifetime' is still not impossible to achieve!

All of us present here today are well aware of the importance of preventive and curative aspects of dental health. They are intertwined with other aspects of health such as NCDs (obesity, diabetes, hypertension, gout, alcohol-related diseases, cancer and many others). Because of the interrelationship amongst them, I believe that a well co-ordinated integrated approach will yield better results.

To effect this would mean the full co-operation of all of us, i.e. the dental scientists, the administrators, the people and governments we serve.

We must also include as well, important governments and organisations which provide the experts and the financial support. Financial support and goodwill are very important for any worthwhile undertaking.

I hope you include in your discussions the difficult dentist and patient relationship, whereby a patient treated is 'known' to be an AIDS carrier. If the dentist catches the virus due to treatment of such a patient, can he sue his patient, the family, or the government? Or, is it the patient only that can sue the dentist?

The participation of so many chief dental officers at this meeting shows your commitment to the development of in-country collaboration for improved oral health in your countries. I am very glad to see so many of you today. Your countries have requested SPC to conduct this dental review and our consultants have received very warm and encouraging support when visiting your countries.

Together with well-known and respected colleagues from other regional organisations, from research and training institutions, I trust that you will use this remarkable forum to launch new innovative ideas and projects and strengthen our commitment to act all together for the better dental health of our island people.

I can assure you of my personal commitment to support your recommendations at the next South Pacific Conference.

I wish you a very constructive meeting.

ANNEX 2

QUALIFICATIONS FOR SPC DENTAL PUBLIC HEALTH ADVISER (P1 LEVEL)

The following qualifications are recommended for the SPC Dental Public Health Adviser:

1. Recognised qualification in dentistry from an approved institution.

2. Candidate must have a record of achievement in the fields of public health and management of dental programmes within the South Pacific region.

3. A postgraduate qualification in public health is desirable.

4. Candidate should be able to communicate in any one of the common languages used in the Pacific.

5. Candidate should have a wide range of associations with dental, medical, aid, commercial, intergovernmental and other fields.

QUALIFICATIONS FOR SPC DENTAL HEALTH PROMOTION OFFICER (P4 LEVEL)

The following qualifications are recommended for the SPC Dental Health Promotion Officer:

1. Experience in oral health promotion programmes in the South Pacific.

2. A qualification in dental therapy, dental hygiene, dental health education or other dental health promotion discipline.

3. Proven ability in the production of information and text processing.

4. Fluency in English and knowledge of French would be an advantage.

ANNEX 3

DENTAL SERVICE, CARE AND EQUIPMENT PROBLEMS: STRATEGIES FOR THE PACIFIC

(Paper presented by Dr Makasini Malolo, SPC Consultant)

INTRODUCTION

1. The Twenty-eighth South Pacific Conference recommended that the dental health concerns and needs of SPC countries should be assessed.

2. Subsequently this paper was produced by a team of four dental consultants who visited most of the SPC island member countries between May and June 1990. Their purpose was to assess the region's dental health concerns and needs. It deals with dental services priorities, allocations of dental budget, availability of dental care, and dental equipment problems.

3. Appropriate strategies and possible solutions in the above areas are recommended for consideration and to assist discussion in an endeavour to improve the dental health of the region.

SITUATION ANALYSIS

4. The dental services in the islands vary from one country to another in type, scope, standard and coverage depending on the following factors:

— state of economic development;

— availability of resources;

— perception of dental health amongst the population;

— size of the country;

— health policies and directives.

5. Routine dental care is the top priority of the dental services in most island countries followed by dental public health, manpower training and expansion of dental clinics. But in terms of their future needs as expressed by each country, both manpower training and dental public health were the top priority followed by routine dental care and expansion of the dental clinic. (Attachment I).

6. In the allocation of the Dental Budget, curative services consume the bulk of the budget with the rest for preventive services. The allocation for dental research is almost non-existent (Attachment II). However, assistance is normally provided to approved dental research in some islands.

7. The allocation for the salaries of the dental workforce takes the bulk of the budget followed by materials and equipment (Attachment II). Some countries have a budget item for medicine and drugs but most countries obtain them from the hospitals or dispensaries.

8. In the provision of dental care, the percentage coverage of the dental services in the region varies from 20 to 100 per cent (Attachment III).

9. A 24-hour emergency dental service is provided by the government in most countries (Attachment III).

10. In the provision of remote island dental services, 12 out of 18 countries have a regular service (Attachment III). And six countries have irregular services due to manpower shortage, financial or transport constraints or even meteorological reasons.

11. The financing of the dental services in the islands comes from three major sources namely government, private and external (Attachment IV). Most of the dental services are funded by the government through annual budget allocations with additional assistance from international donor agencies. Such agencies include WHO, UNDP, USPHS, Region IX, AIDAB, French Aid, NZ Bilateral Aid, British Aid, etc. (Attachment IV).

12. In countries where private practice is dominant, funding is provided by private health insurance companies such as FHP (Family Health Plan), SDA (Seventh Day Adventist) and GMHP (Guam Memorial Health Plan). As a result, the public dental health service, which is almost 100 per cent funded by government, can afford to provide more preventive dental service to the public and also to provide limited care for the economically disadvantaged groups such as children, the handicapped, prisoners, elderly and indigent people who are not part of the cash economy.

13. In the region, existing dental equipment has the following specific problems, namely installation, care and maintenance, replacement and others (Attachment V).

14. Eleven out of 19 countries have installation problems. These are either due to unavailability of competent technicians or biomedical engineers or the fact that the equipment purchased or donated is obsolete. The countries with no installation problems usually have access to the services of an equipment technician and have standardised their equipment.

15. Care and maintenance is a major problem in 16 out of the 19 countries visited. This is due to the non-standardising of their dental equipment and also to the lack of a competent equipment technician. There are very few countries which have their own dental equipment maintenance technician on their staff or have access to a technician from dental companies.

16. Replacement of dental equipment is a problem in 14 countries. This is due to lack of funds, poor co-ordination and planning. Replacement of identical dental equipment can be a problem when the overseas manufacturing company ceases operations.

17. Other specific problems related to equipment which 11 of the 19 countries specified include space-utilising problem, difficulty in getting spare parts, the high cost involved in procurement of spare parts, different types of equipment, the problem of the technician and the use of inappropriate technology. The problem of getting spare parts can be further compounded by the closure of the dental manufacturing company.

MAJOR REGIONAL PROBLEMS

18. The major regional problems relating to dental services are manpower training, overemphasis on curative services, inadequate funding, poor equipment maintenance and organisation.

Manpower training

19. Manpower training, especially for dental officers, is a major problem in the region. This is partly due to the discontinuation of the dental officer training programme in Fiji and the dental school in Papua New Guinea. This is discussed in a separate working paper.

Overemphasis on curative services

20. Concentration of resources on curative dental services is common in almost all of the countries visited. This is reflected by the allocation of the dental budget (Attachment II) and the fact that routine dental care is the top priority of the existing dental services in the region (Attachment I).

Inadequate funding

21. The problems of financing dental health services in the region could be due to many factors including the high demand for dental care, lack of funds, incorrect distribution of dental health resources, rising costs, lack of co-ordination and inefficiencies in spending. In addition, the costs for dental equipment and materials are escalating and this depletes a small dental budget rapidly. Also the dental services in the islands are invariably free to all citizens. If they charge for the dental care rendered, it is minimal and does not cover costs.

POOR EQUIPMENT MAINTENANCE AND ORGANISATIONAL PROBLEMS

22. Materials and equipment are vital for the provision of dental services. However, equipment problems appear to be widespread in the region. Most of the countries have specific equipment problems such as installation, care and maintenance, and replacement of their dental equipment (Attachment V).

23. Apart from the high cost involved, the delay in receiving spare parts and the use of inappropriate technology can cause wastage and inefficiencies in the provision of dental services.

24. Lack of materials and equipment can be a source of frustration and low morale for well qualified staff. This is due to knowing what to do but being unable to do it because of faulty dental equipment and lack of material.

25. There are organisational problems in the region especially with the co-ordination of available resources. It was observed that some countries have problems with conditions of service and morale. However, in-country action plans to avoid a 'brain drain' of their staff caused by premature retirement, change of career or leaving for better paid jobs have been considered by some countries as a possible solution to their problems.

STRATEGIES

26. Proposed solutions are outlined below:

27. **Manpower Training**: (See working paper on this issue — Annex V.)

28. **Funding**: Funding for dental health services in the region could be improved by adopting one or more of the following:

— Extending the existing sources of finance
— Developing new sources of finance
— Introduction of compulsory health insurance
— Local community efforts
— Foreign assistance
— Reduction in spending on services of lower priority
— Increasing efficiency
— Other methods of financing e.g. lotteries

Equipment

29. There are several ways suggested to solve equipment problems in the region, namely by standardising equipment, employing roving technicians, and establishing a regional dental purchasing body.

Standardising Equipment

30. Standardising equipment is believed by 16 countries to be the answer to their problem. Only 3 countries disagreed because they do not have the funds to afford to get rid of their old equipment and they also believed that this solution could be foolish especially if a manufacturing company is suddenly closed. Some countries have standardised while others believe it takes away the preference of the individual operator.

31. Standardising equipment is definitely feasible in the region. It has advantages such as spare parts, care and maintenance, and installation. The appropriate time to standardise equipment is when replacement is needed or when ordering new equipment. Equipment purchased on an Aid Project, which is usually tied to the donor country's own manufacturer, ought to fit in with existing equipment.

32. Regional organisations can play an important role here in providing technical advice and information. This can be done through collaboration and the establishment of relationships with four or five reputable dental companies which make and supply dental equipment to the region. They can also establish a system for purchasing equipment and materials from such selected companies. Hence information relevant to procurement can be made available to member countries.

Maintenance Technician

33. Some dental companies can provide a maintenance technician on request. The service is often free but when warranty expires, payment is needed.

34. Sixteen countries agree that regional support is required for maintenance of equipment with only three countries disagreeing. Roving technicians could be an interim solution because very few countries have their own maintenance technician on their staff. These roving technicians would be able to provide repair and maintenance to member countries.

35. The roving technicians should have a counterpart in each country. This would allow on-the-job training and the organisation of training workshops at regional, sub-regional and in-country levels.

36. The roving technicians can advise member countries on equipment replacement, procurement of suitable equipment and indicate a reputable supplier who can provide such equipment at the lowest cost.

37. These technicians could be seconded from metropolitan or island countries or dental equipment manufacturers. However, the feasibility of having permanent technicians based in a regional organisation should be investigated.

Regional Dental Purchasing Body

38. From the evaluation, 17 out of 19 countries agreed that such a regional body would be of great benefit to the region. All would agree if it provided services cheaper than existing arrangements. There are some disadvantages however because such a body would require

expensive infrastructure such as a central bulk store and sub-regional outlets and staff. Furthermore national interests often take precedence over regional initiatives. Despite these comments, the idea is still worth considering.

CONCLUSIONS

39. (a) Adequate manpower, money and materials are vital components of any dental service. They are interdependent and invariably scarce, and require constant care and review to ensure that maximum utilisation and benefits are realised.

(b) There is an urgent need for better management of scarce resources, reallocation of resources, development of appropriate dental programmes, expansion of dental services (clinics), and appropriate dental manpower development and training.

(c) Regular evaluation and planning of resource allocation, programme development, clinic expansion and appropriate manpower development and training should always be undertaken.

RECOMMENDATIONS

40. The meeting is invited to consider the following suggestions:

1. Member countries should plan to standardise their dental equipment.

2. Regional bodies should establish contacts with appropriate dental companies in order to provide technical advice to island member countries.

3. Roving technicians, providing technical assistance and advice on the purchase and maintenance of dental equipment in the Pacific, could be considered as an interim measure.

4. A feasibility study should be conducted on the establishment of a regional dental purchasing body.

5. Funding for dental services, service priorities and management capability should be constantly reviewed.

ATTACHMENT I

CURRENT AND FUTURE PRIORITIES OF DENTAL SERVICE

Country	Dental Public Health '		Routine Dental care		Expansion of dental clinic		Manpower Training	
	Current	Future	Current	Future	Current	Future	Current	Future
American Samoa	2	3	1	2	3	4	4	1
Cook Islands	2	1=	1	2=	3	1=	4	2=
FSM	2	2	1	3	4	4	3	1
Fiji	1	2	3	3	4	4	2	1
French Polynesia	1	1	2	2	4	4	3	3
Guam	1	2	2	3	3	4	4	1
Kiribati	3	2	1	3	3	4	2	1
Marshall Islands	2	2	1	3	4	4	3	1
Nauru								
New Caledonia	3	1	1	3	4	2	2	4
Niue								
Northern Mariana	1	2	2	3	4	4	3	1
Palau	1	2	2	3	4	4	3	1
Papua New Guinea	3	1	1	3	4	4	2	2
Pitcairn								
Solomon Islands	2	1	1	3	3	4	4	2
Tokelau	4	2	1	1	3	4	2	3
Tonga	3	1	1	2	4	4	2	3
Tuvalu	3	2	1	4	4	3	2	1
Vanuatu	2	3	1	2	3	4	4	1
Wallis and Futuna	2	1	1	2	4	4	3	3
Western Samoa	2	2	1	3	4	4	3	1
TOTAL	38	33	25	50	69	70	55	33
ORDER OF PRIORITY	2	1=	1	2	4	3	3	1=

ATTACHMENT II

PERCENTAGE ALLOCATION OF DENTAL BUDGET

	BY AREA			BY BUDGET ITEM		
Country	Curative	Preventive	Research	Material & equipment	Medicine & drug	Salaries
American Samoa	65	30	5	30	0	70
Cook Islands	94	6PR		12	6	82
FSM	80	20	0	18	0	82
Fiji	67	33	0	18	0	82
French Polynesia	70	30	0	29	7	64
Guam	45	55	0	20	0	80
Kiribati	90	10	0	30	10	60
Marshall Islands	80	20	0	25	10	65
Nauru						
New Caledonia	80	20	0	NA	NA	NA
Niue						
Northern Mariana	60	40	0	20	0	80
Palau	60	40	0	20	0	80
Papua New Guinea	83	17	0	14	7	79
Pitcairn						
Solomon Islands	69	30	1	20	0	80
Tokelau	NA	NA	NA	NA	NA	NA
Tonga	84	16	0	18	3	79
Tuvalu	95	5	0	20	0	80
Vanuatu	70	3	0	15	5	80
Wallis and Futuna	100	5	0	NA	NA	NA
Western Samoa	65	30	5	21	4	75

ATTACHMENT III

DENTAL CARE

Country	Percentage Country coverage of dental service	24 Hour Emergency dental service	Regular remote island dental service
American Samoa	NA	Yes	No
Cook Islands	100	Yes	Yes
FSM	80–85	Yes	Yes
Fiji	90	Yes	Yes
French Polynesia	100	No	Yes
Guam	100	No	No
Kiribati	50	No	Yes
Marshall Islands	75	Yes	Yes*
Nauru			
New Caledonia	50	No	Yes
Niue			
Northern Mariana	100	Yes	No
Palau	NA	NA	NA
Papua New Guinea	55	No	Yes
Pitcairn			
Solomon Islands	20	Yes	No
Tokelau	NA	Yes	Yes
Tonga	62	Yes	Yes
Tuvalu	57	Yes	Yes
Vanuatu	NA	Yes	No
Wallis and Futuna	100	No	No
Western Samoa	68	Yes	Yes

ATTACHMENT IV

ADDITIONAL FINANCING OF DENTAL SERVICE

Country	Private	External
American Samoa		US Department of Interior, WHO
Cook Islands	x	WHO, AIDAB, NZ Aid, US, CIDA, German Aid
FSM	x	WHO, UNDP, MCH, Head Start, USPHS, Region IX, UNICEF
Fiji	x	
French Polynesia	x	French Aid, WHO
Guam	x	USPHS, Region IX, Procter & Gamble
Kiribati		WHO, French Aid, NZ Aid, UK Aid
Marshall Islands		WHO, UNDP
Nauru		
New Caledonia	x	French Aid
Niue		
Northern Mariana	x	WHO, Region IX, USPHS, MCH, Head Start
Palau		WHO, Region IX, MCH, Head Start
Papua New Guinea	x	WHO, AIDAB
Pitcairn		
Solomon Islands	x	WHO, UK Aid, NZ Aid, EEC
Tokelau		
Tonga	x	WHO, AIDAB, NZ Aid
Tuvalu		WHO, NZ Leper Trust Board, NZ/Tuvalu Red Cross
Vanuatu	x	WHO
Wallis and Futuna		French Aid
Western Samoa		WHO, NZ Aid

ATTACHMENT V

SPECIFIC PROBLEMS OF EXISTING DENTAL EQUIPMENT IN THE REGION

Country	Installation	Care and maintenance	Replacement	Others – specify
American Samoa	No	No	Yes	Space–Utilising
Cook Islands	No	Yes	Yes	No
FSM	Yes	Yes	Yes	No
Fiji	Yes	Yes	Yes	Spare parts
French Polynesia	Yes	Yes	Yes	No
Guam	No	No	No	No
Kiribati	Yes	Yes	No	No
Marshall Islands	No	No	No	No
Nauru				
New Caledonia	No	Yes	No	Problem of technician
Niue				
Northern Mariana	No	Yes	No	No
Palau	Yes	Yes	Yes	Yes
Papua New Guinea	No	Yes	Yes	Different types of equipment
Pitcairn				
Solomon Islands	No	Yes	Yes	Spare parts
Tokelau	Yes	Yes	Yes	No
Tonga	Yes	Yes	Yes	Spare parts
Tuvalu	Yes	Yes	Yes	Repair
Vanuatu	Yes	Yes	Yes	Spare parts
Wallis and Futuna	Yes	Yes	Yes	Problem of technician
Western Samoa	Yes	Yes	Yes	Inappropriate technology

ANNEX 4

PREVENTION OF ORAL HEALTH DISEASES IN THE SOUTH PACIFIC

(Paper presented by Mrs. Letupu Hunt, SPC Consultant)

INTRODUCTION

1. Dental caries and periodontal diseases are widespread and increasing health problems in many countries of the world, including the South Pacific.

2. The diseases are endemic where preventive or treatment control measures are not introduced. Unlike many other widespread non-dental diseases which decrease in prevalence as the standard of living improves, dental diseases, particularly caries, increase. The prevalence of dental caries is higher in the developed or high per capita income countries than in those with a low per capita income. Periodontal disease, on the other hand, has a less variable prevalence than caries, and is usually more prevalent in under-developed or low per capita income populations.

3. However, epidemiological data available to WHO show a big change in the trend of prevalence of dental caries in certain areas of the world. The latest data (March 1983), confirmed two major trends in oral health status (Attachment IV):

— deterioration for most of the developing countries;
— improvement for most of the highly industrialised countries.

4. In the developing countries, periodontal disease prevalence remains high and dental caries prevalence continues to increase, especially in urban areas, because of the lack of preventive programmes and complementary dental services, together with a shortage of manpower and other resources. It is common in developing countries to find only one out of every hundred carious teeth filled, and people with periodontal disease receive little or no guidance as regards prevention or treatment.

5. In developed countries, reduction in dental caries prevalence has occurred, while the prevalence of periodontal diseases may be falling to moderate or even low levels. This is because preventive programmes have been highly successful. Oral health services are well organised and routine dental care service is available to all those who need it. However, oral health services in these countries concentrated initially on the curative aspect. This proved to be expensive and also did not cope adequately with the problem, until the focus was placed on prevention. There is no doubt now that attempts to combat oral disease mainly by increasing manpower and by improving treatment systems will not achieve the desired level of oral health.

CURRENT SITUATION

6. Three levels of prevention are described in the World Health Organization publication *Prevention of oral disease*: they are primary, secondary and tertiary levels. It is found that the majority of the Pacific Island countries have commenced oral health programmes at the primary level of prevention, of which the major components are toothbrushing in the schools, fluoride mouth rinses, and dental health education.

7. It is difficult for national programmes to reach the secondary stage of prevention, because they lack sufficient staff and facilities. In all countries, this type of dental care is only available when actively sought by patients.

8. Only a few affluent island countries are able to afford and have fissure sealant programmes e.g. the Marshall Islands, the Northern Mariana Islands, American Samoa and Guam (Attachment I).

9. However, the majority of the island countries are adopting a School Dental Service type of programme to implement their oral health preventive measures, such as toothbrushing, fluoride mouth rinses, fissure sealants and dental health education, and to carry out comprehensive dental treatment such as tooth restorations, extraction, scaling and polishing at the secondary level of prevention (Attachment I).

10. Dental health education is dealt with by primary schools in most of the island countries. Only four countries in the Pacific region have a Community Periodontal Disease Prevention Programme. Dental health education is carried out in communities and high schools mainly by dental therapists, dental officers, health educators and community nurses in both urban and rural areas (refer to Attachment I).

11. Research into the relationship between sugar consumption, fluoride levels in enamel and dental caries was being done in only half the island countries (Attachment III).

12. It was extremely impressive and encouraging to see the activities in the School Dental Service in the Cook Islands, with the school dental nurses being so active in their preventive programmes not only in the school clinics, but also at mother and child health clinics, dispensing fluoride tablets for mothers.

DISCUSSION

ACTIVE PREVENTIVE PROGRAMME IN THE PACIFIC

13. School dental services consist of an oral health programme, specifically geared to upgrading and improving the children's oral health in schools. This programme includes preventive measures at both primary and secondary levels in schools, and it is found to be the most active and effective way of implementing preventive programmes at all levels in the Pacific countries.

14. The School Dental Service consists of two major components:

(i) School Dental Clinics

15. These are dental clinics built in highly populated schools, mostly in the urban areas. The school dental nurses/therapists staff these clinics. They are staff members of the schools in which their clinics are sited.

16. The school dental nurses' presence and involvement with the school activities makes them familiar with the children on a daily basis, enabling them to have a more stable relationship, built on trust, with the children with whom they work.

17. A school dental nurse initiates and carries out primary level preventive measures, by introducing and supervising toothbrushing and fluoride rinses. However, where caries and gingivitis are detected, interventions are immediately carried out in the form of cavity preparations and restorations for dental caries and scaling in cases of gingivitis; this is prevention at the secondary level. Countries which practice this type of service are the Cook Islands and Western Samoa.

(ii) Mobile Dental Teams

18. These consist of a dental officer, dental nurse/therapist, and a couple of assistants. The number of dental personnel needed to staff a mobile dental team depends solely on the need in schools and communities in the rural area, for which this team caters, and also on available manpower.

19. The mobile dental team goes out to work in the rural area of a country (including remote islands) all year round. It goes from village to village, working in the schools in the mornings, and in the afternoons carrying out prophylaxis and other dental treatment for village adults.

20. Equipment includes a couple of portable dental chairs, boxes of hand instruments and filling materials, a couple of portable units with handpieces, boxes of assorted drilling burns and drums of sterile cotton wool and gauze.

21. In the Pacific Island countries where this programme is available, the people who live in rural and isolated areas always look forward to the visit of the mobile dental team to their villages — perhaps once a year if they are lucky. This type of service is carried out in most of the island countries.

PREVENTIVE METHODS SEEN IN THE ISLAND COUNTRIES

22. Various potential methods for prevention were shown to be carried out in three different contexts: individual, group and mass application.

23. In the Pacific Island countries, where dental services are predominantly carried out by Government health departments, and where finance and manpower are often limited, the role of one-to-one (operator to patient) preventive treatments would always seem to be limited to known 'high risk' situations. The methods available include:

— prophylaxis (scaling and cleaning),
— application of topical fluorides (gel solution etc.),
— plaque demonstrations (using disclosing tablets, solution).

24. **Individual methods** are carried out by the individual himself/herself usually at home, and the advantage of this method is the certainty that a given technique has been applied. Methods include:

— systemic fluoride supplements (tablets or drops taken daily),
— use of floss (daily),
— use of commercially available low fluoride toothpastes (daily),
— dental health education — aimed at initiating and sustaining good oral health practices and at restricting cariogenic foodstuffs — may have some application.

25. **Group methods** are the application of individual methods on a wider scale, and are mostly seen practiced in school dental programmes. Their attraction is that they reduce the operator to patient ratio, and are therefore potentially more cost-effective. Additionally, because many of these methods are simple, non-dental personnel can be employed in a supervisory capacity which further reduces demand on dental manpower. Group methods include:

26. *Brush in*, in which groups of children brush their teeth using 10% fluoride pastes once a week;

27. *Rinse in*, in which groups of children rinse their teeth using fluoride solutions of about 0.2% concentration once a week;

28. *Plaque demonstration*, which may be carried out at the same time as 'brush-ins';

29. *Dental health education* in schools. This is mainly aimed at improving oral hygiene and at establishing individual methods in the home. In women's committees, and other community groups, it is aimed at improving dietary habits.

30. *Systematic fluoride supplements*. These are applied on a group basis, either directly by dispensing tablets in the classroom with the co-operation of teachers, or indirectly by using organisations such as women's clubs or committees for distributing tablets for home consumption, and also at MCH clinics.

31. Because of the large number of people treated by mass techniques they are generally more cost-effective. Legislative and administrative action may be required in some instances however.

Five specific mass methods

(i) Fluoridation of public water supply

32. Fiji was the only country which recorded that it had its water supply fluoridated. There can be no doubt that where a supply contains less than the optimum level of fluoride (approximately one part per million), fluoridation constitutes the most effective method of reducing dental caries amongst children (Attachment I).

(ii) Restriction of refined sugar imports

33. There is a correlation between per capita sugar consumption and dental caries, and the geographical nature of the South Pacific region makes the restriction of refined sugar importation feasible, though it would be difficult to enforce.

(iii) Use of alternative sugar and sweeteners

34. The most cariogenic and most common form of the sugar is sucrose. The use of alternative sugar, artificial sweeteners, and of sugar substitutes (particularly in commercially prepared foods) has the potential to reduce decay, and a minority group of high-income people are using these alternatives.

(iv) Fluoride toothpastes

35. Since commercial pastes, containing low concentrations of fluoride compounds have been shown to be effective in reducing decay, legislative or administrative action to make them widely available could be carried out.

(v) Dental health education

36. Most island countries use mass media (radio, newspapers, and in some countries television) to raise the public's level of consciousness of oral health problems or to obtain support for the measures outlined above.

BLOCKS TO IMPLEMENTING PREVENTIVE PROGRAMMES

37. All countries, except the Cook Islands, Guam and the Northern Mariana Islands have problems relating to the implementation of Oral Health Preventive Programmes, though these vary from country to country (refer to Attachment II).

38. The main impediments to the effective implementation of preventive programmes are the nature of the prevention itself, attitudes amongst dentists and administrators, and constraints in financial resources, manpower, equipment and transport (Attachment II).

39. Lack of motivation is also recognised as one of the main factors which holds back the implementation of preventive programmes, and is often related to the isolation and remoteness of the islands.

40. Prevention is unspectacular, lacks reward and is often discouraging because of the size of the problem, whereas in treating patients, both dentist and patient can see and appreciate the changes when a painful, unpleasant condition is successfully treated. The measures taken to prevent a condition occurring in the first place do not have such a visible, sensory and psychological impact.

41. Lack of recognition of the total oral health problem is identified as a block, especially in the islands where dental leaders or those in positions of responsibility in dental divisions are found to lack the following qualities:

(a) An awareness of the problem,
(b) An understanding of prevention,
(c) The ability to use the limited resources at their disposal to initiate, promote and sustain preventive programmes.

CONCLUSION

42. (i) No country can expect to solve the problem of oral diseases solely by the provision of curative dental services.

(ii) Curative or restorative services do nothing to reduce the incidence of oral diseases.

(iii) Trained manpower, equipment, time and materials required are so expensive as to make the provision of treatment to more than a very limited section of the community economically impossible. This point is particularly valid in the majority of Pacific Island countries, with their relatively low per capita gross national products.

(iv) Emphasis should be placed on prevention at primary level, as the most effective and desirable type of prevention. For example, disease can be prevented and controlled by restricting the amount and frequency of sugar ingestion, by improving oral hygiene standards, by providing fluoride at the optimal dosage of 1 mg daily systematically, or by topical application to the tooth surface, and by fissure sealants.

(v) Certain aspects of secondary of tertiary prevention should still be encouraged.

(vi) In addition to placing greater emphasis on preventive services in the field, particularly for children, there is a need to place more emphasis on prevention in the education and training of dental personnel, and to ensure that it has a strong practical rather than a theoretical orientation.

RECOMMENDATIONS SUBMITTED FOR CONSIDERATION BY THE TMCDO

1. Prevention be emphasised in all dental and oral health services in the region;

2. The cost-effectiveness of fissure sealants in prevention and control of caries be investigated;

3. The establishment of Dental Health Education Units, to be used as material resources units for the effective smooth running of dental preventive programmes in the Pacific Island countries, be investigated;

4. School Dental Services programmes in all Pacific Island countries, as a means of implementing preventive programmes at both primary and secondary levels, so as to reach the grass-roots population, should be established;

5. Training for dental personnel in prevention methods and refresher and in-service training for dental nurses and therapists in the field need to be provided;

6. That oral disease preventive programmes be evaluated, and that financial and technical assistance from international organisations such as the World Health Organization and the South Pacific Commission be sought for the purpose.

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GLOSSARY

Primary prevention	This is the prevention which is initiated and implemented before the onset of disease.
Secondary prevention	This is intervention required to promote recovery, thus shortening the illness and avoiding terminal consequences, once the disease has developed.
Tertiary prevention	This is intervention at the appropriate stage during illness, or at the end, to limit the amount of functional impairment or to restore function in the damaged areas or system, once the illness has progressed to a conclusion that results in loss of function in one way or another.
Prevention	A procedure or course of action that prevents the onset of disease.
Health education	Any combination of learning opportunities and teaching activities designed to facilitate voluntary adoption of behavior conducive to health.
Health promotion	Organisational, political, and economic interventions designed to facilitate behavioural and environmental changes that will improve or protect health.

ATTACHMENT I

CURRENT PREVENTIVE PROGRAMMES IN THE PACIFIC ISLAND COUNTRIES

	Existing Programme	School Dental Hlth Prg.	Tooth Brush. Programme	Community Period. Dis. Prevent.	Other Programmes	
American Samoa	+	+	+	-	+	Fissure Sealant
Cook Islands	+	+	+	+	+	Fluoride Rinse & Tab. Fissure Sealant Sental Hlth. Education
Fiji	+	+	+	-	+	Water Fluoridation
French Polynesia	+	+	+	-	-	
FSM	+	+	+	-	+	Fluoride Rinse
Guam	+	+	+	-	+	Fissure Sealant
Kiribati	+	-	+	-	-	
Marshalls	+	+	+	-	+	Tooth Sealant Sodium Fluoride Rinse
New Caledonia	+	+	+	-	-	
Northern Mariana	+	+	+	-	+	Fissure Sealant
Palau	+	+	+	-	-	
Papua New Guine	+	+	+	+	+	Oral Health Education
Solomon Islands	+	+	+	+	+	Sodium Fluoride Rinse
Tokelau	+	+	+	-	-	
Tonga	+	+	+	-	-	
Tuvalu	+	+	-	-	+	Dental Health Education
Vanuatu	+	+	+	-	-	
Wallis & Futuna	-	-	-	-	-	
Western Samoa	+	+	+	+	-	

ATTACHMENT II

PROBLEMS RELATING TO IMPLEMENTATION OF DENTAL PREVENTIVE PROGRAMMES	
American Samoa	Lack of manpower, transportation, equipment & material
Cook Islands	No problems
Fiji	Manpower, transport & expertise
French Polynesia	Finance
FSM	Transport, shortage of equipment, inadequate funding
Guam	No problems
Kiribati	Toothbrushing - not successful due to lack of interest of teachers: Difficult to change attitudes - people do not brush teeth: Lack of surgery space for school dental service:
Marshalls	Manpower (shortage of staff)
Nauru	
New Caledonia	Finance, manpower and organisation
Niue	
Northern Marianas	No problems
Palau	Manpower and transportation
Papua New Guinea	Finance and transportation
Solomon Islands	Lots of toothbrushes but no paste
Tokelau	Lack of space, no transport and not enough equipment
Tonga	Finance, transport and no proper organisation
Tuvalu	Lack of manpower, equipment, materials & no co-ordination
Vanuatu	Manpower, finance and supply of materials
Wallis & Futuna	No preventive programmes
Western Samoa	Transport, motivation, finance, manpower shortage

ATTACHMENT III

MISCELLANEOUS INFORMATION			
	Who is doing Dental Programme	Dental health education in primary schools	Research into relationship sugar consumption/fluoride level/dental caries
American Samoa	Dental therapist	Yes	No
Cook Islands	Dental officers, dental nurses, youth leaders	Yes	No
Fiji	Dental staff	Yes	Yes
French Polynesia	Dentists, dental hygienists	Yes	Yes
FSM	Dental nurses	No	Yes
Guam	Dental officer/nurses	Yes	No
Kiribati	Teachers, village welfare groups, dental staff, health education staff	No	Yes
Marshalls	Dental nurses	Yes	Yes
New Caledonia	Health educator	Yes	No
Northern Marianas	Dental nurses, public nurses, health educators	Yes	Yes
Palau	Dental nurses	No	Yes
Papua New Guinea	P.H. dental therapists, dental therapist Colgate	Yes	No
Solomon Islands	Dentist & dental nurses	No	No
Tokelau	Dental nurses	Yes	No
Tonga	Dentist, dental therapist	Yes	Yes
Tuvalu	Nurse, health educators, dental officers	Yes	Yes
Vanuatu	Therapist, dental officers	Yes	No
Wallis & Futuna	Sanitary educators	No	No
Western Samoa	School dental nurses	Yes	No

ATTACHMENT IV

Table 1: Caries prevalence trends in highly industrialised countries

	DMF teeth at 12 years			
	Highest		Lowest	
Country	Index	Years	Index	Years
Australia	9.3	1956	2.1	1982
Canada	7.4	1956-80	2.9 (13-14 years)	1979
Finland	7.5	1975	4.0	1981
Japan	5.9	1975	2.0	1979
New Zealand	10.7	1973	3.3	1982
Norway	12.0	1940	4.5	1979
Sweden	7.8	1937	3.4	1979
Switzerland	9.6	1961-63	1.7	1980
USA	7.6	1946	2.0	1980

Source: WHO global oral data bank.

Table 2: Caries prevalence trends in developing countries or territories

	DMF teeth at 12 years			
	Lowest		Highest	
Country/territory	Index	Years	Index	Years
Chile	2.8	1960	6.3	1978
Ethiopia	0.2	1958	1.5	1975
French Polynesia	6.5	1966	10.7	1977
Iran (Islamic Republic of)	2.4	1974	4.9	1976
Israel	2.4	1966	3.7	1976
Jordan	0.2	1962	2.7	1981
Lebanon	1.2	1961	3.6	1974
Mexico	2.7	1972	5.3	1976
Morocco	2.6	1970	4.5	1980
Philippines	1.4	1967-68	2.9	1981
Thailand	0.4	1960	2.7	1977
Uganda	0.4	1966	1.5	1982
Zaire	0.1	1971	2.3	1982

Source: WHO global oral data bank.

Tables from: Prevention methods and programmes for oral diseases - Report of World Health Organization Expert Committee, Technical Report 713, 1984.

Table 3: Caries prevalence in urban and rural areas in developing countries/territories

		DMF teeth at 12 years	
Country/territory	Years	Rural	Urban
Burma	1982	0.8	3.1
Cameroon	1982	1.4	1.8
China	1981	0.6	1.9
Jordan	1981	2.2	3.4
Morocco	1982	2.5	4.3
Oman	1978	0.7	2.5
Saudi Arabia	1979	1.3	2.2
Somalia	1979	0.3	1.5
Sudan	1979	0.4	1.4
Syrian Arab Republic	1980	1.3	3.4
Thailand	1977	1.6	3.0
United Arab Emirates	1981	1.2	2.6

Source: WHO global oral data bank.

ATTACHMENT V

Table 1: Community Periodontal Index of Treatment Needs (CPITN)

		Age 15/15-19 years	Age 35/35-44 years	
Country/territory	Years	Sextants with calculus	Sextants with calculus	Sextants with pocketing
Bangladesh	1981	3.4	5.7	1.2
China	1981	35.0	-	-
France	1982	0.1	1.4	0
Italy	1982	2.8	-	-
Morocco	1982	1.9	-	-
New Zealand	1981	2.0	-	-
Nigeria	1983	4.0	5.9	4.7
Norway	1982	0.8	-	-
Philippines	1982	2.7	4.4	0.0
Republic of Korea	1982	3.6	4.7	0.3
Samoa	1982	4.0	5.7	0.7
Sweden	1982	3.0	-	-
Syrian Arab Republic	1982	1.6	-	-
Tonga	1982	3.7	5.5	1.4

Source: WHO global oral data bank.

Tables from: Prevention methods and programmes for oral diseases - Report of World Health Organization Expert Committee, Technical Report 713, 1984.

ANNEX 5

DENTAL EDUCATION, TRAINING AND MANPOWER IN THE SOUTH PACIFIC

(Paper presented by Dr Ronald Kuba Ziru, SPC Consultant)

1. This paper reviews and analyses dental education, training and manpower development in the Pacific Islands, and gives a brief overview of the type of resources and training institutions in the neighbouring metropolitan countries.

INTRODUCTION

2. One of the principal tasks of the South Pacific Commission in relation to dental health services is its role in assessing programmes, systems and facilities in support of administrators of public dental health services. This calls for its formal involvement in undergraduate, postgraduate and continuous education of dental personnel in the region. SPC has supported the recommendations to upgrade the dental course at the Fiji School of Medicine and University of Papua New Guinea.

3. It is now history that both schools have been forced to close their doors on economic grounds. Fiji started producing dentists from 1945 to 1983 and the Papuan Dental College, which later became part of the University of Papua New Guinea, was operational from 1966 to 1987.

4. Generally, all over the South Pacific, there is a shortage of trained personnel and insufficient funds. Are we expecting impossible things from the existing limited manpower or can we develop programmes that will assist us in enduring our current constraints and achieve positive results given the same trained personnel and a well informed community?

CURRENT SITUATION

5. The review conducted by four SPC consultants in May and June 1990 in island countries and some metropolitan centres has shown the following situation.

6. All but three countries expressed a shortage of dentists (Attachment II — Table 2).

7. All but two countries expressed the shortage of dental therapists. Cook Islands and Papua New Guinea have adequate therapists (Attachment II — Table 2).

8. Most countries carry out auxiliary training to meet local demand (Attachment III).

9. Formal and informal training of therapists are being carried out in Fiji, Kiribati, the Marshall Islands, the Northern Mariana Islands, Papua New Guinea and Western Samoa. Training in Tonga is currently suspended.

10. Dental hygienists are being trained to meet local demands in Fiji, Kiribati, the Northern Mariana Islands, Papua New Guinea, Pohnpei, Solomon Islands and Western Samoa.

11. All but two countries supported the idea of an 'exchange scheme' involving Pacific dentists, however it may be a temporary solution only. Meanwhile, licensing procedures may prevent such a potentially good programme from reaching some islands.

12. 'Review and analyses' are taken to mean an assessment of dental education and training of personnel to a suitable level of competence to meet dental health needs; and 'manpower' as the prompt provision of a legally and educationally qualified workforce. The following questions were discussed.

(a) Needs and demand for dental personnel for the South Pacific.

(b) The success of present training in meeting the needs and demands in terms of
— number of persons graduated,
— course content.

(c) Will programmes in other Pacific countries be able to assist in fulfilling the needs of others by accepting students or establishing similar programmes?

(d) Desirability and feasibility of re-opening either one or both dental schools.

(e) Progress of systematic manpower planning based on baseline data.

(f) Contribution of funding agencies in undergraduate and postgraduate training.

(g) Training of nationals in foreign dental schools.

DISCUSSION

13. There are a number of imbalances clearly observed in the study:

(a) There is an imbalance between medical and dental training, but while medical training continues to be on the agenda and is highly esteemed by the community, nothing will happen about dentistry. Dentistry however is an essential part of health care and must be given equal prestige in the eyes of the public in the region [1].

(b) An imbalance exists between the production of dentists and auxiliaries (Attachment II—Table 2).

(c) There is also an imbalance in the duties performed by auxiliaries — some countries limit their training to minimum tasks, while others expect quite a lot from them.

14. Island nations who are presently carrying out some form of dental training of personnel for employment within their countries have valuable contributions to make to their administrators of dental health and where there is no such training, they will be eager to learn about your experience. Meanwhile, it must be noted that very little communication exists between dentists and auxiliaries in the Pacific. Information on the availability of training and facilities and progress of services should be discussed regularly for example.

15. It is recognised that there is no great need for sophisticated and complex dentistry in the Pacific [2]. An 'all-rounder', who can provide a range of services to many people who would otherwise have no form of dental services at all, would be most appropriate.

16. Systematic development of appropriate training of existing non-dental health personnel demands immediate attention and consultation [3, 5]. There is evidence of co-operation among dental and non-dental personnel in the South Pacific but it needs to be developed more. The active involvement of non-dental personnel and the community through effectively designed training and promotion of acceptable preventive measures and good oral hygiene must be developed rather than be entirely dedicated to the treatment of crippled dentition [5]. The community at large must be aware that prevention is not limited to dentists and dental auxiliaries. After all, the causes of dental and oral diseases are not controlled by the dentist. Common features of the islands include

isolation, scattering of dental personnel in small pockets, tremendous communication problems, insufficient government funds and insufficient trained personnel. In the light of these hurdles, community participation is obligatory.

17. Continuous education for all dental personnel and supporting employees is generally lacking. Improved communication, better use of time, materials, equipment, scarce finances, improved supervisory ability, patient management, office management, public relations etc.— these are but a few of a list of subjects that are not usually taught in dental schools.

18. There is evidence of the lack of a clear comprehensive dental policy to serve as a guide to non-health planners on the importance of dental health factors to national socio-economic development [6]. Organisation charts are either absent or are not updated and similarly programmes of action are not documented and thus give rise to difficulties in evaluation [7] of what has been done.

19. In countries where national training of dental personnel exists it is undesirable for the head of the national dental service to be responsible for education as well [1]. Usually the head of a national service already has quite a lot of work to do. A divisional status must be created in the administrative structure of the school to accommodate the head of dental training. He is expected to be actively involved in the participation of educational development in order to avoid stagnation and the eventual abolishing of dental schools which would be detrimental to the public health and welfare of the people of the South Pacific.

CONCLUSIONS

21. There is a shortage of all categories of dental personnel in the Pacific. While there are no dental schools in the Pacific, a small number of auxiliaries are slowly being trained to meet local demands in certain countries. Students from other Pacific islands have also been accepted in some of these schools.

22. Opportunities for training in foreign schools are available, however entry requirements into foreign universities are a hurdle for many countries because of their lower educational levels [Attachment III]. For the few who are successful, many will chose to work in affluent countries where the financial rewards are good while the few who return may choose to run a private practice [Attachment I].

23. Lennon defined adequacy of dental services as 'the amount and distribution of dental care in relation to need. This means that for a dental service to be adequate, the benefits of the service must be equally available to all sectors of the community, and, conversely, that deficiencies in the service be fairly borne'[4].

24. Under the above definition, dental services in the South Pacific are clearly inadequate and will continue to be so unless until some revolutionary measures are taken. Dental and oral diseases are related to modernisation and national development and are here to stay [5].

25. There is value in the training and maximum participation of non-dental health personnel in the battle against dental and oral diseases. However, it calls for dental personnel to take the first step in moving away from conventional dentistry and to gain the co-operation of others in the delivery of dental health care [3, 5].

RECOMMENDATIONS FOR THE CONSIDERATION OF THE MEETING

26. That a uniform definition of the types of auxiliary and the tasks they perform be looked into and that formal training with an appropriate curriculum be established in selected countries in the South Pacific and that regional organisations should seek assistance for their operation.

27. That developed countries of the South Pacific especially Australia, New Zealand and the USA be asked to review their technical bilateral assistance to include definite packages to assist in the delivery of dental services in the island countries.

28. That selection and training of local instructors in dental health, who must concentrate on the promotion of acceptable practice of good oral hygiene, should be encouraged in the Islands.

29. That SPC and the School of Medical Education, University of New South Wales (UNSW), Australia should jointly organise in-country training on communication, understanding and influencing community behaviour and attitude, and health promotion — the key components of primary health care.

30. That a four week inter-country course for heads of dental services and senior dental therapists of all South Pacific nations be planned which should be combined with seminars, workshops and group discussions to help formulate strategies for implementation of programmes in home countries. The course should include such subjects as programme evaluation and planned change and dental epidemiology.

31. That undergraduate dental education be considered by all island nations and that a statement of need be expressed through SPC after consultation with individual governments whether or not the schools should be re-opened.

ATTACHMENT I

DENTAL EDUCATION FOR THE PACIFIC

From time to time, dental health administrators in the Pacific are confronted with the following questions: Will training of nationals in foreign dental schools be the answer to our manpower shortage? Should the dental schools be re-opened?

A simple answer would be to say that it is entirely dependent upon respective governments.

As a matter for information this annex is included to show events of the past which are noteworthy.

The following is an account of the situation in the South Pacific in 1971. The names of the country and school are withheld and will be known only as Country A and Dental School B.

Country A: In 1971, this country had 21 dentists who graduated from foreign dental schools. Out of these 21 dentists, 2 remain in government service, 5 have gone into private practice, 13 have left for overseas countries, 1 has retired.

Dental School B: Enrolment in 1971:
3 students in Year 5
6 students in Year 4
0 student in Year 3
0 student in Year 2
6 students in Year 1.

The questions now are: Can we retain our nationals who have foreign qualifications? Can we place enough students in our dental schools to justify their existence?

Table 1: National population and manpower

PACIFIC ISLANDS	National population	Proportion of population in age group %			Urban population %	Population in main centre %	Number of dentists	Dentist/ population ratio	Number of dental therapists	Total personnel population ratio
		0-14 yrs %	15-65 yrs %	65+ yrs %						
American Samoa	36900	40.9	56.2	2.9	40	35	8	1: 4,600	2	1: 3,600
Cook Islands	16900	42.7	52.9	4.4	27	27	8	1: 2,100	7	1: 1,100
F.S.M.	108100	46.4	50.1	3.5	26	8	6	1:18,000	21	1: 4,000
Fiji	767200	38.3	58.7	2.9	39	22	49	1:15,600	42	1: 8,400
French Polynesia	189900	42.0	51.7	2.9	59	7	35	1: 7,300		1: 7,300
Guam	127900	34.9	62.3	2.8	91	91	50	1: 2,500		1: 2,500
Kiribati	72100	38.9	57.6	3.6	33	3	1	1:72,100	5	1:12,000
Marshall Islands	41500	50.5	46.4	3.1	60	38	3	1:13,000	9	1: 1,900
Nauru	9300	46.5	52.2	1.2	100	100	1	1: 9,300		1: 9,300
New Caledonia	162900	36.2	59.7	4.1	61	53	73	1: 2,200		
Niue	2500	46.1	47.3	6.6	21	21		1:		
Marianas Islands	21900	40.6	56.5	2.9	94	7	9	1: 2,400	4	1: 1,700
Palau	14300	35.0	59.7	5.4	68	68	1	1:14,300	5	1: 2,300
Papua New Guinea	3691500	43.0	55.5	1.6	13	4	27	1:36,700	104	1:28,200
Pitcairn Is.	100	21.6	55.4	23.0				1:		
Solomon Islands	323200	47.3	49.4	3.3	14	20	6	1:53,900	13	1:17,000
Tokelau	1600	41.1	57.7	7.3			1	1: 1,600	3	1: 400
Tonga	96200	44.4	52.2	3.3	26	20	10	1: 9,600	8	1: 5,300
Tuvalu	9000	31.8	63.1	5.1	30	30	2	1: 4,500	0	1: 4,500
Vanuatu	160300	45.7	51.5	2.9	18	13	5	1:32,000	6	1:14,500
Wallis & Futuna	16100	45.8	50.1	4.1	7	7	2	1: 8,000	2	1: 4,000
Western Samoa	164100	44.8	52.7	3.1	21	21	8	1:20,500	16	1: 7,500
TOTAL	6034000						305	1:19,600	247	1:10,800

Table 2: Dental personnel in the Pacific

PACIFIC ISLANDS	PROFESSIONALS				AUXILIARIES					
					OPERATING				NON-OPERATING	
	Public	Private	Demand	In training	Public	Private	Demand	In training	Public	Private
American Samoa	8	0	–	0	2	0	–	0	15	0
Cook Islands	7	1	+	0	7	0	++	2	9	0
F.S.M.	5	1	–	0	21	0	–	0	0	0
Fiji	32	17	–	11	42	0	–	0	60	
French Polynesia	26	9	+	0	0	0	–	0	57	0
Guam	5	45	–	0	0	0	–	0	32	95
Kiribati	1	0	–	1	5	0	–	0	6	1
Marshall Isl.	3	0	–	1	9	0	–	0	10	0
Nauru	1	0	–	0	0	0	–	0	0	0
New Caledon ia	26	47	+	0	0	0	–	0	5	50
Niue		0	–	0	0	0	–	0	0	0
Marianas Isl.	6	3	–	0	4	0	–	0	16	7
Palau	1	0	–	0	5	0	–	0	7	0
Papua New Guinea	17	10	–	2	97	7	–	22	102	15
Pitcairn Isl.		0	–	0	0	0	–	0	0	0
Solomon Isl.	5	1	–	2	13	0	–	4	11	12
Tokelau	1	0	–	0	3	0	–	1	0	0
Tonga	9	1	–	5	8	0	–	0	5	0
Tuvalu	2	0	–	2	0	0	–	1	2	1
Vanuatu	2	3	–	0	0	0	–	0	0	0
Wallis & Futuna	2	0	+	0	1	1	–	0	0	0
Western Samoa	6	2	–	0	16	0	–	13	0	13
				24				43		
	165	140			233	8			337	194
	305				241				531	

KEY DEMAND: + Adequate; – Shortage; ++ Excess.

Table 3: Training preferences suggested by the Islands

PACIFIC ISLANDS	Australia	Canada	Fiji	France	Japan	New Zealand	Papua New Guinea	Philippines	Singapore	U.S.A.	Western Samoa
American Samoa			T							D	
Cook Islands	D		T			D			D		
F.S.M.											
Fiji	D		T			D					
French Polynesia				D							
Guam								T S		D	
Kiribati			D T				D				
Marshall Isl.			T						T	D	
Nauru											
New Caledonia				D							
Niue											
Marianas Isl.		D			M					D	
Palau											
Papua New Guinea	D						T				
Pitcairn Isl.											
Solomon Islands	D		T			S	D T		M		
Tokelau			T								T
Tonga	D		T			D	T		M		
Tuvalu	D		T			D					
Vanuatu			T			D	T				
Wallis & Futuna				D							
Western Samoa	D					D					T

Key: D – Dentist; T – Therapist; M – Technician ; S – Dental Nurse.

ATTACHMENT III

DENTAL SCHOOLS AND TRAINING INSTITUTIONS

Countries	Graduate and Post-graduate dentistry	Basic and advanced training for dental nurse/therapist	Dental technology
New Zealand	School of Dentistry P.O. Box 647 Dunedin	School of Dental Nurses Willis St, P.O. Box 27005 Wellington	Central Institute of Technology Somme Road, Private Bag Trentham
Australia (New South Wales)	University of Sydney Dental Faculty 2 Chalmers St Sydney, NSW, 2010		
Australia (Queensland)	University of Queensland Dental School Turbot St, Brisbane Queensland 4000		
Australia (Victoria)	University of Melbourne Dental Faculty Darkville, Victoria Australia, 3052		
Australia (Western Australia)	University of W. Australia Faculty of Dentistry 179 Wellington ST Perth W.A. 6000		
Fiji		Fiji School of Medicine (Diploma in Dental Therapy)	Fiji School of Medicine (Certificate Dental Technology)
Papua New Guinea		School of Dental Therapy Department of Health P.O. Box 3991 Boroko, PNG	
Western Samoa		School of Dental Therapy Dental Department Apia, W. Samoa	

ATTACHMENT IV

GLOSSARY

Auxiliary	Dental personnel who perform their functions under the direction and supervision of a professional man (the licensed or qualified dentist) — examples include dental therapist, dental nurse, school dental nurse, dental technician, dental hygienist, dental or chairside assistants.
Auxiliary (operating)	Whose functions include prescribed regular clinical tasks.
Auxiliary (non-operating)	Whose functions exclude clinical tasks.
Dental Education	The education of personnel to provide professional leadership and direction.
Dental Training	The provision of technical skills and knowledge to meet specific functions.
Dental Manpower	A national resource permitted legally and educationally qualified to provide dental health care.
South Pacific	Includes all Pacific Island members of the Commission north, central and south of the Equator.

ATTACHMENT V

LIST OF REFERENCES

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2. Davies, G.N., 1990 The Future of Dental Services in Papua New Guinea, Draft report, Boroko, April 6.

3. Dickson, M., 1987 'Appropriate Dental Training', *International Dental Journal*, 37, pp.205—211.

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5. Valentine, A.D., *A Community Approach to the Prevention of Dental Diseases in Children of Developing Countries.*

6. *Planning and Evaluation of Public Dental Health Services*, Expert Committee, Geneva, 10—14 November 1975.

7. Joint Committee on Standards for Educational Evaluation. 1981 *Standards for Evaluation of Educational Programmes, Projects and Materials* McGraw-Hill Book Company, New York, 1981.

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ANNEX 6

STATUS OF ORAL AND DENTAL HEALTH IN THE SOUTH PACIFIC

(Paper presented by Dr Jean-Paul Gaugin, SPC Consultant)

INTRODUCTION

1. The Twelfth Regional Conference of Permanent Heads of Health Services, held in Saipan, Commonwealth of the Northern Marianas, from 3 to 7 July 1989 directed SPC to identify and assess dental health needs and related problems in Pacific Island countries and prepare a report on the resources required to respond to these needs.

2. In order to estimate needs it is important first to assess the oral and dental health status of the population by:

- Determining the prevalence of caries, periodontal diseases, pathological disorders of the oral cavity, malocclusions and malformations;
- Evaluating this health status in relation to the world-wide objectives defined in 1981 by WHO, the five goals to be achieved by the year 2000 being:
  (a) 95 per cent of the dentition present at 18 years of age;
  (b) 75 per cent still present at 35—44 years, which is to say at least 20 teeth present and functional without any need for dentures;
  (c) 50 per cent reduction in the present number of toothless people aged 35 to 44 years and 25 per cent reduction for those over 65 years of age;
  (d) 50 per cent of children aged 5—6 years free of caries;
  (e) no more than 3 DMF teeth at age 12.
- These goals were endorsed and adopted by Recommendation no.6 of the Second Regional Technical Meeting of Chief Dental Officers, held in Noumea from 29 March to 2 April 1982. The meeting recommended that:
  (a) each country and territory consider adopting as a goal a maximum of 3 DMF teeth at age 12;
  (b) where the DMF is greater than 3 at age 12, appropriate preventive measures be introduced;
  (c) the South Pacific Commission assist countries with surveys to evaluate programmes, specifically for determining the DMF at age 12.
- The DMF is the reference index. It shows the number of decayed teeth (D), the number of missing or extracted teeth (M), and the number of decayed teeth that have been treated and filled (F).
- It must be added that at the Oral Epidemiology Congress held in Singapore in 1982, WHO recommended that Pacific member states endeavour to reduce to 25 per cent or less the percentage of the population aged 15 to 19 years with a periodontal index of 2, this index representing the presence of calculus on teeth. The Community Periodontal Index Treatment Need (CPITN) is coded as follows:

Healthy gums	:	0
Bleeding gums	:	1
Presence of calculus	:	2
Presence of periodontal pocket between 3 and 5 mm, partly visible dark line	:	3
Presence of periodontal pockets deeper than 6mm, dark line not visible	:	4

For assessment purposes, the mouth is divided into 6 segments, the segment for which the index is highest being the one which is considered for the prevalence calculation.

METHODOLOGY

3. Our regional survey of 18 countries and territories was chiefly aimed at:

— Determining the prevalence of dental caries by noting for each country able to provide the necessary information, the average DMF at age 12 and the percentage of children free of caries at the same age.

— Determining the percentage of people in the 15—19 age group with a periodontal index of 2 (presence of calculus) and, in the 35—44 age group, with a periodontal index of 2 and of 3 (presence of periodontal pockets between 3 to 5mm).

4. We noted the current percentage for these 2 indexes in each country visited, that is to say the percentage found by an epidemiological survey carried out this year or last year, as well as the percentage obtained previously (no more than 5 years before).

5. By comparing these two percentages we were able to see the trend in each country and for the region as a whole.

RESULTS

Dental caries

(a) Assessment of mean DMF at age 12 (Table 1 and Figure 1)

6. Our results showed that:

— New Caledonia has a very high average DMF, now 8.63 (Kouchner Report, 1989), which has risen steadily from 1979 (5.2), 1980 (5.5), 1982 (7.9).

— In those countries where the DMF is higher than 3:

— the index has dropped considerably in French Polynesia, from 6.6 in 1985 to 3.19 in 1988. It must be recalled that this country had a DMF over 10 in 1979;

— a noteworthy drop also occurred in the Northern Mariana Islands, from 7.67 to 4;

— a slight rise occurred in the Marshall Islands, from 3.36 to 4 at the present time;

— in the Cook Islands and Palau, where the current indexes are respectively 4 and 3.7, we were unable to obtain earlier figures for comparison.

— A low DMF index (under 3) was found in the following countries;

  — Federated States of Micronesia, 2.2 in Kosrae and 0.9 in Yap;
  — Niue, 2.6
  — Tuvalu, 2.5
  — Guam, 1.6
  — Papua New Guinea, 1.6
  — Solomon Islands, 0.98
  — Tonga, 0.7.

For some countries no figures were available, because epidemiological surveys have not been carried out recently or are still in progress. Vanuatu for example is currently completing data collection with WHO assistance.

(b) Percentage of children aged 12 free from caries

Ten countries were able to give us percentages of caries-free children aged 12: Federated States of Micronesia - Yap (98% and 45%), Solomon Islands (50%), Kiribati (40%), Tonga (40%), Marshall Islands (10%), Fiji (18%), Niue (16%), Palau (85%).

Though the overall results for DMF are encouraging, it must be noted:

(a) that nine countries, i.e. nearly half the countries in the region, were unable to provide epidemiological reference data;

(b) with the exception of the DMF for New Caledonia as reported by Dr Kouchner, which was calculated on samples of tribal, urban and rural populations, and with that obtained from the remarkable epidemiological survey conducted by Dr Davies in the New Ireland, East Sepik and East Highland provinces of Papua New Guinea, most of the DMF stem from surveys carried out in urban schools and consequently do not really reflect the current caries prevalence in the country considered.

Periodontal diseases

7. *(a) In the 15—19 age group* (Table 2 and Figure 2) one will at once notice:

  — a 30% drop for CPITN 2 in the Marshall Islands;

  — stability at 32% in Tuvalu;

  — a very high percentage in the seven other countries for which figures were available, a long way to the 25% goal set in 1982 in Singapore by WHO.

(b) In the 35 to 44 age group (Table 3 and Figure 3) the percentage for CPITN 2 (presence of calculus) was very high in the four countries where figures were available and high also for CPITN 3 (presence of periodontal pockets between 3 and 5mm). For Papua New Guinea, the results are broken down into three provinces and show a notable difference in periodontal status between them: fairly low (25%) in East Sepik, the percentage was 34% in the East Highlands and 76% in New Ireland.

8. The prevalence of periodontal conditions seems to be overtaking that of dental caries in the Pacific region and the magnitude of the problem should be viewed with concern.

9. We know that calculus develops from soft deposit and that the latter is a result of lack of dental hygiene or ineffective brushing, usually associated with consumption of sweet soft foods that do not favor the self-cleaning process. Build up of calculus is conducive to proliferation of germs which break down the epithelial attachment and cause periodontal pockets to form. An epidemiological survey of these conditions should be carried out in the whole of the region.

Pre-cancerous lesions and oral cancers

10. These occur mainly in Papua New Guinea and Solomon Islands and are thought to be linked to chewing of betel nut plus lime (from coral) and hot peppers. The survey conducted by Dr Davies in Papua New Guinea (March 1990) showed the first pre-cancerous lesions to occur in the 35—44 age group, with a fairly high prevalence of 7 per cent for pre-cancerous lesions and of 12 per cent for carcinomas.

11. In the 35—44 age group, 36 per cent of the population chews betel nut with lime and hot peppers.

RECOMMENDATIONS

12. It is recommended that all countries carry out epidemiological surveys regularly, at least every five years, and use the same standardised data collection system (published by WHO), which would facilitate analysis and interpretation of parameter variations for each country.

13. All programmes for the prevention of oral and dental pathologies should be based on reliable epidemiological surveys in all countries of the region, and it is recommended that regional organisations contribute to these surveys by providing technical and/or financial assistance, particularly for data collection and processing.

14. In countries where betel chewing is a common practice, it would be desirable to intensify investigations for detection of pre-cancerous lesions and cancers of the oral cavity.

15. Investigations into the etiology of periodontal conditions responsible for CPITN 2 and 3 should be urgently undertaken with a view to initiating effective preventive measures.

Table 1: DMFT and percentage of children aged 12 free of caries

Country	DMF		Percentage of children free of caries	
	Previous	Current	Previous	Current
American Samoa	–	–	–	–
Cook Islands	–	4.9	–	–
F.S.M. Kosrae		2.2	–	45
F.S.M. Yap		0.9	18	98
Fiji	3	2.8	–	18
Guam	4.5	1.6	–	–
French Polynesia	6.6	3.6	–	17
Kiribati	1	1	40	40
Northern Mariana Islands	7.67	4	–	–
Marshall Islands	3.36	4	–	10
Nauru	–	–	–	–
New Caledonia	7.9	8.63	–	–
Niue	2.6	2.5	17	16
Palau	–	3.4	–	85
Papua New Guinea	1.6	1.5–2.4	–	–
Pitcairn	–	–	–	–
Solomon Islands	–	0.98	–	50
Tokelau	–	–	–	–
Tonga	1.9	1.0	27	40
Tuvalu	2	2.4	–	–
Vanuatu	–	–	–	–
Wallis and Futuna	–	–	–	–
Western Samoa	2.51	–	25	–

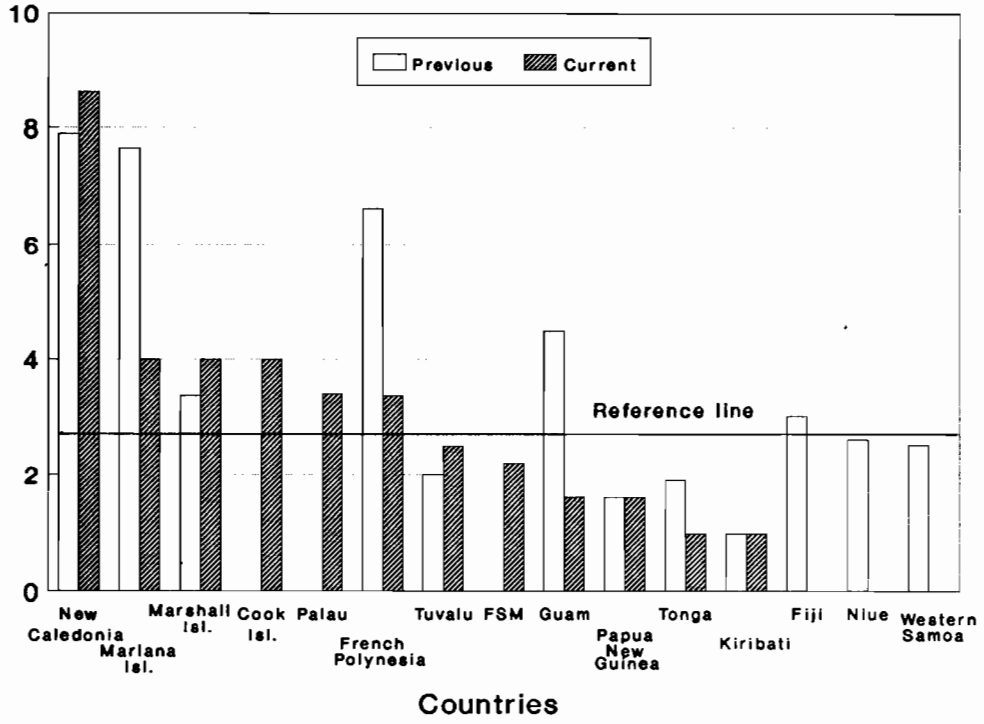

Figure a: DMFT in children aged 12

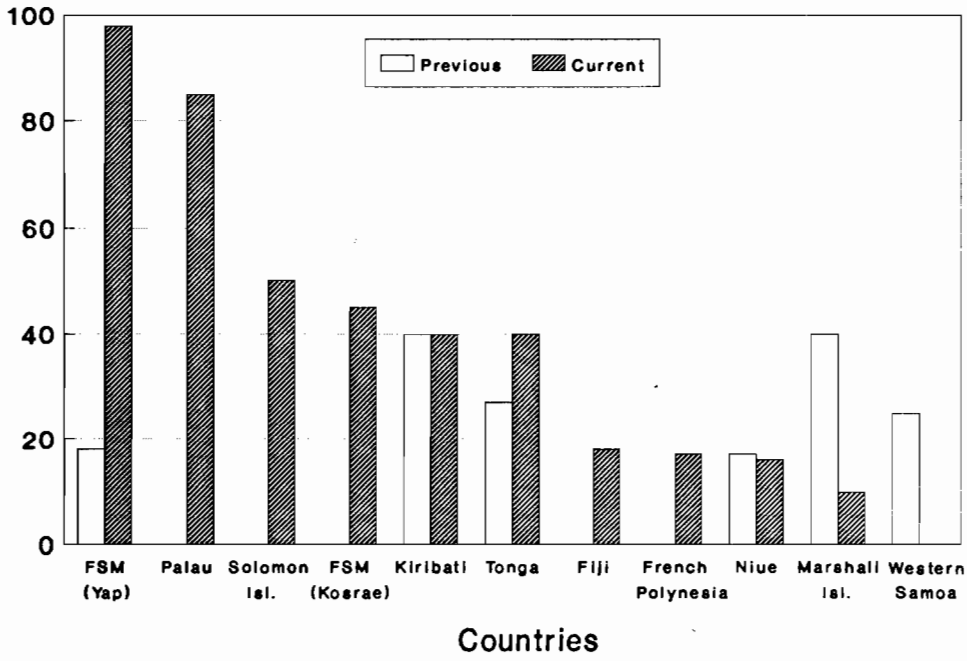

Figure b: Percentage of children aged 12 free of caries

Table 2: CPITN 2 in young people aged 15 to 19

Country	Previous index	Current index
American Samoa	–	–
Cook Islands	–	–
F.S.M.	–	98%
Fiji	97%	92%
French Polynesia	–	–
Guam	–	–
Kiribati	–	–
Marshall Islands	70%	40%
Nauru	–	–
New Caledonia	–	–
Niue	–	59%
Northern Mariana Islands	98%	98%
Palau	–	98%
Papua New Guinea	65%	N. Ireland 76% East Sepik 34% East Highland 62%
Pitcairn	–	–
Solomon Islands	–	57%
Tokelau	–	–
Tonga	81%	40
Tuvalu	32.2%	32%
Vanuatu	–	–
Wallis and Futuna	–	–
Western Samoa	94.6%	27%

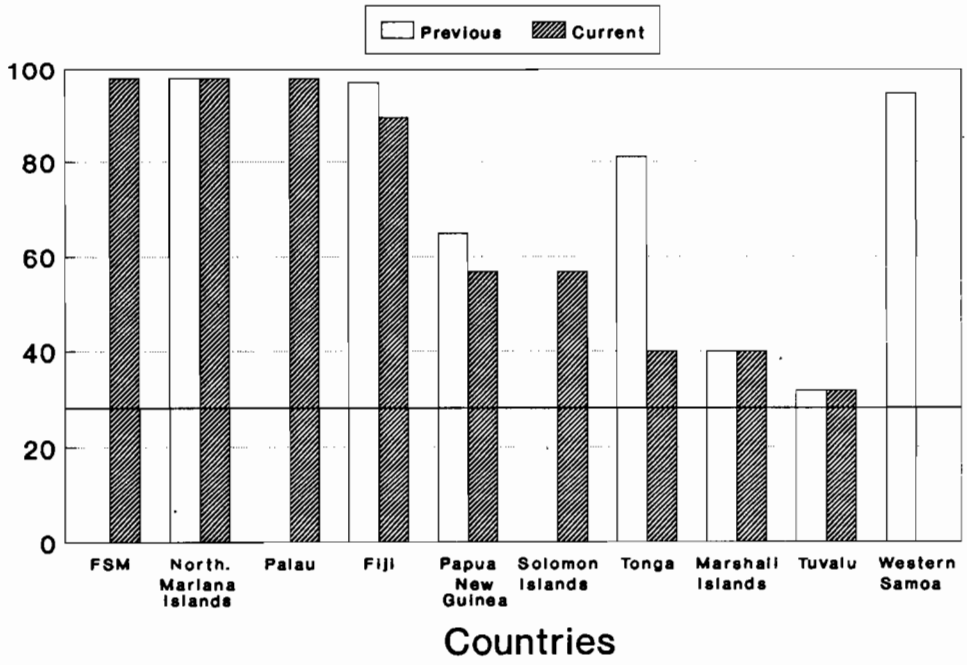

Figure 2: CPITN 2 in young people aged 15 to 19

Table 3: CPITN 2 and 3 in people aged 35 to 44

Country	Index 2		Index 3	
	Previous index	Current index	Previous index	Current index
American Samoa	–	–	–	–
Cook Islands	–	–	–	–
F.S.M.	–	99%	–	–
Fiji	–	–	–	–
French Polynesia	–	–	–	–
Guam	–	–	–	–
Kiribati	–	–	–	–
Marshall Islands	85%	90%	30%	35%
Nauru				
New Caledonia	–	–	–	–
Niue				
Northern Mariana Islands	–	98%	–	–
Palau				
Papua New Guinea	10%	76%** 25%*** 34%****	50%	24** 42%*** 28%****
Pitcairn				
Solomon Islands	–	–	–	–
Tokelau	–	–	–	–
Tonga	–	–	–	–
Tuvalu	–	–	–	–
Vanuatu	–	–	–	–
Wallis and Futuna	–	–	–	–
Western Samoa	67.19%	–	–	–

** New Ireland; *** East Sepik; **** East Highland

Table 4: Replies to two questions asked about the oral health status parameters in the Pacific Island countries

Country	Do you effectively monitor the oral health status of the population?		Do you require outside assistance?	
	Yes	No	Yes	No
American Samoa		n	y	
Cook Islands	y			
F.S.M.	y		y	
Fiji		n	y	
French Polynesia	y			n
Guam	y		y	
Kiribati		n	y	
Marshall Islands	y		y	
Nauru	–	–	–	–
Niue	–	n	y	–
New Caledonia	y			n
Northern Mariana Islands	y		y	
Palau	y	–	–	–
Papua New Guinea		n	y	
Pitcairn	–	–	–	–
Solomon Islands		n	y	
Tokelau		n	y	
Tonga		n	y	
Tuvalu		n	y	
Vanuatu	y			n
Wallis and Futuna		n	y	
Western Samoa		n	y	