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مَنْظَرُ الصِّحَّةِ الْعَالَمِيَّةِ
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1. INTRODUCTION

Among WHO's programmes in the Eastern Mediterranean Region (EMR), which include very different activities, the one on Oral Health is becoming outstandingly important. In this programme WHO is collaborating with its Member States in an attempt to improve the oral health status of the population of this Region.

Dental caries and periodontal disease are the two major oral diseases in EMR. Data on epidemiological measurements available to WHO show large differences in prevalence of dental caries in different areas of the world. In EMR, the epidemiological data yielded by WHO-sponsored surveys conducted in most countries of the Region (and recently updated in some countries), revealed the following:

1. Low-to-moderate prevalence of dental caries. This is lowest in a group of countries including Bahrain, Somalia and Sudan (DMFT* in 12-year-olds around 1.15), and highest in another group including Egypt, Iraq, Jordan and Syrian Arab Republic (DMFT in 12-year-olds ranging from 4.3 to 3.0). Carious lesions are mainly confined to occlusal surfaces of the first and second permanent molars.

Recent data in some EMR countries have shown increasing prevalence of dental caries especially in urban areas.

2. Prevalence of periodontal disease is relatively higher than that of dental caries. Its incidence varies considerably, being highest in Democratic Yemen, Egypt, Iraq, Libyan Arab Jamahiriya and Yemen and lowest in Bahrain, Cyprus and Sudan. However, its prevalence is increasing due to poor oral hygiene status. It usually starts during early adulthood and is the major cause of tooth loss starting then.

2. WHO ORAL HEALTH POLICY BASIS

The data base which existed in the early seventies in terms of prevalence trends of oral diseases made possible the development of an approach towards improved oral health. This is as relevant today as it was in 1974, when oral health activities were first based on a medium-term programme that merged harmoniously with the long-term strategy up to the year 2000. The present Medium-Term Programme (MTP) is a natural evolution of the 1984-1989 MTP for the duration of the period covered by the Eighth General Programme of Work, 1990-1995. It remains on target for the long-term strategy for improved oral health by the end of the twentieth century.

The policy basis for oral health is contained in the Sixth, Seventh and Eighth General Programmes of Work, and in specific resolutions of the World Health Assembly and of all the Regional Committees, especially in relation to the use of fluorides and prevention (see resolution WHA28.64 dated 29 May 1975 on Fluoride and Dental Health). A special initiative on oral health in partnership with the International Dental Federation (FDI), has a general policy of collaboration with non-governmental organizations. Specifically for oral health, the position paper (A40 INFDOC/1) details this initiative in terms of the Essential Oral Health Care Model.

* DMFT = Decayed, missing or filled teeth.

An objective of the Eighth General Programme of Work is to contribute to health through proper nutrition, oral health, the prevention of accidents and the avoidance of the use of tobacco.

The Regional Oral Health Programme has developed within the framework of strengthening national health services in Member States of the Region with the following objectives:

1. To assist Member States in promoting the development of national integrated plans for oral health with overall national health plans, with clearly defined measurable goals and giving first priority to prevention with a built-in evaluation, strengthened through collaboration between the Member States [Technical Cooperation between Developing Countries (TCDC)] and assisted by the WHO Regional Collaborating Centre for Oral Health.

2. To assist Member States in an attempt to improve the oral health status of their populations in order to achieve an acceptable level of oral health for all by the year 2000.

3. REVIEW OF ORAL HEALTH SITUATION ANALYSIS IN THE EASTERN MEDITERRANEAN COUNTRIES

In 1979, the Regional Office initiated a programme to carry out oral health situation analyses in a number of countries in EMR. This has now been done in almost all countries of the Region (see Annex 1).

Figures for dental caries, periodontal disease level, and dentist/population ratio, are given in Annex 2. The main oral health problems and recommendations made in the analyses are summarized in Annex 3.

In each country an analysis of the oral health care delivery system has been performed. This included an assessment of the numbers, type and distribution of oral health manpower, existing training facilities and services provided.

The data collected so far provide very interesting information and results, which are outlined hereunder:

3.1. Dental caries

The prevalence and severity of dental caries vary considerably, being the highest in Egypt, Iraq, Jordan and Syrian Arab Republic (DMFT in 12-year-olds 3.0, 4.0, 3.6 and 4.3 respectively), and the lowest in Bahrain, Somalia and Sudan (DMFT in 12-year-olds 1.0, 1.03 and 1.3 respectively).

The majority of all carious lesions (85.90%) were confined to occlusal surfaces of the first and the second permanent molars.

Although oral diseases have certainly been a problem in most EMR countries, it is now clear that the prevalence of dental caries is increasing, particularly in urban areas, and that such an increase, which may well spread to other areas, calls for a carefully constructed programme aimed at halting this trend.

3.2. Periodontal diseases

The prevalence and severity of periodontal diseases also vary considerably, being the highest in Democratic Yemen, Egypt, Iraq, Libyan Arab Jamahiriya and Yemen and the lowest in Bahrain, Cyprus and Sudan.

It is evident that the prevalence of periodontal diseases is increasing due to poor oral hygiene status; the results of examination of adults indicate that the onset of pathological periodontal conditions takes place in early adulthood and is the major cause of tooth loss as from this age.

3.3. Oral health care services

Oral health care services in EMR countries are at different stages of development. It is noted that the need for services is far greater than the demand. The percentage of population seeking treatment on demand varied between 25% (the highest) in Libyan Arab Jamahiriya and 2% (the lowest) in Sudan (see Annex 4).

The main concern of the existing services is to satisfy the current curative demands; this does not comply with the philosophy of a preventive approach. Because of lack of materials and instruments and non-functioning equipment, such curative-oriented oral health services are of an ambulatory nature (concentrating on tooth extraction), with negligible restorative care. As a result, more tooth extractions are performed than necessary, resulting in destruction of inherently sound dentition, and thus undermining the oral health status of the population.

The solution to the problem is related to the introduction of active oral disease preventive measures, improvement of oral hygiene and oral health education of the public.

The prerequisite of such a strategy is dependent upon the continuous development of an effective oral health care delivery system including proper utilization of oral health manpower relevant to country needs and resources.

3.4. Oral health manpower development

It is evident from the analyses that dentists are scarce in some countries while in others annual outputs are increasing every year (see Annex 5). The dentist:population ratio differs widely, from 1:2063 in Cyprus to 1:1 000 000 in Somalia. It is also evident that there is maldistribution of manpower, with a bias towards concentration in urban areas.

Utilization of dental auxiliary personnel is either very low or non-existent.

Curricula for oral health personnel are generally based on those borrowed from developed countries in the 1950s or 1960s. From the beginning, the "package" of skills and knowledge was not relevant to the disease situation in EMR countries, and remains irrelevant; this applies to both disease levels and levels of care. In short, these curricula are not particularly adapted to the actual needs of the populations concerned.

3.5. Oral health research

Apart from the health surveys undertaken in most countries of the Region, very little research into oral health problems and related preventive measures has been undertaken. However, feasibility studies were carried out lately in Cyprus and Syrian Arab Republic on ingestion of fluorides from all sources and revealed the suitability of these two countries for a more comprehensive study in this respect.

4. MAIN PROBLEMS ENCOUNTERED

The review of situation analyses and their subsequent updating led to the following 10 major areas being identified:

1. increasing trend in prevalence of dental caries and periodontal disease;
2. lack of integration of oral health care into primary health care;
3. oral health services separate from general health care structure;
4. shortage of oral health personnel, especially mid-level categories;
5. maldistribution of oral health personnel;
6. over-emphasis on curative-oriented approach with tooth extraction the only care routinely available;
7. over-emphasis on demand rather than need, with low population coverage;
8. uncertainty concerning future manpower needs;
9. lack of development, activation and coordination of research in oral health;
10. lack of integrated national oral health plans as part of the health care system based on primary health care.

5. DEVELOPMENT OF REGIONAL ORAL HEALTH PROGRAMME

One major reason for the lack of success of oral health programmes may be the attempt to build oral health services that are separate from and additional to the general health care structure. This weakness has been recognized in some developed countries which now incorporate oral health education into all health-promoting efforts. In developing countries with scarce resources, and EMR countries are no exception, it is even more essential that oral health activities be seen as part of the primary health care strategy and integrated into regular health activities. Thus, the development of a Regional oral health programme should be based upon the following approach:

5.1. Completion of situation analyses

Situation analyses, using the pathfinder methodology, have been completed in seventeen countries of the Region. However, further situation analyses among Member States are required and should be implemented urgently by 1990. Table 1 shows the number of situation analyses completed and their distribution.

TABLE 1. SITUATION ANALYSIS IN EMR COUNTRIES

Number of countries	Data completed
7	1979
2	1980
4	1981
1	1982
1	1983
1	1984
1	1985

5.2. Updating of Situation Analyses

More than eight years have elapsed since the last oral disease data were collected; they are therefore outdated and an urgent need exists for their updating.

Target dates were set to implement the updating during 1990-1995, through national initiatives and/or with the support of the Regional Office (see Annex 6).

The following steps will be considered during situation analysis and updating:

5.2.1. Collection and collation of relevant information; this is needed concerning the actual situation in the country, including data on oral disease prevalence and trends, health personnel, existing services and training, as well as the technical/economic feasibility of various goals and approaches.

5.2.2. Interpreting the situation analysis, setting objectives and developing feasible strategies depending on the situation analysis data. Objectives for prevention should be set within the national plan for health and specifically oral health. They should be measurable and realistic, based on estimated funds and available manpower. Establishment of precise goals for the preventive programme and clear definition of tasks to achieve them will provide the basis for evaluation and monitoring.

5.2.3. Preliminary planning and feasibility assessment; this includes a sequential plan for population coverage and preliminary coordination of all components of the programme in accordance with priorities, objectives chosen and resources allocated. This step may also include a demonstration area.

5.2.4. Final planning and strategy implementation; definitive medium- to long-term planning of programmes and personnel needs, dental and non-dental, as well as cost/funding and time-tabling of the programme are necessary at this stage. Provision for effective management and monitoring is also essential.

5.2.5. Evaluation: Standard evaluation criteria are recommended for mid- and long-term evaluation. Cost/benefit evaluation is considered an essential component of evaluation.

5.3. Development of national plans for oral health

One of the most important of WHO's activities is to promote development and implementation of coordinated national plans for oral health services, with special attention to preventive strategies and components.

Thus, guidelines for the formulation of coordinated national plans for oral health as a component of national primary health care programmes have been recommended to most Member States of the Region by WHO consultants as well as by the WHO Regional Dental Officer stationed at the Regional Demonstration, Training and Research Centre for Oral Health (DTRC), Damascus, Syrian Arab Republic (see 5.4 below). Higher priority is given in these plans to prevention of oral diseases, especially at preschool and school ages, by all available means including effective use of fluorides, oral hygiene measures and control of dietary habits.

Implementation of national plans for Member States of the Region should take the following approach:

1. During 1990-1995, several integrated plans for oral health will be organized in EMR countries, through the services of the above-mentioned WHO Regional Dental Officer, with additional expertise from the Region and from WHO Headquarters (see Annex 6, Summary of Regional Oral Health Programme, 1990-1995).

2. Plans will be based on measurable goals; these are usually related to disease measurement and/or coverage of the population. A set of measurable goals for oral health by the year 2000 has also been produced by WHO and FDI.

In order to ascertain whether measurable goals have been achieved there is need for monitoring and evaluation. The rapid changes discovered in the oral and dental health status of the population require very flexible administration in order to make necessary and timely decisions.

3. Manpower production goals are of utmost importance when building a comprehensive primary-health-oriented oral health system. The traditional education and training of dental manpower should be reviewed in depth to match future needs of populations.

5.4. Establishment of a WHO Regional, Demonstration, Training and Research Centre for Oral Health (DTRC)

The shortage of dental manpower and lack of experience in public health dentistry, particularly in prevention of oral disease in developing countries, led to the development of the Regional Demonstration, Training and Research Centre for Oral Health (DTRC). The Centre, established in Damascus, Syrian Arab Republic, with WHO support in 1982, was recognized as a WHO collaborating centre in 1985 and was officially inaugurated at its new premises and fully equipped in October 1986. The main purpose of this Centre is to assist in coordinating WHO's and national efforts to improve the oral health of the people of the host country, as well as those of other countries in the Region, through development of more effective and efficient oral health care delivery systems, based on concepts of prevention and control of oral disease. The Centre's main avenues in achieving this purpose are: (a) training, (b) research and (c) demonstration.

The DTRC is a very important resource in the development of WHO's programmes for oral disease prevention. The Centre, it is envisaged, will

also fill the gap in coordination between training institutions - universities and other - and both the private and the public sector of oral health. It will also provide an opportunity for Technical Cooperation between Developing Countries (TCDC).

The Centre's training programme includes ten different courses in dental public health and health education tailored to suit all senior and mid-level health and education personnel needed for the promotion of oral health. With its national staff and its full-time WHO Dental Officer, in addition to its modern training and demonstration facilities, the DTRC is expected to play a catalytic role in the development of oral health manpower and programmes in the countries of the Region. A Regional Workshop on Oral Health was organized at the Centre in October 1986 on the occasion of the official inauguration. This Workshop, attended by national directors of oral health development programmes and oral health faculty members from ten countries of the Region, served to introduce this Centre and its training and demonstration facilities to very senior national officials concerned with the development of oral health services and manpower.

5.5. Establishment of a Regional Resource Pool (RRP) in Oral Health

A Regional Resource Pool (RRP) of consultants should be established, in consultation with Member States. Membership should include:

- expertise from the Region
- DTRC national staff
- the WHO Dental Officer stationed at DTRC
- International Collaborative Oral Health Programme (ICORHP)
- Oral health staff, WHO/HQ.

The RRP should be available for country assignments through the whole sequence of:

- situation analyses for oral health;
- updating of situation analyses;
- goal-setting;
- planning;
- programme formulation;
- development of national plans for oral health;
- identification of constraints requiring external collaboration.

It should also have a demonstration, teaching and guiding rather than a solely performing role.

Nationals should provide full-scale assistance to the RRP, with full responsibilities for implementation of programmes.

6. RECOMMENDATIONS

6.1. For national authorities - It is recommended that:

6.1.1. Member States formulate national oral health policies and plans relevant to the primary health care (PHC) concept and the achievement of health for all by the year 2000;

6.1.2. every encouragement be given to orienting dental services towards primary prevention of oral diseases rather than their mere treatment;

6.1.3. the WHO PHC concepts adopted for oral health activities be seen as part of PHC strategy and integrated into regular health activities;

6.1.4. coordinated intersectoral planning be established and frequent evaluation of oral health services maintained;

6.1.5. appropriate types and numbers of oral health personnel be trained to meet the goals of national plans;

6.1.6. encouragement be given to utilizing the Regional Demonstration, Training and Research Centre (DTRC) in reorienting oral health personnel towards preventive measures;

6.1.7. greater stimulus be given to applied research in the delivery of oral health care.

6.2. For WHO - It is recommended that:

6.2.1. support be given to completion of oral health situation analyses and their updating through WHO expertise and the Regional Resource Pool;

6.2.2. development of national plans for oral health also be supported;

6.2.3. national plans for oral health be followed up and updated;

6.2.4. participation of countries of the Region in the International Collaborative Oral Health Development Project be promoted and supported by extrabudgetary resources;

6.2.5. research into oral health problems and related preventive measures be promoted and coordinated, also evaluation and field-testing of alternative methods of oral health care delivery system be implemented, especially for underserved and other target groups, and in relation to changing demography and disease trends, with integration into PHC services;

6.2.6. Member States be encouraged to utilize the WHO fellowship component to train oral health personnel at DTRC;

6.2.7. collaboration with other agencies, both within and outside the Region, be promoted (an example is the AGFUND-supported project for improvement of oral health in 20 countries in all regions, 7 of these being in EMR);

6.2.8. support be given to the oral health Regional budget in order to promote recognized preventive oral health country programmes through supply of preventive agents, e.g. fluoride salts, fluoride analytical services, oral health education and training materials and research into the use of traditional oral hygiene and preventive methods;

6.2.9. Member States be called upon to act in accordance with the resolution on oral health if endorsed by the Regional Committee.

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Annex 1

ORAL HEALTH SITUATION ANALYSES IN EMR MEMBER STATES

State	Population (million)	Oral health situation analysis Author
Afghanistan, Republic of	16.5	Dr P. Leous (1985)
Bahrain	0.4	Dr D. Barmes (1980)
Cyprus	0.6	Drs Barmes/Burhani (1981)
Democratic Yemen *	2.0	Dr P. Leous (1981)
Djibouti *	0.4	
Egypt	36.0	Dr Zahran (1979)
Iran, Islamic Republic of *	34.0	
Iraq	12.0	Drs Moller/Zahran (1979)
Jordan **	2.8	Drs Moller/Mirza (1981)
Kuwait ***	1.4	Dr S.A. Hussein (1987)
Lebanon *	2.7	--
Libyan Arab Jamahiriya	3.1	Dr P. Leous (1983)
Morocco	--	--
Oman	0.9	Dr D. Barmes (1978)
Pakistan	84.0	Dr Moller (1979)
Qatar	0.2	
Saudi Arabia ***	7.0	Drs Barmes/Zahran (1979)
Somalia ***	3.6	Dr Moller (1979)
Sudan	14.0	Dr D. Barmes (1979)
Syrian Arab Republic	9.0	Drs Barmes/Sardo Infirri (1980)
Tunisia *	6.4	--
United Arab Emirates	1.0	Dr Tala (1981)
Yemen	7.7	Drs Barmes/Zahran (1979)

Total Member States = 23

Oral Health Situation Analysis in 17 countries.

* Situation analysis to be implemented.

** Updating situation analysis.

*** Updating situation analysis by WHO Dental Officer stationed at Regional DTRC, Damascus.

Annex 2

COUNTRY ORAL DISEASE DATA AND
DENTIST/POPULATION RATIO

	Caries		Periodontal disease level	Dentist/ population ratio
	DMFT at 12 years	DMFT at 15 years		
Bahrain	1.0	2.1	Low	1 : 14 750
Cyprus	3.3	4.4	Low	1 : 2063
Democratic Yemen	0.6	1.4	High	1 : 406 000
Egypt	3.0	4.7	High	1 : 8700
	Urban	Rural		
Iran, Islamic Republic of	2.5*	--	--	1 : 16 000
	1.9	--	--	(1974)
	approx.			
Iraq	1.0*	5.0	High	1 : 9500
	4.0	approx.		
Libyan Arab Jamahiriya	1.3	2.0	High	1 : 8214
Oman	2.0	2.8	High	1 : 100 000
Pakistan	2.15	3.23	Moderate	1 : 73 352
Saudi Arabia	1.95	2.28	Moderate to high	1 : 46 500
Somalia	1.3	2.3	Low	1 : 1 000 000
Sudan	1.3*	2.56	Low to high	1 : 90 000
	1.4	2.25		
Syrian Arab Republic	4.3	--	Moderate to high	1 : 6000
United Arab Emirates	2.1	3.0	70-64%	1 : 10 000
Yemen	1.5	2.5	High	1 : 200 000

* Figures based on two surveys.

Annex 3

SUMMARY OF SITUATION ANALYSES IN EMR WITH RECOMMENDATIONS

AFGHANISTAN, REPUBLIC OF (one dentist/197 000 population)

1. Outstanding features of oral health situation

1. Moderate-to-high prevalence of dental caries.
2. Moderate-to-high periodontal disease.
3. Lack of adequate oral health services for the population including children.
4. Shortage of health personnel and facilities.

2. Recommendations

1. Need for development of a countrywide programme for primary prevention of oral health disease.
2. Implementation of essential oral health services to the population through PHC.

BAHRAIN (one dentist/14 750 population)

1. Outstanding features of oral health situation

1. Dental caries prevalence is very low.
2. Periodontal disease prevalence is low compared to neighbouring countries.
3. Treatment on demand is about 15%.

2. Recommendations

1. Need for oral health goals.
2. Need for development of manpower and distribution of activities between dentists and dental auxiliaries.
3. Establishment of training of auxiliaries in Bahrain or another Gulf State.
4. Need for systematic school dental programme.
5. Need for ORH education programme.
6. Need for specified fluoride preventive programme.
7. Mid-term evaluation.

CYPRUS (one dentist/2063 population)

1. Outstanding features of oral health situation

1. Moderate caries prevalence.
2. Sharp contrast in dental caries prevalence between highlands and lowlands.
3. Low prevalence of periodontal diseases.
4. 60% population seek treatment.
5. Maldistribution of dentists.

2. Recommendations

1. Need for planning council.
2. Need for fluoride mapping.
3. Need for special development of manpower.
4. Urgent need for concentrated preventive programme.
5. Need for incremental school care services.
6. Need for improvement of oral hygiene.
7. Promotion of use of fluoridated toothpaste and fluoride rinsing or tablets.
8. Development of a refresher training and orientation centre in Nicosia.
9. Need for research on environmental factors and caries prevalence.
10. Evaluation by reports.

DEMOCRATIC YEMEN (one dentist/406 000 population)

1. Outstanding features of oral health situation

1. Very low prevalence of dental caries.
2. High level of periodontal disease in its initial stages in children.
3. Advanced periodontal involvement developing in adults.
4. 70% of population affected with dental fluorosis.
5. 25% of 12-year-olds have malocclusion.
6. Shortage of dental manpower.
7. Lack of facilities.
8. Poor or insufficient oral health services.

2. Recommendations

1. Need for oral hygiene education of population including schoolchildren.
2. Introduction of systematic school dental programme.
3. Need for training of dentists abroad.
4. Increase in number of dental auxiliaries.
5. Need for appropriate maintenance and redressing shortage of dental equipment.

EGYPT (one dentist/8700 population)

1. Outstanding features of oral health situation

1. Caries at moderate/high levels in some sections of population; periodontal diseases at high level (higher than other Arab countries).
2. High output of national dentists (550 dentists per year).
3. Too many students and not enough staff and facilities.
4. Current school dental services not adequate.
5. Treatment on demand concentrates on extraction.
6. Inadequate equipment and materials.

2. Recommendations

1. Development of preventive programme for villages with emphasis on health education, promotion of oral hygiene.
2. Development of systematic school dental services.
3. Fluoridation for low fluoride areas.
4. Health education at MCH centres.
5. Need for national ORH plan.
6. Mid-term evaluation.

IRAQ (one dentist/9500 population)

1. Outstanding features of oral health situation

1. Caries at moderate/high level; a major problem for adults.
2. Moderate-to-high prevalence of periodontal diseases.
3. Only 10% of population obtains ORH care.

2. Recommendations

1. Need for systematic ORH care and for school dental service.
2. Promotion of auxiliary staff to be used in preventive scheme within school dental service.
3. Need for chair-side assistants with emphasis on promotion of prophylaxis.
4. Need for health education.
5. Need for suitable blend of public and private sector.
6. Upgrading of services for adults to overcome the problem of periodontal disease.

JORDAN (one dentist/5000 population)

1. Outstanding features of oral health situation

1. Low-to-moderate caries prevalence but on the increase.
2. Moderate-to-high periodontal disease prevalence.
3. Dental fluorosis constitutes major problem in some parts of the country.

2. Recommendations

1. Expansion of preventive programme in schools.
2. Introduction of comprehensive school dental service.
3. Need for fluoride rinsing programme in areas without fluoride.
4. Training of school teachers to supervise fluoride rinsing.
5. Restriction on sweets intake.
6. Evaluation by reports.

LIBYAN ARAB JAMAHIRIYA (one dentist/8214 population)

1. Outstanding features of oral health situation

1. Low prevalence of dental caries.
2. High prevalence of periodontal diseases with loss of teeth in childhood.
3. 25% of population receives dental care.
4. Lack of oral health personnel for preventive programmes.
5. Insufficient school dental services.

2. Recommendations

1. Need for a national long-term coordinated oral health plan.
2. Need for implementation of national programme for primary prevention of periodontal diseases among schoolchildren.
3. Improvement of dental services for largest groups.
4. Improvement of dental services on demand.
5. Need for adequate oral health personnel.
6. Need for organization of school dental services.
7. Need for training of school teachers.
8. Need for training of dental auxiliaries.

OMAN (one dentist/100 000 population)

1. Outstanding features of oral health situation

1. Moderate caries level except in the south.
2. Moderate periodontal disease level.
3. Scarce manpower.
4. School dental service inadequate.

2. Recommendations

1. Need for comprehensive school dental service.
2. Need for fluoride programme in schools.
3. Need for administrative reorientation toward the preventive approach.
4. Need for fluoridation.
5. Evaluation by situation reports on standardization and management of services and establishment of an extension plan.

PAKISTAN (one dentist/73 000 population)

1. Outstanding features of oral health situation

1. High levels of periodontal disease.
2. Increased severity of dental caries.

2. Recommendations

1. A national oral health survey as a basis for promotion of dental services.
2. Establishment of schools for dental auxiliaries.
3. Establishment of systematic school dental services including preventive measures.
4. Upgrading of indigenous practitioners by courses given in one of the suggested auxiliary schools.
5. Establishment of administrative direction for dental services at the Federal level, assisted by chief dental officers at the individual state level.
6. Avoidance of brain drain of dental personnel.

SOMALIA (one dentist/1 000 000 population)

1. Outstanding features of oral health situation

1. Low disease level.
2. Indigenous practitioners.
3. Scarce manpower.

2. Recommendations

1. Need for auxiliary training.
2. Need for simple preventive programmes in schools supervised by teachers.
3. Need for training of national dentists.

SUDAN (one dentist/90 000 population)

1. Outstanding features of oral health situation

1. Low disease level but caries prevalence increasing.
2. Low (5%) treatment on demand.
3. Inadequate equipment and materials.
4. Maldistribution of dentists.

2. Recommendations

1. Need for formulation of oral health programme with preventive component.
2. Development of dental manpower policy.
3. Establishment of suitable recording system.
4. Review of dental school and auxiliary curricula.
5. Evaluation by reports.

SYRIAN ARAB REPUBLIC (one dentist/6000 population)

1. Outstanding features of oral health situation

1. Caries prevalence moderate-to-high.
2. Periodontal diseases prevalence moderate-to-high.
3. Only 16% seek service on demand.
4. Very large number of dentists (2365 by 1984).
5. Annual output 240 per year.
6. Maldistribution of dentists.

2. Recommendations

1. Need for integrated coordinated planning for oral health.
2. Top priority for preventive programmes.
3. Need for comprehensive school dental services.
4. Expansion of health education and oral health/hygiene activities.
5. Development of DTRC.
6. Participation in collaborative study on total fluoride intake.
7. Evaluation by reports.

YEMEN (one dentist/200 000 population)

1. Outstanding features of oral health situation

1. Pattern similar to that of Somalia; oral hygiene needs improvement.
2. Salivary gland affections and oral mucosa conditions.

2. Recommendations

1. Emphasis on oral hygiene improvement and oral health education.
2. Need for defluoridation in Taiz.
3. School programme using fluoride rinse in Sana'a and Hodeida.
4. Monitoring survey to identify caries-prevention needs.
5. Minimal systematic school dental services in Sana'a, Taiz and Hodeida.
6. Health education coordination with activities in schools.
7. Increase of treatment on demand to 5% by 1990.
8. Need for school for dental therapists (operating and non-operating auxiliaries).
9. Use of CHWs and auxiliaries in health education.
10. Need for training national dentists.

Annex 4

SUMMARY OF DENTAL SERVICES ON DEMAND

Country	Percentage of population receiving dental services	References
Bahrain	14%	Barmes, D. (1981)
Democratic Yemen	6%	Leous, P. (1981)
Libyan Arab Jamahiriya	25%	Leous, P. (1983)
Saudi Arabia	10%	Barmes, D. (1979)
Sudan	2%	Barmes, D. (1979)
Yemen	2-3%	Barmes, D. (1979)

Annex 5

DENTAL MANPOWER

EMRO

Dentist I = University trained
Dentist II = Sub-university trained

Country	Year	Dentist I	Dentist II	Therapist	Hygienist	Technician	Other	Population (in thousand)
Afghanistan, Republic of	1982	8	13					18 095
Bahrain	1985	40*			50*			360
Cyprus	1985	199		5				638
Democratic Yemen	1980	9						
Djibouti	1981	5*				3*		
Egypt	1982	7200*				950		47 240
Iran, Islamic Republic of	1983	4558						44 383
Iraq	1981	1387						15 475
Jordan	1982	523						3 888
Kuwait	1986	304			4	74	311	1 721
Lebanon	1979	730						2 963
Libyan Arab Jamahiriya	1982	420				250		3 611
Oman	1984	19				9	12	1 041
Pakistan	1982	1103						100 011
Qatar	1984	55				13	40	285
Saudi Arabia	1981	217						10 823
Somalia	1984	5				11		5 588
Sudan	1986	245*		127			152	21 211
Syrian Arab Republic	1984	1404		1*	50*	155*	460*	10 903
Tunisia	1981	330						7 156
United Arab Emirates	1982	95		80				883
Yemen	1981	26						6 536

* = FDI

Annex 6

SUMMARY OF REGIONAL ORAL HEALTH PROGRAMME

Activity		Implemented by	Target date
Completion of situation analysis in remaining Member States	Qatar Iran, Islamic Republic of Morocco Lebanon Tunisia	1. WHO Dental Officer and national staff at DTRC 2. WHO Dental Officer at ORH/Geneva	January to December 1990
Updating of situation analysis and planning national oral health programme	16 Member States in EMR	1. WHO Dental Officer and possible STC 2. WHO Dental Officer at ORH/Geneva 3. Consultants from International Collaborative Oral Health Programme	Starting January 1990 to December 1995. Four countries per year
1. Fellowships for different categories of ORH personnel from Member States to attend orientation in dental public health	WHO fellowships for 23 Member States ORH personnel, from WHO biennial budget for countries in the Region	DTRC	Ongoing activity after 1989
4. Intercountry workshop on oral health	WHO budget*	DTRC	November 1990 and November 1991
5. Preventive programmes	WHO budget*	23 Member States in EMR	Yearly according to national oral health plan
6. Monitoring/evaluation of programmes in EM Member States	23 Member States in EMR	1. WHO Dental Officer and national staff at DTRC 2. WHO Dental Officer at ORH/Geneva 3. Consultants from ICOHDP	Yearly starting January 1991 (one year after start of national oral health plan)
7. Research activities on total fluoride intake	Cyprus, Syrian Arab Republic and others	* WHO consultants for Cyprus and Syrian Arab Republic	1990/1991

* depending on availability of funds.

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ORAL HEALTH
SUMMARY OF RECOMMENDATIONS

It is recommended that Member States:

1. Formulate national oral health policies and plans relevant to the concept of primary health care and fully integrated into health care activities.
2. Reorient dental services towards primary prevention of oral diseases rather than their treatment.
3. Develop oral health manpower development programme relevant to national needs.
4. Utilize Regional Demonstration Training and Research Centre for Oral Health for reorienting oral health personnel towards preventive measures.
5. Encourage applied research for facilitating delivery of oral health care.

It is recommended that WHO:

1. Support completion of oral health situation analysis in countries.

2. Assist development and monitoring of national plans for oral health in countries.
3. Promote and support participation of countries in this Region in the International Collaborative Oral Health Development Project with extrabudgetary resources.
4. Promote collaboration with other agencies, both within and outside the Region. An example of such collaboration is the AGFUND supported project for improvement of oral health in 20 countries of all Regions, 7 of these being in EMR.