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A Lifetime of Healthy Smiles

NATIONAL ORAL HEALTH PLAN FOR MALAYSIA 2011-2020

Oral Health Division
Ministry of Health Malaysia
February 2011

FOREWORD BY THE PRINCIPAL DIRECTOR OF ORAL HEALTH MINISTRY OF HEALTH MALAYSIA

This National Oral Health Plan 2011-2020 (NOHP 2011-2020) has been developed in consultation with members of the dental fraternity and other relevant stakeholders from other Ministries, Non-government Organisations (NGOs), academia, industries and consumer groups. This document sets out national oral health goals and strategies to address the key areas of concern in the interest of a common outcome i.e. improving oral health of Malaysians.

Oral health is an aspect of health that must be considered holistically for the patients we serve. This Plan aims to increase oral wellness through education and disease prevention. We believe that individuals have a personal responsibility for their own health and wellness and we will promote this through coordinated educational activities.

The MOH recognises that improving the health of Malaysians can only be achieved by key organisations working together at all levels. Our new Vision of Health focuses on multisectoral collaboration in the words "A NATION WORKING TOGETHER FOR BETTER HEALTH". We have high hopes that by working together we can achieve much to prevent and control diseases and promote good health.

In this respect, the government should not be expected to fund and provide all health interventions but instead should set directions for public and private sectors to ensure that the health system contributes to socially-desired goals. We need good leadership and strategy, and a heightened sense of community and social responsibility. The MOH will assume a large part of the stewardship and will coordinate intersectoral action for health. It is hoped that the profession, especially the private sector, will form wider partnerships with other stakeholders to provide visibility and increase opportunities for social marketing and advocacy for oral health.

With this it is hoped that by 2020, all Malaysians will be able to proudly display their good dentition and oral health as they smile with joy as citizens of a developed country.

Lastly, I would like to thank members of the NOHP 2011-2020 task force committee and all others who have contributed to the successful drafting of the National Oral Health Plan for Malaysia 2011-2020.

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Principal Director of Oral Health
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February 2011

NATIONAL ORAL HEALTH PLAN FOR MALAYSIA 2011-2020

APPENDICES

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Vision for Health

A Nation Working Together
for
Better Health

1. BACKGROUND

Optimum oral health is defined as *a standard of health free from active disease, which enables a person to eat, speak, socialise and carry out the activities of daily living without pain, discomfort or embarrassment and which contributes to general well-being.* It is essential for good general health. Like other chronic diseases and conditions, the level of oral disease in the population is influenced by determinants of health such as the environment (physical and social), individual lifestyles and behaviour, socio-economic and political factors as well as access to healthcare services.

Although the majority of oral conditions are not life-threatening, the consequences of poor oral health can be severe enough to affect quality of life. These include oro-facial and dental pain, difficulty in eating, impaired speech, loss of self-esteem, restricted social and community participation, and even effects on employment prospects. More importantly, almost everyone is affected by oral disease at some time or other in their lives, although many of these conditions are preventable through simple and effective means. Sustained oral health improvement calls for action in tackling key areas of common risk factors such as poor quality diets, high sugar intake in foods and drinks, inappropriate infant feeding practices, poor hygiene, excessive smoking and alcohol consumption.

In 1999, the Oral Health Division, Ministry of Health Malaysia (MOH), spearheaded the National Oral Health Plan (NOHP). It was a timely move as the Malaysian Oral Health Goals 2000[1] was under review and local developments in the health sector saw a shift in focus from a provider-focused system to one focused on people, wellness and services.

Members of the dental fraternity were involved - from the MOH, universities, Armed Forces Dental Services, Aboriginal Affairs Department Malaysia (JHEOA), professional organisations and the private sector. Key issues were identified and goals were set. Broad strategies were outlined for the identified goals. The views of other stakeholders whose policies and practices impact on oral health were also crucial. These included the dental industry, food manufacturers and consumers. The NOHP was formulated based on consensus of all

[1] Malaysian Dental Association. Oral Health Goals for Malaysia by Year 2000. 43rd MDA AGM, Melaka, 5-7 April 1986

stakeholders in oral health to ensure the commitment of all relevant agencies for the national health agenda. This culminated in the document 'National Oral Health Plan'[2].

To gauge midterm performance, a conference to review the NOHP was held at the Institute for Health Management, MOH in Kuala Lumpur in 2006[3]. Participants from the dental profession and other stakeholders from the dental industry, Ministry of Education (MOE) and non-government organisations (NGO) attended to discuss their achievements in relation to the strategies. The goals for 2010 were also reviewed. Seven key oral health gain goals were shortlisted. The book, 'Malaysia's National Oral Health Plan 2010 - A Lifetime of Healthy Smiles' was published following the mid-term review[4].

The revised Oral Health Goals for 2010 had the objective of improving the health status and quality of life of Malaysians through lifelong wellness, and by reducing levels of morbidity and mortality caused by oral conditions of public health significance like dental caries, periodontal disease, oral cancer and dental injuries.

2. CHARTING FUTURE DIRECTIONS TOWARDS 2020

In line with Vision 2020, the Oral Health Division, MOH initiated the development of the National Oral Health Plan 2011-2020 (NOHP 2011-2020) in 2009. Development of the NOHP 2011-2020 encompassed the following:

- Situational analysis on oral health in Malaysia to include an evaluation of NOHP 2010 achievements and identification of areas for improvement
- Evaluation of the 9th Malaysia Plan (9MP) and planning for 10th Malaysia Plan (10MP).

The formulation of NOHP 2011-2020 also included review of important literature such as the Global Goals for Oral Health 2020[5],

[2] Oral Health Division, Ministry of Health Malaysia. National Oral Health Plan, 2002
[3] Oral Health Division, Ministry of Health Malaysia. Report on the Proceedings of the Conference on Review of National Oral Health Plan. Held at Institute of Health Management, MOH 5-6 June 2006, September 2006
[4] Oral Health Division, Ministry of Health Malaysia. Malaysia's National Oral Health Plan 2010 - A Lifetime of Healthy Smiles, 2006
[5] Hobdell M, Peterson PE, Clarkson J, Johnson N. Global goals for oral health 2020. Int Dent J 2003;53:285-8

the Millennium Development Goals (MDGs)[6] and oral health plans of selected countries.

3. SITUATIONAL ANALYSIS

Data from epidemiological surveys, related surveys and the MOH Health Information Management System (HIMS) were analysed to gauge oral health status in Malaysia. The following touches on some of the main findings and recommendations which form the rationale for determination of Key Oral Health Goals for Year 2020.

3.1 DENTAL CARIES

While oral health of school children has improved remarkably since 1971, oral health of preschool children is of concern where caries prevalence has declined but mean dft has not shown a similar decrease from 1995[7] to 2005[8] (Table 1). This suggests an increase in burden of oral disease (increasing caries severity) in a smaller proportion of young children that can be identified as a high-risk group.

Table 1: Oral Health Status of 5-Year-Old Children (1995-2005) and 6-Year-Old Children (1988-2007)

Variable	5-year-olds		6-year-olds		
	1995	2005	1988[9]	1997[10]	2007[11]
Mean dft	5.8	5.5	5.7	4.1	3.6
Caries prevalence	87.1%	76.2%	88.6%	80.9%	74.5%

Source: Oral Health Division, MOH[7-11]

[6] United Nations Development Programme. Millennium Development Goals. Available at http://www.undp.org/mdg/index.shtml.
[7] Oral Health Division, Ministry of Health Malaysia. Dental Epidemiological Survey of Pre-school Children in Malaysia 1995
[8] Oral Health Division, Ministry of Health Malaysia. National Oral Health Survey of Preschool Children 2005 (NOHPS 2005)
[9] Dental Services Division, Ministry of Health Malaysia. Dental Epidemiological Survey of Schoolchildren in Peninsular Malaysia 1988. Kuala Lumpur: Government Printers, 1988
[10] Oral Health Division, Ministry of Health Malaysia. National Oral Health Survey of Schoolchildren 1997 (NOHSS 97), 1998
[11] Oral Health Division, Ministry of Health Malaysia. National Oral Health Survey of Schoolchildren 2007 (NOHSS 2007).

In adults, increasing caries experience and prevalence with increasing age is noted from 1990[12] to 2000[13] (Table 2). However, within that 10-year period, the mean DMFT decreased for the younger age groups of 15-19, 20-24, 25-29, and 30-34.

Table 2: Dental Caries in Adults, 1990-2000

Age Group	Caries Prevalence (%)		Mean DMFT	
	1990	2000	1990	2000
15-19	86.1	70.5	4.6	2.9
20-24	91.8	81.9	6.9	4.4
25-29	93.1	91.0	9.1	6.0
30-34	95.4	94.5	10.9	8.4
35-44	96.7	96.1	12.9	12.1
45-54	98.1	97.0	15.4	15.6
55-64	98.8	96.3	20.3	20.1
65-74	N.A.	95.2	N.A.	23.2
75+	N.A.	94.1	N.A.	24.2
60+	N.A.	95.4	N.A.	22.3
65+	99.1	95.0	22.8	23.5
All	**94.6**	**90.3**	-	-

Source: Oral Health Division, MOH[12-13]

Recommendation

Early caries experience (caries status in the primary teeth) has been proven to be a reliable predictor of caries experience in the permanent dentition. Children having caries in their primary teeth were found to be three times more likely to develop caries in their permanent teeth[14]. Thus toddlers and preschool children with persistently high caries prevalence and increasing caries severity are groups where the profession need to re-direct more concerted efforts

[12] Dental Services Division, Ministry of Health Malaysia. Dental Epidemiological Survey of Adults in Malaysia, 1990

[13] Oral Health Division, Ministry of Health Malaysia. National Oral Health Survey of Adults 2000 (NOHSA 2000). Oral health status, impacts and treatment needs of Malaysian adults, Nov 2004

[14] Li Y, Wang W. Predicting caries in permanent teeth from caries in primary teeth: an eight year cohort study. J Dent Res. 2002 Aug; 81(8):561-566

to reduce morbidity from oral disease. The Millennium Development Goals (MDGs) as well as other international declarations have advocated for improved oral health targeting to reduce dental infection among children.

3.2 PERIODONTAL CONDITION

For 12- and 16-year-old schoolchildren, NOHP 2010 targets for healthy periodontium (CPI=0) have not been achieved[15,16]. Oral hygiene self-care among adolescents appears to be largely ineffective.

Periodontal health among school leavers and adults saw a marginal improvement from year 1990 to 2000[12-13]. The proportion of 15-19-year-olds with healthy periodontium increased from 17% in 1990 to 26% in 2000, while those presenting with calculus declined from 69% to 60%.

In the age group 35-44 years, the proportion with healthy periodontium remained unchanged at only 5% while those presenting with calculus decreased from 61% (1990) to 55% (2000). In the same period however, the proportion of 35-44-year-olds with pocketing of 4-5 mm increased from 23% to 28.5% while those with deep pockets declined marginally from 9% to 7.2% in 2000.

Overall high prevalence of periodontal conditions exist in the adult population. That the majority of school leavers and adults present with bleeding gums is a cause for concern since it is seen as a reflection of widespread ineffective personal oral hygiene practices which will most likely impact more severely on periodontal health in later life.

Recommendation

Dental plaque has been proven to initiate and promote gingival inflammation. Though gingivitis is a reversible condition, persistent gingivitis represents a risk factor for periodontal attachment loss and for tooth loss[17]. The absence of gingival bleeding, therefore, is a good indicator of good periodontal health or healthy periodontium. Hence, in the adult population, high prevalence of periodontal conditions

[15] Oral Health Division, Ministry of Health Malaysia. National Oral Health Survey of School Children 2007 (NOHSS 2007): 12-year-olds, 2010.
[16] Oral Health Division, Ministry of Health Malaysia. National Oral Health Survey of School Children 2007 (NOHSS 2007): 16-year-olds, 2010
[17] Lang NP, Schätzle MA, Löe H. Gingivitis as a risk factor in periodontal disease. J Clin Periodontol. 2009 Jul; 36 Suppl 10:3-8

must be addressed to reduce the problems of eventual tooth loss and edentulism in the elderly population.

3.3 TOOTH LOSS AND EDENTULISM

Tooth mortality is also a problem among adults and the elderly with only 76.9% and 23.9% of 35-44 and 60-70 age groups respectively having at least 20 functional teeth[13].

Edentulism has, however, declined among adults, reducing markedly across age groups 15 to 54. In the elderly aged 65 years and above, edentulism declined from 53.9% in 1974[18] to 41.5% in 2000[13]. However, in 2000, 2.8% of 35-44 age group and 32.1% of 60-70 age group were still reported as edentulous. Total tooth loss should not be experienced at 35-44 years when average life expectancy of Malaysians is more than 70 years.

Hence, overall oral health in the elderly population is not encouraging and NOHP 2010 targets have not been achieved. Many among the elderly population would have suffered from impacts on their quality of life due to tooth loss.

Recommendation

There is a need to manage and track edentulism among younger adults 35-44 year of age and among the elderly of 60+ years. While the school dental services of the MOH have reached more than 90% and 70% of primary and secondary schoolchildren respectively in 2009, only about 6% of adults use government oral healthcare facilities. Therefore, more effort is needed to increase access to oral healthcare, encourage greater use of preventive services and ensure appropriate referral of complex cases for specialist care only where needed.

[18] Dental Division, Ministry Of Health Malaysia. Dental Epidemiological Survey of Adults in Peninsular Malaysia, September 1974 – April 1975

3.4 ORAL CANCER

According to World Health Organisation (WHO) estimates, cancer rates are set to increase at an alarming rate, from 10 million new cases globally in 2000, to 15 million in 2020[19]. Tobacco use is a risk factor for development of periodontal disease and oral cancer. Smoking prevalence is high (21.5%) in the Malaysian population with 46.4% of males being smokers[20]. About 9% (8.7%) of adolescents (13 - <18 years) are already smokers. Tobacco use and other risk habits like betel quid chewing and excessive alcohol consumption that are prevalent in certain communities, coupled with late detection of oral cancers contribute to high disease burden, morbidity and mortality in affected individuals, and is also an area of concern. Only 26% were detected at stage 1[21] while the MOH reported a lower figure of 23%[22].

Recommendation

Although oral cancers are largely thought to be related to lifestyle and can be easily detected by a simple mouth examination, majority of oral cancers are detected at a late stage, thus entailing complex, costly and often ineffective therapies. This is the main reason for the high morbidity and mortality associated with oral cancers in Malaysia. Detection of oral lesions at an early stage is essential to render the greatest benefit to those affected. To combat the predicted sharp increase in new cancer cases, it is essential to embark on planning and implementation of effective cancer control strategies, such as reducing tobacco use and alcohol consumption, promoting healthy lifestyles and diets, performing early detection through screening and mouth self-examination (MSE) as well as pushing for greater awareness on risk habits for oral malignancies. All these are in line with the World Cancer Report preventive guidelines[23].

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[19] Mignogna MD, Fedele S, Lo Russo L. The World Cancer Report and the Burden of Oral Cancer

[20] Institute for Public Health, National Institutes for Health, Ministry of Health Malaysia. Third National Health and Morbidity Survey 2006 (NHMS III)

[21] Ministry of Health Malaysia, Penang Cancer Registry, 2003

[22] Oral Health Division, Ministry of Health Malaysia. Annual Report 2008. Preliminary report on 'Primary Prevention and Early Detection of Oral Cancer and Oral Pre-cancer, 2003-2008'

[23] World Cancer Report 2008 available at http://www.iarc.fr/en/publications/pdfs-online/wcr/2008/index.php

3.5 PAIN AND DISCOMFORT/ORAL HEALTH-RELATED QUALITY OF LIFE (OHRQoL)

Generally, adult Malaysians have a fairly good opinion of their oral health (58.4%). However, 10.8% considered their oral health poor while 26.6%, 21.7% and 6.2% of the age groups 35-44, 45-59 and 60 years respectively had pain related to teeth and gums[13]. In the NHMS III[18], while overall 10.0% of the study population reported dental pain/problem, the proportion reporting pain was highest at 15.7% in the preschool group (5-6-year-olds) and 13.6% in 16-year-olds.

Recommendation

To achieve the objective of enhancing oral health-related quality of life (QoL), there is the need to increase dental specialty training to address anticipated increasing demand for high technology care (e.g. in provision of implants, endodontic treatment) and complex care (e.g. oral healthcare for special needs groups). Auxiliary training also needs to be enhanced to further increase accessibility to oral healthcare. Dental undergraduate training has to be strengthened to ensure relevance to changing needs and demands of the population.

3.6 ENAMEL OPACITIES

While ongoing monitoring of enamel opacities has not reported any problem of public health significance, it is nevertheless accepted that the profession must remain vigilant to ensure the condition remains within acceptable limits in view of the widespread use of fluoridated toothpaste[24].

3.7 DENTAL & MAXILLOFACIAL INJURIES

There seems to be an increasing trend of facial fractures which may be attributed to road traffic accidents (RTA). Data from oral surgery units in 23 MOH hospitals from June 2002 to May 2005 reported that 79.6% of fractures were caused by RTA of which the majority (73%) involved motorcyclists[25]. This study also quoted that 54.9% of facial

[24] Oral Health Division, Ministry Of Health Malaysia. Fluoride Enamel Opacities in 16-year-old school children, June 2001

[25] Mustafa WM et al. The pattern of maxillofacial fractures in MOH Hospitals Malaysia. Mal J Oral Maxillofac Surg 2009; 7:1-7

bone fractures were attributed to RTA in 1974[26], 73.4% in 1984[27] and 81.1% in 1994[28].

Injuries to anterior teeth are on the rise in 12- and 16-year-old schoolchildren[15-16]. This may be related to increased participation in sports and recreational activities associated with active lifestyles and ignorance of or disregard for wearing injury-prevention devices.

3.8 HUMAN CAPITAL NEEDS

Based on concerns over possibility of oversupply of dental practitioners in the near future, the Oral Health Division MOH undertook efforts in 2008 to project the oral health human capital needs for Malaysia up to year 2020[29]. In determining manpower, several assumptions were made and two methods were employed – service target and health needs.

Projections included the oral health team by type of oral health facilities in MOH to target service needs. The health needs methodology largely depended on projections of the socio-economic and oral health status of the population, life-span, group cohort and utilisation of dental facilities. This also included the job description of personnel and projection of operating chair time for each dental team member. The population coverage was projected for each category of oral health personnel.

Manpower projection based on the service targets method show that the requirement for dentists approximates the projected current stock while the health needs method indicated the possibility of oversupply of dentists and dental therapists by year 2020.

Recommendation

Issues of oral health human capital development were not addressed in the previous Plan. Due emphasis should be given on this aspect to optimise use of available resources. There is a need for periodic manpower projections beyond mere annual calculations of dentist to

[26] Ramanathan K. Traumatic injuries to the facial skeleton. Malaysian Dent J 1974; 14:13-16
[27] Razak IA, Razak AA, Boon LC. An analysis of fractures of the facial skeleton. Dent J Malay. 1984; 6:25-27
[28] Mustafa WM, Rabindranath S, Azilina AB Zuraina AM. A survey of facial fractures in Kota Bharu, Kelantan. Dent J Malaysia 1994; 15:9-12
[29] Oral Health Division, Ministry of Health Malaysia. Report on proceedings of Workshop on Projection of Oral Health Human Capital Needs for Malaysia up to Year 2020. Held at Oral Health Division, MOH 19-24 Dec 2008, July 2009

population ratio. Issues on mal-distribution of dentists and shortage of expertise in various oral health disciplines also need to be addressed.

3.9 GENERAL RECOMMENDATIONS FOR ORAL HEALTH

Fluoridation of Public Water Supply

Ongoing monitoring of MOH data and results from national surveys have very clearly demonstrated better oral health status in fluoridated communities than in non-fluoridated communities. Although the MOH reported 75.5% of Malaysians having access to fluoridated water at end of 2009, the water fluoridation programme still needs to be closely monitored to sustain oral health improvement. Apart from upgrading rural infrastructure and educational facilities to reduce poverty and raise living standards, extending fluoridation of public water supplies will further reduce oral health disparities.

Health Information Management System

The MOH Health Information Management System (HIMS) must be strengthened to facilitate timely and vital information to support decision-making. An electronic patient record system, the Oral Health Clinical Information System (OHCIS) is currently piloted in the MOH. Its successful implementation will see its future expansion throughout the country. However, there is still a need to address the issue of data collection from the private sector.

There is the need to identify data related to the goals or strategies of the NOHP. Such data may include type of patients, type of treatment provided (symptomatic or preventive care), and percentage of time devoted to preventive care. The assistance of the Malaysian Dental Association (MDA) will be sought to facilitate data collection from dental practitioners in the private sector.

Research and Development

Ongoing research and development (R&D) in priority areas e.g on utilisation must continue. Towards this end, the Oral Health Division has initiated the need for a National Oral Health Research Initiative (NOHRI) in 2011 to encompass all agencies where there are members of the dental fraternity. The intention is to ensure that oral health research areas be given priority ranking in five-year Malaysia Plans. It is hoped that NOHRI will also ensure documentation of oral health

research in Malaysia as well as facilitate more collaborative research between agencies.

4. ACHIEVEMENTS OF ORAL HEALTH GOALS 2010

Achievements of the Oral Health Goals 2010 were summarised (**Appendix 1**). Some areas for improvement were identified:

- More precise targeting of outcomes and areas of focus
- A mechanism for monitoring and evaluation of implemented strategies
- Commitment of identified stakeholders to ensure operationalisation of identified strategies and ownership of the Plan
- Issues related to human capital development, distribution and accessibility

5. NATIONAL ORAL HEALTH PLAN 2011-2020 GOALS

Based on literature review and the situational analysis in Malaysia, key oral health goals and supporting goals were identified for year 2020 under the NOHP 2011-2010.

Key Oral Health Goals by Year 2020

Seven key oral health goals by year 2020 were identified (Table 3) covering four major conditions of dental caries, periodontal conditions, dentition status and oral cancer.

For oral cancer, 5-year survival rate may be the ideal outcome measure. However, it was decided to retain measures related to staging because of current difficulty in obtaining data on 5-year survival rates. It was suggested that this goal be reviewed at mid-term. The Oral Cancer Research and Coordinating Centre (OCRCC) should by then, have further developed their system of follow-up of potentially

malignant oral lesions and have an increased database of such patients.

Table 3: Key Oral Health Goals by Year 2020

Oral Condition	Key Goal
Dental caries	1. 50% of 6-year-olds are caries-free
	2. 70% of 12-year-olds are caries-free
	3. 50% of 16-year-olds are caries-free
Periodontal conditions	4. 50% of 16-year-olds have healthy periodontium
Dentition status	5. 0% of adults in the 35-44 age group are edentulous
	6. 60% of 60-year-olds have at least (≥) 20 teeth
Oral cancer	7. 30% of oral cancers are detected at stage 1

Supporting Goals for Oral Health by Year 2020

Supporting goals in the form of process indicators and other existing NOHP 2010 goals were maintained for the monitoring of strategies that have been identified (Table 4).

Table 4: Supporting Oral Health Goals by Year 2020

Oral Condition	Supporting Goal
Dental caries	1. dft 6-year-olds ≤ 2
	2. DMFT12-year-olds ≤ 1
	3. DMFT 16-year-olds ≤ 2
Developmental enamel defects	4. Prevalence of unaesthetic developmental enamel defects in 16-year-olds ≤ 2%

In addition, process output may be measured or monitored by different agencies using various indicators based on their specific activities or action plans.

6. MAJOR STRATEGIES FOR ACHIEVING KEY GOALS

The major strategies for achieving the key goals are outlined in Appendix 2.

For the last few years, the month of April has been selected as Oral Health Month. Advantage is taken of this existing initiative to have themes that address key oral health concerns. The aim is to coordinate activities and concentrate focus of stakeholders in implementing the major strategies. The areas of focus and suggested themes for oral health are in **Appendix 3.** The annual healthy lifestyle campaign themes of the MOH and WHO World Health Day themes should also be considered wherever appropriate.

7. MONITORING NOHP 2011-2020

A mechanism for monitoring the implementation of the NOHP 2011-2020 is outlined in **Appendix 4.** This is necessary to ensure sustainable gains in oral health through the proposed goals, strategies and activities, and to ensure that relevant stakeholders are discharging their role and function. An Executive Committee shall be established as the monitoring body to spearhead, facilitate, monitor, and evaluate the Plan. Relevant agencies will be made accountable to provide feedback on status of achievement of the strategies.

Appendix 1

ACHIEVEMENT OF NOHP 2010 GOALS

Dental Caries

Age Group	Goal	Baseline	Achievement
6	dft<2	4.1 (1997)	3.6 (2007)
12	DMFT < 1.5	1.9 (1997)	1.1(2007)
16	DMFT < 2.5	3.3 (1997)	2.1(2007)
	MT < 1	0.3 (1997)	0.12(2007)
	Not < 90% with MT=0	-	91.6%(2007)

Periodontal Condition

Age Group	Goal	Baseline	Achievement
16	3% or less with periodontal pockets of 4mm or more	3% (1997)	1.5%(2007)
35-44	20% or less with periodontal pockets of 4-5mm	23% (1990)	28.5%(2000)
	5% or less with periodontal pockets of 6mm or more	9% (1990)	7.2% (2000)

Oral Cancer

Age Group	Goal	Baseline	Achievement
> 20 years	30% of oral cancers detected at stage 1	NA	23.1% (2008)

Dental Injuries

Age Group	Goal	Baseline	Achievement
12	<2% with injuries to anterior teeth	2.5% (1997)	5.4%(2007)
16	<5% with injuries to anterior teeth	4.1% (1997)	4.4%(2007)

Health Gain & Function

Age Group	Goal	Baseline	Achievement
6	30% with caries-free dentition	19.4% (1997)	25.5%(2007)
12	60% with caries-free permanent dentition	39.1% (1997)	58.5%(2007)
16	40% with caries-free permanent dentition	24.% (1997)	40.4%(2007)
12	95% with healthy periodontium	94.4% (1997)	19.6%(2007)
16	50% with healthy periodontium	33.3% (1997)	10.6%(2007)
35-44	100% with minimum of 20 functional teeth	NA	76.9%(2000)
60-70	50% with minimum of 20 functional teeth	NA	23.9%(2000)
35-44	0% are edentulous	7.3% (1990)	2.8%(2000)
60-70	30% or less are edentulous	55% (1996)	32.1%(2000)

Oral Health Promotion

Age Group	Goal	Baseline	Achievement
All	100% own a toothbrush	NA	94%(2006)
	100% brush at least once daily	98.1%(1990)	100%(2003)

Additional Health Gain Indicators

Age Group	Goal	Baseline	Achievement
6	All cleft lip/palate cases referred for management	100% (1997)	99.9% (2006)
12	95% free from preventable oro-facial pain	93%(1999)	94.7%(2006)
16	90% free from preventable oro-facial pain	85%(1997)	86.4%(2006)
	2% or less with aesthetically unacceptable enamel defects	1.4%(1997)	1.1%(2001)

Summary

Out of 26 national oral health goals for 2010, only 11 goals (42%) have achieved their targets. The majority of achievements are in the younger age groups for whom MOH bears responsibility. However, oral health status of younger children who are not yet captive groups in the school system is still a continuing problem. Dental caries in 6-year-olds may be attributed to family and environmental factors, some of which we cannot explain and there is a need to gather further evidence. The MOH needs to consider other approaches, including those that might involve system changes, such as extending free oral healthcare to young adults/ school leavers.

Dental injuries in 12-year-olds have increased. This may be due to increase in various contact sports. The system of data collection may also have improved due to greater emphasis on addressing the problem of dental injuries.

The unsatisfactory periodontal condition of 12- and 16-year-old schoolchildren as reported in the National Oral Health Survey of Schoolchildren (NOHSS) 2007 may be attributed to issues pertaining to use of periodontal indices to assess periodontal conditions. The Oral Health Division has taken note of this and will take action to address the issue.

There is lack of up-to-date data on oral health conditions of adults and the elderly. However the ongoing National Oral Health Survey of Adults (NOHSA) 2010 will give more accurate data to report on achievement of the oral health goals for these groups.

The goal for unaesthetic unacceptable enamel defects is maintained at 2% or less for 16-year-olds. Although the prevalence of fluorosis is found to be not of any public health significance, it is deemed prudent to remain vigilant and be alert to any changes in the condition. This is in view of proposals to increase water fluoridation as a population-based approach for caries prevention and the use of other forms of fluorides both for home use and for clinical prevention.

Appendix 2

MAJOR STRATEGIES FOR ACHIEVING KEY GOALS

KEY GOALS	MAJOR STRATEGIES	ACTIVITY/ ACTION PLAN	AGENCIES	PROCESS OUTPUT	SUPPORTING GOALS
DENTAL CARIES Key goals: 1. 50% of 6-year-olds with caries-free dentition 2. 70% of 12 year-olds with caries-free dentition 3. 50% of 16 year-olds with caries-free dentition	1. Promote healthy diet/nutrition/ sugars reduction	1a – Promote health and nutrition label literacy among oral health personnel and oral health product suppliers and promoters 1b – Promote safe for teeth confectionery/food and drinks (tooth-friendly), increase tax incentives 1c – Active support for reduce sugar consumption campaign "One is enough, less is better" of the MOH 1d – Identify and appoint a role model or suitable mascot for diet/ nutrition/caries (obesity, diabetes) 1e – Revisit canteen guidelines. Advocate for increased monitoring and healthy eating in schools 1f - Advocate for low sugar products	Ministry of Health (MOH) Govt dental services (GDS) Private dental services (PDS) Ministry of Education (MOE) Dental Industry Multisectoral involvement	• Each agency to identify in action plan • But for collaborative efforts, indicators will be the same for all agencies involved. • Indicators will refer to the activities under Action Plans	i. dft 6-yr-olds ≤ 2 ii. DMFT12-yr-olds ≤ 1 iii. DMFT 16-yr-olds ≤ 2 iv. 2% or less of aesthetically unacceptable developmental enamel defects in 16-year-olds
	2. Continue water fluoridation as a population based approach for caries prevention	Sustain and increase coverage of water fluoridation in public water supply: 2a – Advocate fluoridated public water supply for rural areas 2b – Maintain water fluoridation at optimum level (0.5ppm)	MOH Private/public water authorities/ state government *Suruhanjaya Perkhidmatan Air Negara* (SPAN)		

KEY GOALS	MAJOR STRATEGIES	ACTIVITY/ ACTION PLAN	AGENCIES	PROCESS OUTPUT	SUPPORTING GOALS
			Ministry of Energy, Green Technology and Water		
	3. Expand clinical prevention: Fluoride varnish (FV) and fissure sealants (FS) targeted for high risk groups	3a – FV for HR toddlers/preschool children , FS for preschool children 3b - Use of topical fluorides - toothpaste and fluoride mouth rinsing (FMR)	Multisectoral involvement		
PERIODONTAL CONDITION Key goal: 4. 50% of 16-yr-olds with healthy periodontium	4. Promote personal dental care: • Tooth brushing with fluoridated toothpaste twice daily • Use of dental floss	4a -TBD as a daily SOP activity for all nurseries and preschools 4b - Oral health literacy for parents/carers of toddlers/ antenatal mothers/ front line health personnel 4c – Promote flossing behaviour among teenagers	MOH Multisectoral involvement Preschool & Nursery Association Flossing product manufacturers		
DENTAL CARIES & PERIODONTAL DISEASE IN ADULTS Key goals: 5. 0% of 35-44-yr-olds are edentulous 6. 60% of 60+ age group have at least (≥) 20 teeth at age 60	5. Increase preventive behaviour in adults	Action plan to be developed with multisectoral involvement including proposals from public and private sectors and dental industry on following themes: 5a - Promote preventive visits among adults as a way of life 5b – Promote flossing behaviour and improve tooth brushing effectiveness among adults	Private sector General dental practitioners (GDPs) Malaysian Dental Association (MDA)		

KEY GOALS	MAJOR STRATEGIES	ACTIVITY/ ACTION PLAN	AGENCIES	PROCESS OUTPUT	SUPPORTING GOALS
		5c – CPD in preventive dentistry for oral health personnel, private sector dentists & their staff (marketing of preventive services) 5d – To consider establishment of a scheme for dental hygienist (manpower development of expanded dental auxiliaries)			
	6. Increase accessibility (equity, availability and affordability) of preventive services (e.g. annual dental check-up, scaling, polishing, topical fluorides)	6a - Promote public demand for preventive dental services 6b - Propose fiscal policies for government • Financing for adult oral healthcare to include free-check-up • Tax incentives for annual dental checkups / preventive oral healthcare	MDA MOH/ Ministry of Finance (MOF)		
ORAL CANCER Adults > 20 yrs Key goals: 7. 30% of oral carcinoma cases detected at stage 1	7. Strengthen primary prevention and promote early detection of oral lesions	To be developed together with interested stake holders: 7a - Strengthen screening programme 7b - Promote mouth self-examination (MSE) as a way of life 7c - Initiate mechanism to increase compliance to referral protocols 7d - Promote advocacy for tobacco usage prevention and cessation initiatives	MOH Multisectoral Involvement Oral Cancer Research and Coordinating Centre (OCRCC)		

KEY GOALS	MAJOR STRATEGIES	ACTIVITY/ ACTION PLAN	AGENCIES	PROCESS OUTPUT	SUPPORTING GOALS
		7e - Support NCR (National Cancer Registry) – advocate for oral cancer as a notifiable condition 7f - Strengthen multisectoral initiatives in oral cancer management/ research; promote research on prevalence of risk habits to oral cancer (quid chewing, reduce alcohol)			

Note:
The activities/action plans are not exhaustive or listed in importance. Each agency is at liberty to identify and draw up its own action plans to address the major strategies that have been identified.

Appendix 3

AREAS OF CONCERN

AREAS	STRATEGIES	AKTIVITY/ACTION PLAN	AGENCIES
1. DENTAL & MAXILLOFACIAL INJURIES < 20 yrs (domestic, playground, school, dento-facial injuries) > 20 yrs (MVA) (Reduce maxillary-mandibular bone fracture injuries)	1. Reduce preventable domestic and sports injuries to teeth 2. Reduce prevalence & severity of maxillofacial bone injuries due to MVA 3. Support all initiatives to promote use of safe public transport	- Advocate mouth guards for contact sports with MOE/ Ministry of Youth & Sports (MOY&S) - Advocate for use of full-face helmets for motorcyclists and fast sports(incl. tax free incentives) - Support rear seat belt use - Emplace mechanism for data collection	MOH,MOE, MOY&S Ministry of Transport (MOT) / Road Transport Department (RTD) / MOF
2. ENHANCE OHRQOL & REDUCE PAIN & DISCOMFORT • CL/CP (cleft lip/cleft palate) • Special needs groups (elderly, disadvantaged, marginalised, handicapped) • Pain & discomfort / OHRQoL (oral health related quality of life)	1. Strengthen monitoring databases on conditions - Cleft lip and palate - Oral health status of special needs group - Oral pain and discomfort & OHRQoL - Potentially malignant lesions and high risk habits to oral malignancies - Enamel opacities	- Promote research on OHRQoL and the economic impact of oral diseases in the Malaysian population - Promote public perception on importance of oral health for QoL - Ensure holistic management of CL/CP (including oral health) before age 3 years. - Advocate for oral healthcare programmes for special needs	IHSR/ Universities MOH, MDA, GDPs MOH,OCRCC Primary health care referrals & Hospital Centres of Excellence

AREAS	STRATEGIES	AKTIVITY/ACTION PLAN	AGENCIES
• Potentially malignant lesions	2. Human capital development - Increase dental specialty and enhance auxiliary training in Malaysia	- Advocate increase in local institution capacity to train dental specialists and dental auxiliary - Advocate increase in funding and scholarship in dental specialty training locally and abroad - Advocate OHRQoL aspects in auxiliary training (basic and post basic or CPD module)	MOH//MOE/MOHE/Local public & private training institutions

Appendix 4

AREAS OF FOCUS AND SUGGESTED THEMES FOR ORAL HEALTH

The following areas of focus and themes are suggested to address identified oral health issues and conditions that impact the national oral health goals. The intention is to tactically focus the dental fraternity on areas of concern to avoid fragmentation of promotion and service efforts that do not serve the population or the fraternity in the best way. Every opportunity to showcase and highlight these areas of focus for oral health together with other health or health-related professional organisations and associations should be taken.

The order in which the areas of focus are shown do not reflect any order of priority or chronology. Neither does it negate other suggestions for slogans. It is important to note that in no way do these suggestions negate previous slogans that have been adopted. For example 'Lifetime of Healthy Smiles' will continue to be our ultimate aim but the areas of concern below tactically represent smaller and specific areas that support the ultimate aim.

AREA OF FOCUS	SUGGESTED THEMES
1. Oral health of young children	• Never too early to start • Healthy teeth healthy growth • Miles of Smiles
2. Reduce sugar intake	• Healthy eating healthy teeth • Oral health and diabetes
3. Adult oral health - preventive dental visits	• A visit in time saves teeth/nine/32 • Good oral health is the responsibility of everyone • Oral wellness for general wellness • *Mulut sihat, badan sihat* • Prevention brings lasting satisfaction
4. Improving periodontal health (adults, adolescents)	• Floss away bleeding gums and gum disease • Gum disease: Floss, No Loss
5. Early detection of oral lesions	• Make mouth self-examination (MSE) a way of life
6. Improving oral health of older adults	• Never too late to begin • Better late than never • Oral wellness is the gateway to good general health • Oral wellness: Gateway to wellness
7. Reduce/ prevent dental injuries and maxillofacial trauma	• Safety…Do it. Do it right. Do it right now. • Keep safety in mind. It will save your smile. • Protect your teeth at all times • Take time out for safety • Dare to be aware • Don't be a fool, 'cause safety is cool, so make that your rule • Ignoring a warning can cause much mourning • It hurts to be unsafe

MECHANISM FOR MONITORING THE IMPLEMENTATION OF NOHP 2011-2020

A mechanism to monitor the implementation of NOHP 2011-2020 is necessary to ensure
- sustainable gains in the proposed oral health goals, strategies and activities, and
- that relevant stakeholders discharge their role and function.

An Executive Committee shall be established as the monitoring body to spearhead, facilitate, monitor, and evaluate the Plan.

1. Establishment of the National Oral Health Plan (NOHP) Executive Committee

The Committee shall be of multisectoral representation to ensure effective collaboration for implementation of strategies and activities of the Plan. The Executive Committee shall be chaired by the Principal Director of Oral Health, Ministry of Health Malaysia.

1.1 Membership of the NOHP Executive Committee

It is proposed that the Committee comprise members from the following agencies:

1. Principal Director of Oral Health, Ministry of Health Malaysia (Chairperson)
2. Oral Health Division, MOH (other Directors of Oral Health)
3. State Oral Health Divisions, MOH (six divisions by region)
4. Malaysian Dental Association (representing also the Malaysian Private Dental Practitioners' Association and other professional affiliates)
5. Deans' Caucus (President)
6. Armed Forces Dental Services, Ministry of Defence
7. World Health Organisation (representative for Malaysia, Singapore and Brunei)
8. Public Health Department, MOH (Health Education and Disease Control Divisions)
9. Ministry of Rural and Regional Development
10. Ministry of Education Malaysia

The Chairperson will have the casting vote.

It will be the prerogative of the Executive Committee to appoint task forces and work groups where necessary. Such task forces may include members from specialties and other professional groups, *Jabatan Hal Ehwal Orang Asli* (JHEOA), other Divisions of the MOH, Non-government Organisations (NGO), and other relevant Ministries e.g. Ministry of Energy, Green Technology and Water and Ministry of Women, Family and Community Development.

1.2 Secretariat

The secretariat for the Executive Committee shall be the Oral Health Division, MOH. The secretariat shall be responsible to co-ordinate meetings, produce minutes and generate progress reports.

1.3 Terms of Reference

The terms of reference of the NOHP Executive Committee shall be as follows:

- To provide direction in the implementation of identified strategies
- To assist in ensuring collaboration between agencies for identified activities
- To monitor progress/achievements on a timely basis and institute appropriate remedial measures where necessary
- To generate progress reports at defined intervals
- To convene bi-annual meetings
- To review the achievements of the Plan at scheduled intervals
- To reformulate goals and re-strategise activities, where necessary.

2. Implementation

Planning for the implementation of the NOHP 2011-2020 strategies or activities may be based on the following proposed template:

Example:

Strategy: To strengthen oral health promotion for antenatal mothers, toddlers and preschool children			
Activity	**Responsible Agency**	**Time-line**	**Monitoring Indicator**
1) Oral health education to antenatal mothers	MOH (co-ordinator)	6-monthly	% antenatal mothers given oral health talks

3. Monitoring

Monitoring of achievements of NOHP 2011- 2020 based on the goals and indicators identified shall be undertaken at scheduled intervals and may be based on the following proposed template:

Example 1:

Goal 1 : 30% with caries-free dentition among 6-year-olds					
Age group	**Outcome/Process Indicator**	**Baseline (Year)**	**Achievement (Year)**	**Formula**	**Data Source**
6-year-olds	To include both tangible and intangible outcomes			Numerator / Denominator	• Studies • Process indicators • Status reports of activities • Descriptive documentation (template – BCSDR, CRF) • Best practices

Monitoring of strategies, activities on all areas of focus may take the form of a status report.

Example 2:

Area of Focus: Oral health of young children

The status report may cite the following:

- Events held, date and duration, venue
- Agencies involved
- Frequency held, if relevant
- Targeted group, if relevant, number
- Specific activities undertaken
- Funding
- Others, etc

4. Scheduled Reviews of NOHP 2011 – 2020

Scheduled reviews of the NOHP 2011- 2020 will coincide with the mid-term reviews of the 5-year Malaysia Plans. There will be 3 reviews before the final evaluation over the 10-year period of NOHP 2011-2020:

- mid-term of the 10th Malaysia Plan,
- end of the 10th Malaysia Plan,
- mid-term of the 11th Malaysia Plan.

In these reviews, the proposed goals shall be reviewed and re-formulated and strategies re-aligned where relevant.

5. Final Evaluation of NOHP 2011- 2020

An evaluation of the achievements of NOHP 2011-2020 shall be conducted at the end/ after the 11th Malaysia Plan. This will be documented at the end of the Plan.