GUIDELINES

Primary Prevention and Early Detection of Oral Potentially Malignant Disorders and Oral Cancer Programme

DRAFT

ORAL HEALTH PROGRAMME

MINISTRY OF HEALTH MALAYSIA

2025

FOREWORD BY DEPUTY DIRECTOR GENERAL OF HEALTH (ORAL HEALTH)

The "Guidelines for Primary Prevention and Early Detection of Oral Potentially Malignant Disorders and Oral Cancer Programme" initiative represents a pivotal step forward in our relentless fight against oral cancer, a pressing public health issue in Malaysia.

While early detection of oral cancer greatly enhances survival rates, more than 60% of cases in Malaysia are identified at advanced stages. More than 50% of oral cancer patients in Malaysia do not survive beyond five years, with survival rates significantly lower for those diagnosed at advanced stages. Oral cancer stands out as one of the few cancers that can be visible, yet many opportunities for early detection are overlooked due to a lack of awareness and delayed access to specialised healthcare for timely diagnosis and treatment.

Thus, this guideline represents a comprehensive approach to primary prevention and early detection of oral potentially malignant disorders and oral cancers. It aims at empowering healthcare professionals and the public with the right knowledge and tools, and we aim to identify potentially malignant disorders at the earliest possible stage. Early detection is crucial, as it significantly increases the chances of successful treatment and can dramatically improve quality of life for patients.

Implementation will be prioritised across Ministry of Health (MOH) facilities, supported by coordinated action with state health departments, non-governmental organisations, and community leaders. Our dedication extends to every corner of Malaysia, ensuring that these guidelines are not just words on paper but are actively implemented in MOH facilities and communities nationwide. Through partnerships with local health authorities, NGOs, and community leaders, we will focus on accessibility and inclusivity, ensuring that no one is left behind.

Stakeholders are encouraged to actively support and sustain the implementation of this guideline as part of broader efforts to reduce cancer burden and promote population health—acknowledging that oral health is an integral component of national health priorities.

In conclusion, I wish to express my appreciation to everyone involved in the development of this guideline. Your dedication and hard work have made this possible. Together, let us strive to foster a healthier future for all, as there is no health without oral health.

Thank you.

ACKNOWLEDGEMENT

Dr. Noormi binti Othman
Former Deputy Director General of Health (Oral Health)
Oral Health Programme

Dr. Natifah binti Che Salleh
Former Director of Oral Healthcare Division
Oral Health Programme

Dr. Marzuki bin Zainal Abidin
Head of Department
Oral and Maxillofacial Surgery Consultant
Hospital Tengku Ampuan Rahimah

Dr. Norul Mashirah binti Mohd Noor
Head of Department
Oral Pathology and Oral Medicine Specialist
Hospital Sultan Idris Shah

DRAFT

THE WORKING COMMITTEE

Advisors

Dr. Fauziah binti Ahmad
Deputy Director General of Health (Oral Health)
Oral Health Programme

Dr. Tan Ee Hong
Director of Oral Healthcare Division
Oral Health Programme

Chairperson

Dr. Thaddius Herman Maling
Deputy State Health Director (Oral Health)
Sabah State Health Department

Members

Dr. Nuryastri binti Md. Mustafa
Deputy Director
Community Oral Healthcare Section
Oral Health Programme

Dr. Zurina Asiah binti Musa
Deputy State Health Director (Oral Health)
Labuan Federal Territory Health Department

Dr. Aznilawati binti Abdul Aziz
Senior Principal Assistant Director
Community Oral Healthcare
Oral Health Programme

DRAFT

Dr. Roslina binti Mohd Fadzillah Mah
Divisional Dental Officer
Kuching Divisional Dental Office
Sarawak State Health Department

Dr. Aira Syazleen binti Ahmad
Senior Principal Assistant Director
Oral Health Epidemiology & Research
Oral Health Programme

Dr. Siti Nur Fatihah binti Abdul Halim
Senior Principal Assistant Director
Community Oral Healthcare
Oral Health Programme

Dr. Fasya Rima binti Mohd Nabori
Dental Officer
Hulu Langat District Dental Office
Selangor State Health Department

Dr. Nuraisyah Zhafirah binti Abdullah
Dental Officer
Hulu Langat District Dental Office
Selangor State Health Department

Dr. Nurfazlina binti Rosman
Dental Officer
Perak State Health Department

Dr. Nur Izzah binti Shapiee
Dental Officer
Selangor State Health Department

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ABBREVIATIONS

DIS	Dental Information System
DPHSU	Dental Public Health Specialist Unit
HPV	Human Papillomavirus
KBM	Klinik Berhenti Merokok
MSE	Mouth Self Examination
NCSCT	National Centre for Smoking Cessation and Training
OCC	Oral Cavity Cancer
OHP MOH	Oral Health Programme of the Ministry of Health Malaysia
OMFS	Oral and Maxillofacial Surgery
OPC	Oropharyngeal Cancer
OPOM	Oral Pathology and Oral Medicine
OPMD	Oral Potentially Malignant Disorders
SCC	Squamous Cell Carcinoma
VBA	Very Brief Advice
WHO	World Health Organization

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1.0 INTRODUCTION

Oral Potentially Malignant Disorders (OPMDs) are mucosal abnormalities detectable during oral examination, and early detection is crucial for reducing oral cancer incidence and improving survival rates (Warnakulasuriya, 2020).

In Malaysia, the Primary Prevention and Early Detection of Pre-Cancer and Oral Cancer Lesions Programme was initiated in 1997. Later, the Guideline of Primary Prevention and Early Detection of Oral Precancer and Cancer was introduced in 2002 (OHD, 2002). This guideline was revised in 2018, with a focus on empowering a high-risk screening approach among individuals and communities through multi-sectoral collaboration involving various government and private agencies as well as Non-governmental Organisations (NGOs) (OHP, 2018). The programme has grown over the past 20 years through ongoing partnerships with various supporting agencies.

In 2020, to increase the number of individuals screened for oral cancer, it was mandated that all new patients aged 18 and above attending dental check-ups be examined for oral lesions (OHP, 2020). Patients with oral lesions suspected as an OPMD or oral cancer are referred to dental specialists for further investigation and management. In 2022, a total of 1,892,283 patients were screened at dental clinics and outreach programmes. 666 (0.04%) patients were referred to Oral and Maxillofacial Surgery (OMFS) or Oral Pathology and Oral Medicine (OPOM) specialists. Of those referred, 89.5% of patients screened complied with the referral to specialists (OHP, 2023).

Despite the efforts made, only 6.5% of oral cancer cases were detected at Stage I, and 15.0% were detected at Stage II (OHP, 2023) by the primary oral healthcare services. This low rate of early detection is likely attributable to the limited coverage of oral cancer screening, as evidenced by the low utilisation rate of Ministry of Health Malaysia oral health services—an estimated 25.5% in 2023 (OHP, 2023). Contributing factors are insufficient stakeholder engagement and the lack of community empowerment, particularly among disadvantaged and underserved populations (Gunjal et al., 2020). These gaps lead to differences in how many people get screened and make it harder for the public to take part in community programmes, which ultimately decreases awareness of oral cancer signs and symptoms and the need for regular oral screenings.

Furthermore, operational challenges, such as the necessity to complete multiple forms for patient screening and referral, as well as inadequate referral feedback mechanisms, impede efforts to provide comprehensive care to the patient, compromising the overall effectiveness of the screening programme.

Moreover, the absence of specialised training among numerous healthcare providers to detect early signs of oral cancer presents a substantial obstacle to oral cancer screening, potentially leading to missed or delayed diagnoses (Johnson et al., 2020). Additionally, a study found that cultural beliefs and stigma about cancer discourage people from seeking screening and treatment (Gupta et al., 2021).

In addition, socioeconomic backgrounds and geographic factors were identified as contributing factors. Financial constraints, especially among the lower-income demographic, might hinder access to screening services, especially for economically disadvantaged individuals. Those in rural or remote areas may encounter challenges in accessing these services due to distance and transportation limitations (Petersen et al., 2019). The challenges and barriers identified across service delivery settings offer valuable insights into the realities faced by both healthcare providers and patients. These perspectives serve a crucial role in guiding the formulation of oral cancer screening guidelines that are both evidence-informed and responsive to stakeholder priorities and operational realities.

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2.0 LITERATURE REVIEW

2.1 Definition

Oral cancer is a global public health issue and remains one of the leading causes of death due to oral diseases. It includes cancers of the lips, various parts of the mouth, and the oropharynx (WHO, 2023). According to the International Classification of Diseases for Oncology (ICD-O), oral cancer is classified into two distinct types: oral cavity cancer (OCC), also known as "mouth cancer," and oropharyngeal cancer (OPC), or "throat cancer". The United States National Institute of Health (2023) defines oral cancer as cancers affecting both the mouth and the back of the throat. Specifically, it refers to cancers that develop on the tongue, the tissue lining the mouth and gums, under the tongue, at the base of the tongue, and in the area of the throat at the back of the mouth (NIH, 2024).

However, recent research suggests that carcinoma of the mouth (oral cancer) should be considered a separate disease from carcinoma originating in the oropharynx. This distinction is made because oropharyngeal cancer is primarily linked to human papillomavirus (HPV) infection, whereas oral cancer is more commonly associated with traditional risk factors such as tobacco and alcohol use (Speight & Farthing, 2018). Additionally, the FDI World Dental Federation defines oral cancer as malignancies, predominantly squamous cell carcinomas, that are highly lethal, disfiguring, and incapacitating. This includes malignancies of the vermillion borders of the lips and all surfaces of the oral cavity, including the anterior two-thirds of the tongue (FDI, 2015).

While the WHO definition encompasses both OCC and OPC, the Oral Health Programme of the Ministry of Health Malaysia (OHP MOH) defines oral cancer as any cancer affecting the orofacial region, specifically the oral mucosa of the tongue, lips, gingiva, palate, and alveolus.

The anatomical boundaries are the vermillion border of the lips in the front and the uvula and retromolar trigone at the back. However, this definition excludes tumours of the salivary glands found in the same anatomical area.

OPMD refers to a group of conditions that affect the oral mucosa and have the potential to progress into oral cancer, particularly oral squamous cell carcinoma. Although these disorders are not cancerous in themselves, they present an increased risk of malignant

transformation. Early identification and management of OPMD are essential for preventing oral cancer. Common types of OPMD include leukoplakia, erythroplakia, oral submucous fibrosis (OSMF), lichen planus, actinic cheilitis, and suspicious oral cancer.

Leukoplakia appears as a white patch or plaque that cannot be wiped off and cannot be diagnosed as any other condition either clinically or pathologically. It is the most common OPMD and has a variable risk of malignancy depending on its characteristics (e.g., homogeneous vs. non-homogeneous leukoplakia). Erythroplakia, a less common red lesion that cannot be attributed to another condition, carries a much higher risk of malignant transformation than leukoplakia. OSMF is a chronic, progressive condition often associated with areca nut chewing. It typically leads to fibrosis of the oral mucosa, causing stiffness and limited mouth opening, with a significant risk of malignancy. Lichen planus is a chronic inflammatory condition that appears as white, lace-like patterns, red lesions, or ulcers, with the erosive or atrophic types carrying a higher risk of malignancy. In contrast, actinic cheilitis is a precancerous condition of the lips caused by long-term sun exposure, usually characterised by atrophy, dryness, and scaling of the lips.

Any oral lesion that does not resolve within two to three weeks should raise suspicion for the treating clinician. Lesions that are exophytic, proliferative, or papillomatous can also be indicative of oral cancer. Furthermore, a non-healing extraction socket (lasting more than 6 weeks) should be considered suspicious for a potential alveolar carcinoma. Oral cancers, aside from squamous cell carcinoma (SCC), may manifest as pigmented lesions.

2.2 Epidemiology

According to data from the Global Cancer Observatory (GLOBOCAN), in 2020, there were 377,713 new cases of oral cancer diagnosed worldwide, along with 177,757 deaths from the disease. The incidence rate was higher in men (6.0 per 100,000) compared to women (2.3 per 100,000) (IARC, 2022a). Regionally, oral cancer ranks as the 11th most common malignancy in Asia and the 4th in Southeast Asia, with 166,900 new cases reported in 2020 (IARC, 2022b; IARC, 2022c). In Southeast Asia, oral cancer is the 5th most common cause of cancer-related death, following lung, breast, cervix, and liver cancers, with 92,418 deaths reported in 2020 (IARC, 2022c). In Malaysia, there were 742 new cases and 403 deaths in 2020, and the number of prevalent cases over a five-year period was 2,199 (IARC, 2022).

Oral cancer is particularly common among the Indian ethnic group, ranking 6th in Indian females and 12th in Indian males. The prevalence of oral cancer detected at Stage I ranges from 10% to 30% across various sites, including the lips, tongue, and mouth (MNCR, 2019).

2.3 Clinical Management

Oral cancer typically presents as abnormalities in the oral cavity, including the soft palate, alveolar ridge, retromolar trigone, buccal mucosa, lips, tongue, floor of the mouth, and rigid palate. Patients may also experience loose teeth, bleeding, discomfort or numbness in the mouth or face, difficulty with dental prostheses, and a sudden unexplained weight loss. The most common presentation is an ulcerated lesion in the oral cavity. Other signs that may suggest oral cancer include white lesions, erythematous lesions, exophytic growths, proliferative lesions, or papillomatous formations (Wong & Wiesenfeld, 2018). A tissue biopsy from the suspicious area is essential for confirming the diagnosis.

Diagnosing oral cancer requires a comprehensive head and neck examination, including precise measurement, palpation to assess lesion thickness, clinical evaluation of cervical lymph nodes, and radiological imaging (Wong & Wiesenfeld, 2018). Surgery remains the primary treatment for most oral cancers, with the goal of removing the cancer, preserving or restoring the affected area's shape and function, minimising treatment side effects, and preventing the development of new malignancies (Shah & Gil, 2009).

Since the 1970s, the prognosis for oral cancer has improved significantly, largely due to the increased use of adjuvant therapies and chemoradiotherapy (Cheraghlou et al., 2018). Over the past three decades, the age-standardised incidence of oral cancer has steadily risen worldwide, while age-standardised mortality has declined (Stewart & Wild, 2014). This suggests that advancements in treatment and technology have contributed to longer survival rates, leading to an increase in the number of survivors. However, patients may still be affected by the clinical symptoms of oral cancer and the side effects of treatment, which can significantly impact their quality of life (Valdez & Brennan, 2018; Aoki et al., 2021; Breeze et al., 2017; Doss et al., 2017; Sjamsudin et al., 2018).

2.4 Risk Factors

Oral cancer is a multifactorial condition influenced by various risk factors, including harmful lifestyle behaviours such as tobacco smoking, betel quid chewing, and alcohol consumption (Choi SY et al., 1991; Ko YC et al., 1996; Balaram et al., 2002; Radoi et al., 2017). Betel quid chewing, especially when combined with tobacco use, significantly increases the risk of oral cancer, with studies showing a threefold increase in certain populations and a five- to eightfold increase in others (Subapriya et al., 2007). Consuming more than 50 grams of alcohol daily has been linked to a sevenfold rise in oral cancer risk in specific demographic groups (Moreno-Lopez et al., 2000). Additionally, the combined effects of tobacco smoking, alcohol consumption, and betel quid chewing further amplify the risk of oral cancer (Petti et al., 2013).

Emerging evidence strongly suggests a causal link between HPV and certain types of oral cancer, particularly those affecting the tongue and tonsils, which are more common in young individuals with no history of tobacco or alcohol use (Pirmoradi et al., 2024). In addition to behavioural risk factors, other factors such as socioeconomic status, occupational exposures, and genetic predisposition have also been found to increase the likelihood of developing oral cancer (Conway et al., 2008; Rajkumar et al., 2008; Chi et al., 2015; Irani S, 2016; Agrawal et al., 2013; Llewellun et al., 2001; Zain et al., 1997).

2.5 Risk Habit Management

Effective management of behavioural risk factors such as tobacco use, alcohol consumption, and betel quid chewing is essential in preventing oral cancer and other non-communicable diseases. One evidence-based intervention is Very Brief Advice (VBA), developed by the UK's National Centre for Smoking Cessation and Training (NCSCT). VBA is designed to be time-efficient, preserving positive patient-provider relationships, and comprises three concise steps: Ask, Advise, and Act. Integrating VBA into routine clinical practice underscores the vital role of structured risk habit management in reducing disease burden and improving public health outcomes (NCSCT, 2021).

Empirical evidence indicates that most patients report satisfaction with VBA, with approximately 25% experiencing heightened motivation to cease smoking following its administration by a general practitioner. Patients consistently demonstrate a preference for

supportive and empathetic communication styles rather than those employing fear-based tactics. Importantly, even individuals not currently prepared to quit smoking acknowledge that VBA has increased their propensity to seek cessation support from healthcare providers in the future (Papadakis et al., 2020).

2.6 Impact of Oral Cancer

Patients with oral cancer often experience significant pain (Khawaja et al., 2021; Sjamsudin et al., 2018) as well as psychological distress (Kumar et al., 2018; Schell, 2018), both of which can severely impact their quality of life (Aoki et al., 2021; Breeze et al., 2017; Doss et al., 2017; Sjamsudin et al., 2018). The most distressing aspect is the potential for death (Bartella et al., 2018; Wang et al., 2021). The impact on patients is further exacerbated by the adverse effects of oral cancer treatments, which can affect aesthetics, speech, voice, and swallowing. Surgical treatment may lead to altered facial appearance, causing social isolation and psychological distress (Valdez & Brennan, 2018).

Oral cancer affects not only the patients but also those around them. Evidence has shown that cancer impacts both patients and their carers in different ways (Shahi et al., 2014; Tan et al., 2018; Troschel et al., 2021; Unsar et al., 2021; Ahmad et al., 2023). Recent studies have highlighted that caregiving for cancer patients significantly impacts caregivers' quality of life (Abdullah et al., 2020; Goswami et al., 2020; Decadt et al., 2021; Mishra et al., 2021; Üzar-Özçetin et al., 2020; Ahmad et al., 2023), leading to unmet supportive care needs (Wang et al., 2021; Yang et al., 2021; Stolz-Baskett et al., 2021; Chua et al., 2020; Stiller et al., 2021; Ahmad et al., 2023) and caregiving burden (Priya et al., 2021; Mishra et al., 2021; Üzar-Özçetin et al., 2020; Webber et al., 2020).

The financial burden of oral cancer is substantial but often underestimated (Ribeiro-Rotta et al., 2022; Wissinger et al., 2014; Lee et al., 2004). More than three-quarters of cancer-related expenses are paid out-of-pocket, which can place families at significant financial risk and lead to catastrophic costs that affect not only the patient but the entire family (Goswami et al., 2023). Furthermore, oral cancer may result in a loss of income-generating capabilities. While this is true across all socioeconomic groups, it disproportionately impacts those from lower socioeconomic backgrounds, who often rely on physical labour for their livelihood (Bhoo-Pathy et al., 2017). Non-medical costs, such as transportation, accommodation, and

childcare, further contribute to the financial strain, particularly for individuals in lower socioeconomic strata.

2.7 Prevention Strategies

Oral cancer has one of the lowest survival rates when detected at advanced stages. Delayed diagnosis and ineffective treatment at later stages of the disease have been linked to poor survival outcomes in oral cancer cases (Brocklehurst et al., 2013; Gronhoj et al., 2018; Schutte et al., 2020). The primary factors contributing to delayed diagnosis include a lack of awareness among patients about the risk factors and symptoms of oral cancer, inaccurate clinical judgement by attending physicians or dentists, and long waiting times to access healthcare services (Basharat et al., 2019; Badri et al., 2022). The longer the delay in diagnosis, the more likely the cancer will progress to an advanced stage, requiring more extensive treatment, leading to a poorer prognosis and increased psychological distress (Scully & Kirby, 2014; Stefanuto et al., 2014; Rakhmaniah & Sufiawati, 2017).

Previous studies have shown that early detection and prevention of OPMD can lead to a better prognosis and improve the survival rates of those who develop oral cancer (Speight et al., 2018; Awan KH et al., 2014). Since the oral cavity is an accessible anatomical region for examination by dentists, physicians, and even individuals themselves, regular dental check-ups and awareness of the signs and symptoms of oral cancer are critical for early detection (Semple et al., 2013; Gomez I, 2010). Mouth Self-Examination (MSE) is a valuable tool for early detection, reducing the time between detecting oral lesions and initiating treatment, thus allowing for preventive measures and raising awareness about the disease. It empowers individuals to recognise symptoms and seek help sooner (Elango et al., 2011; Sankaranarayanan R. et al., 2005).

Both prevention and screening of oral cancer are widely recognised as essential, and early diagnosis can lead to less aggressive treatment, improving not only the quality of life but also the overall 5-year survival rate (Awan K., 2014). Opportunistic mass screening is an effective strategy to detect oral cancer in its precancerous or early stages, where survival rates are higher, and it has proven to be cost-effective (Warnakulasuriya S. et al., 2021). However, when screening is limited to high-risk individuals, those who are not classified as high risk may be missed and not screened (Subramanian S. et al., 2009).

In 2022, the OHP MOH strengthened its Primary Prevention and Early Detection of OPMD and Oral Cancer Programme through collaboration with relevant agencies. To increase the number of people screened for oral cancer, all new patients aged 18 and above who attend dental check-ups will be screened for oral lesions (opportunistic screening). If an oral lesion is suspected to be an OPMD or oral cancer, the patient will be referred to a dental specialist for further assessment or investigation. The attendance of referred patients to specialist clinics and their diagnoses will be tracked. High-risk communities, based on widespread prevalence of high-risk habits or identified cancer cases, will be visited once every five years (OHP, 2018). However, identifying high-risk communities is challenging, as oral cancer cases are no longer confined to known groups, such as estate workers. Therefore, efforts are being made to emphasise mouth self-examination to help individuals identify any abnormalities in their mouths.

Although early detection of oral cancer significantly improves survival, over 60% of oral cancer cases in Malaysia are detected at later stages, meaning more than 50% of oral cancer patients do not survive beyond five years (Ministry of Health, 2019). While oral cancer is one of the few cancers that are visibly detectable, missed opportunities for early detection stem from low awareness of the disease and limited access to specialised healthcare for early diagnosis and treatment. Advancements in technology, such as mobile applications, offer a promising solution for enhancing early detection and management of oral cancer. However, issues related to data privacy, accuracy, and equitable access must be addressed to maximise their impact (Topol, 2019).

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3.0 RATIONALE

The National Oral Health Strategic Plan 2022-2030 aims to increase the detection of oral cancer cases at Stage I to 30% by 2030. Currently, the annual early detection rate for oral cancer at Stage I ranges from 4.2% (2019) to 12.8% (2021) (OHP, 2022).

Given the challenges faced during the programme's implementation and the Ministry of Health's efforts to improve opportunistic screening, there is a need to update the existing guidelines. This revised version of the guidelines for the prevention and early detection of OPMD and oral cancer will help with program implementation, monitoring, and evaluation, focusing on the importance of early detection and a clear referral process, in line with global practices and new technologies.

4.0 AIM AND OBJECTIVES

4.1 Aim of the Guidelines

To serve as guidance for the implementation, monitoring, and evaluation of oral cancer screening programmes in Malaysia.

4.2 General Objective of the Programme

To strengthen the implementation, monitoring, and evaluation of the initiatives for primary prevention and early detection of OPMD and oral cancer among Malaysians.

4.3 Specific Objectives of the Programme

i. To empower the community on oral cancer awareness through oral health education.

ii. To increase the percentage of the population aged 18 years and above screened for oral cancer.

iii. To improve patients' compliance with OPMD and oral cancer referral cases to specialists.

iv. To strengthen oral health promotion on oral cancer through interagency collaboration.

5.0 TARGET POPULATION

Oral cancer screening shall be provided to all Malaysian adults aged 18 and above who attend outpatient dental clinics and outreach programmes.

6.0 IMPLEMENTATION STRATEGIES

6.1 Oral Health Promotion for Oral Cancer Prevention

Health promotion strategies for oral cancer should take a comprehensive public health approach, aiming to raise awareness about the prevention and early detection of OPMD and oral cancer. Given the shared risk factors for these diseases, a common risk factor approach is recommended for the programme. Oral health promotion should include:

a) High-risk habits: tobacco use (smoking or smokeless), betel quid chewing, alcohol consumption, and other risk factors (sun exposure, radiation, chemical exposure, poor diet, and HPV infection)
b) Signs and symptoms of OPMD and oral cancer
c) Mouth self-examination (MSE)
d) Annual dental checkups

The focus should be on increasing community awareness and empowering individuals to practice self-care through MSE and to commit to yearly screenings. Early detection is crucial for preventing OPMD from progressing to oral cancer, and in some cases, it may even reverse with the cessation or modification of high-risk habits. Detecting oral cancer at an early stage significantly improves survival rates, prognosis, and quality of life.

Health personnel play a key role in effectively communicating this information to the community. Oral health education should be delivered through various channels, including chair-side counselling, health campaigns, outreach programmes, educational workshops or seminars, health volunteers, mass media, and social media. Healthcare providers are more likely to encounter patients at higher risk for oral cancer, presenting a greater opportunity for early detection.

6.2 Oral Cancer Screening

Oral cancer screening should be an integral part of routine dental check-ups and must be performed by a dental officer. This screening should be offered to all consenting Malaysian adults aged 18 and above who attend outpatient services at dental clinics and outreach programmes, regardless of the presence of widespread high-risk habits or identified cancer cases in the community. The screening process should include the following:

a) **Identifying individuals at risk for oral cancer**

b) **Systematic oral examination**

Identifying individuals at risk for oral cancer can be done by enquiring about the patient's medical history, family history, and habits related to risk factors such as tobacco use, alcohol consumption, and betel quid chewing.

A systematic oral examination shall be done to ensure no lesions are overlooked. A thorough examination of both the extraoral and intraoral areas should be conducted. Patients with suspicious OPMD or oral cancer lesions should be promptly referred for further evaluation and appropriate management.

All findings must be recorded in a systematic manner for reference and further action.

6.3 Referral Management

Dental practitioners have two (2) distinct procedures of referral management, which are referral management of patients with the oral potentially malignant disorders and oral cancer lesions and referral management of patients with risky habits.

6.3.1 Referral Management of Patients with OPMD and Oral Cancer Lesions

Refer all OPMD and suspicious oral cancer lesions to a specialist within two (2) weeks to ensure an early diagnosis and specialised care.

a) Referral pathway for patients with oral potentially malignant disorders and oral cancer lesions:

All cases of OPMD and suspicious oral cancer lesions shall be referred to the nearest dental specialist clinic for further management. Cases involving oral lumps and bumps that require biopsy or surgical removal shall be referred to an OMFS specialist. Cases clinically diagnosed as mucosal lesions shall be referred to an OPOM specialist. In hospitals without an OPOM specialist, such cases should be referred to an OMFS specialist.

b) Forms and recording instructions for patients with lesions:

All patient information, including demographic details, risk habits, family history of cancer, and referral information, is recorded in the Dental Information System (DIS). The referral procedures for all patients who exhibit clinical features of OPMD and suspicious oral cancer lesions during examination will be documented as follows:

- **Online based**

All referred cases shall be entered into the DIS, and an Oral Potentially Malignant Disorders and Oral Cancer Screening Referral Form **(OCAS 1)** will be generated from the DIS. The form must be verified by the dental officer before the patient is referred to the OMFS/OPOM specialists.

- **Offline based**

If the DIS is unavailable, patient information should initially be recorded in Kad Rawatan LP.8-2 (Dewasa/Am) or LP8-3 (Komuniti). The referred cases should be documented in the OCAS 1 form. Once the DIS becomes available, patient information must be updated accordingly.

The flowchart for oral cancer screening and referral is attached as **Appendix 1**.

c) Compliance Monitoring:

The patient's attendance to the dental specialist clinic shall be recorded by scanning the QR Code in the OCAS 1 form, which will then be updated automatically into the DIS. The compliance status will be monitored by clinic, district, state, and national coordinators. Patients who fail to attend their appointment must be contacted promptly. Dental

practitioners who referred the cases should emphasise to patients the urgency of seeking specialist consultation.

6.3.2 Referral Management of Patient with Risk Habits

Referral management of patients with risk habits aims to facilitate individuals to reduce and cease risk habits.

a. Approach

The risk habits intervention can be brief, simple, and cost-effective and should not disrupt the practice routine. As such, this approach is based on the VBA Model, adapted from NCSCT. The VBA consists of three key elements: **ASK**, **ADVICE**, and **ACT**:

ASK	Establishing and recording high risk habit status
ADVICE	Advising on the personal benefits of quitting
ACT	Offering help

b. Referral pathway

All patients with risk habits will receive advice on the importance of attending local cessation services for specialised support. Those who are interested and motivated to quit will be referred to these services as follows:

- *Perkhidmatan Berhenti Merokok Di Klinik Pergigian*
- Dental Public Health Specialist Unit (DPHSU)
- *Klinik Berhenti Merokok (KBM)*
- Online Quit Smoking Service

c. Forms and recording instructions for patients with risk habits:

The referral form for patients with risk habits to the cessation service should be completed as follows:

- DPHSU using *Borang Rujukan Pesakit Ke Unit Pakar Pergigian Kesihatan Awam* (*Lampiran* DPHS1); or
- KBM using *Borang Rujukan Pesakit* that available in the e-ISO Quality Management System; or
- Online Quit Smoking Service (https://jomquit.moh.gov.my/).

A flowchart for Management of Patients with Risk Habits is attached as in **Appendix 2**.

6.4 Intensify Inter/Intra-Agency and Public-Private Collaboration

Strong partnerships between various agencies and parties are essential for improving patient care and public health outcomes. This can be achieved through a more coordinated and comprehensive approach involving government, private, and non-governmental organisations. To achieve these goals, the following actions are recommended for implementation:

- To incorporate oral cancer screening into the national cancer screening programme
- To be actively involved in the implementation of *Pelan Strategik Kebangsaan Bagi Kawalan Tembakau & Produk Merokok 2021- 2030*
- To conduct interagency meetings periodically in planning and implementing the oral cancer programme
- To involve other health personnel either in public or private sectors in screening and promoting oral cancer awareness
- To conduct outreach programmes in collaboration with various agencies in increasing participation from the community.
- To incorporate oral health screening in health campaigns and other activities
- To collaborate with other agencies in conducting public awareness campaigns
- To strengthen oral cancer research' join projects.

6.5 Training

Implementing training programmes for health personnel and oral health practitioners is essential to strengthen their role in the early detection and prevention of oral cancer. This training can be divided into:

6.5.1 Training of Standardisation and Calibration for Oral Health Practitioners

Standardisation and calibration are crucial to ensure uniformity and accuracy in screening, diagnosis, and management of oral health conditions. The Training Modules for Primary Prevention and Early Detection of Oral Potentially Malignant Disorders and Oral Cancer (2015) provide a comprehensive framework focusing on risk habit management and the implementation of MSE. These modules aim to equip oral health practitioners with the necessary skills to detect early signs of oral potentially malignant disorders and oral cancer, allowing for timely intervention and appropriate referrals.

6.5.2 Training of Risk Habit Management

Strengthening the role of health and oral health practitioners in the early detection of oral cancer is essential for effective prevention efforts. Continuous professional development programmes should prioritise training in risk habit management, with a strong emphasis on education and awareness. These sessions should aim to increase awareness of risk behaviours linked to oral cancer and highlight the critical role of MSE.

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7.0 MONITORING AND EVALUATION

The programme shall be continuously monitored based on the data entry in DIS. Monitoring and evaluation will be done at the district, state, and national levels. Indicators used for monitoring are comprised of output indicators and outcome indicators.

7.1 Data Collection

All clinical findings must be recorded in DIS, and reports are generated using the ***Laporan Pencapaian Program*** **for Primary Prevention of Oral Potentially Malignant Disorders and Oral Cancer Early Detection (OCAS 2)**. Oral health education provided through chairside campaigns, community outreach programmes, educational workshops/seminars, health volunteers, mass media, and social media must be documented in DIS, with reports generated as **PGPRO 01 and PGPR 201**.

Furthermore, all program-related training activities will be tracked using the ***Laporan Am Latihan Anggota Kesihatan Program for the Primary Prevention of Oral Potentially Malignant Disorders and Oral Cancer Early Detection*** **(OCAS 3)**. Training activities include:

a) Training to familiarise and standardise the use of new forms among dental practitioners.
b) Oral cancer awareness for healthcare personnel.
c) MSE awareness among health personnel
d) Training for the cessation of risk habits by the dental practitioners

7.2 Indicators

There are two (2) indicators that will be used for monitoring and evaluation of the programme, which are comprised of output indicators and outcome indicators.

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7.2.1 Output Indicator

Output indicators enable evaluations of the program's effectiveness at the district, state, and national levels. The indicators are stated as follows:

No.	Output Indicators	Numerator	Denominator	Data Source
1.	Percentage of population aged ≥18 who have undergone oral cancer screening	Numbers of new patients aged ≥18 years attending dental checkups undergone oral cancer screening	Total number of populations aged ≥18 years	DIS (OCAS 2) DOSM
2.	Percentage of new patients aged ≥18 years who have undergone oral cancer screening	Numbers of new patients aged ≥18 years attending dental checkups who have undergone oral cancer screening	Total of new patients aged ≥18 years attending primary oral health services (MOH facilities & community programmes)	DIS (OCAS 2)
3.	Percentage of patients ≥18 years receive oral cancer education	Number of patients ≥18 years receive oral cancer education at chairside	Total of new patients attending primary oral health services (MOH facilities & community programmes)	DIS (PGPR 201)
4.	Number of interagency oral cancer programmes/activities conducted per year	-	-	DIS (OCAS 2)
5.	Percentage of patients with suspected OPMD	Number of patients with suspected	Total number of patients with suspected OPMD	DIS (OCAS 2)

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No.	Output Indicators	Numerator	Denominator	Data Source
	lesions referred and seen by dental specialist	OPMD lesions referred and seen by dental specialists	lesions referred by dental specialists	

7.2.2 Outcome Indicator

The outcome indicator is stated as follows:

No.	Outcome Indicators	Numerator	Denominator	Data Source
1.	Percentage of oral cancer cases detected at stage I	Number of patients diagnosed with oral cancer reported at stage I	Number of patients diagnosed with oral cancer with staging report	Health Informatics Centre

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8.0 RESEARCH

Research shall be undertaken to measure the effectiveness of the programme. The following are some areas or fields of interest that have been suggested for research on oral cancer:

a) Prevalence of OPMD and incidence of oral cancer in Malaysia
b) Oral cancer literacy and uptake of MSE
c) Underlying phenomenon of delayed diagnosis and barriers for early treatment
d) Identification and validation of predictive and prognostic tools for companion diagnostics of oral cancer and OPMD
e) Survival rate and patient's quality of life
f) Factors affecting mortality and morbidity rate associated with oral cancer
g) Economic evaluation of prevention and/or treatment of oral cancer and OPMD
h) Effectiveness of Primary Prevention of Oral Potentially Malignant Disorders & Oral Cancer Early Detection Programme

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9.0 WAY FORWARD

9.1 Integration of Oral Cancer Screening Data

A centralised digital platform shall be developed to integrate oral cancer screening reports with other health records, such as the Patient Registry Information System. This will enable seamless data sharing and enhance coordination among healthcare providers, leading to improved patient management.

9.2 Digitalisation in Oral Cancer Detection

With advancements in technology, promising solutions to enhance the early detection and management of oral cancer are becoming more viable. The widespread use of electronic devices integrated with cutting-edge artificial intelligence technologies can offer accessible screening tools, educational resources, and improved connectivity between healthcare professionals, the community, and patients.

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10.0 CONCLUSION

The revised guidelines for the oral cancer programme aim to strengthen the implementation of the Primary Prevention and Early Detection of Oral Potentially Malignant Disorders and Oral Cancer Programme by addressing previous shortcomings. These improvements focus on enhancing early detection, improving data management, strengthening referral pathways, increasing collaboration, and promoting education and awareness. Together, these efforts aim to reduce the prevalence and incidence of oral potentially malignant disorders and oral cancer in Malaysia.

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12.0 APPENDICES

1) Flow Chart for Oral Cancer Screening and Referral (Appendix 1)

2) Flow Chart for Management of Patients with Risk Habit (Appendix 2)

3) Oral Potentially Malignant Disorders and Oral Cancer Screening Referral Form (OCAS 1) (Appendix 3)

4) Laporan Pencapaian Program Primary Prevention of Oral Potentially Malignant Disorders & Oral Cancer Early Detection (OCAS 2) (Appendix 4)

5) Laporan Am Latihan Anggota Kesihatan Program Primary Prevention of Oral Potentially Malignant Disorders & Oral Cancer Early Detection (OCAS 3) (Appendix 5)

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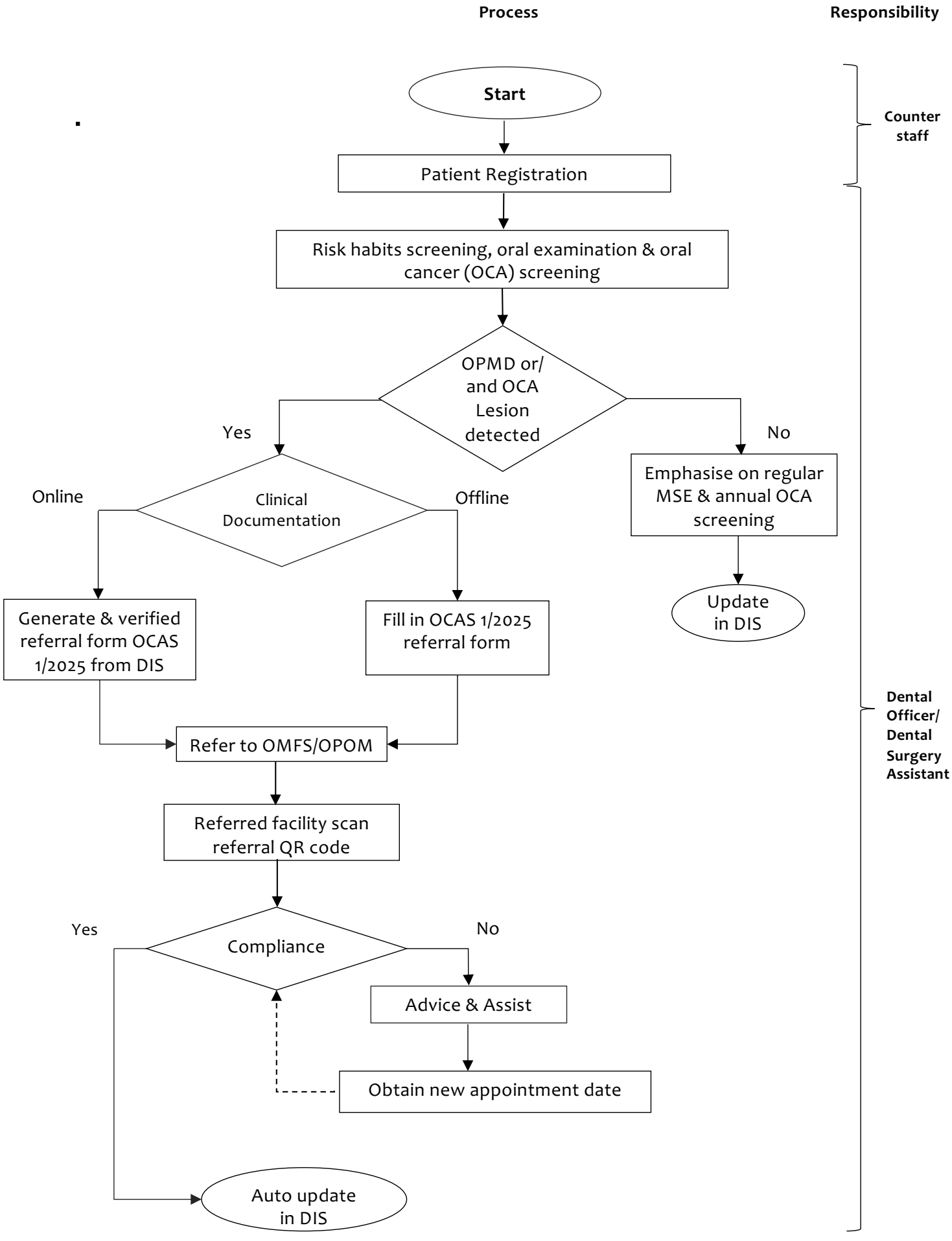
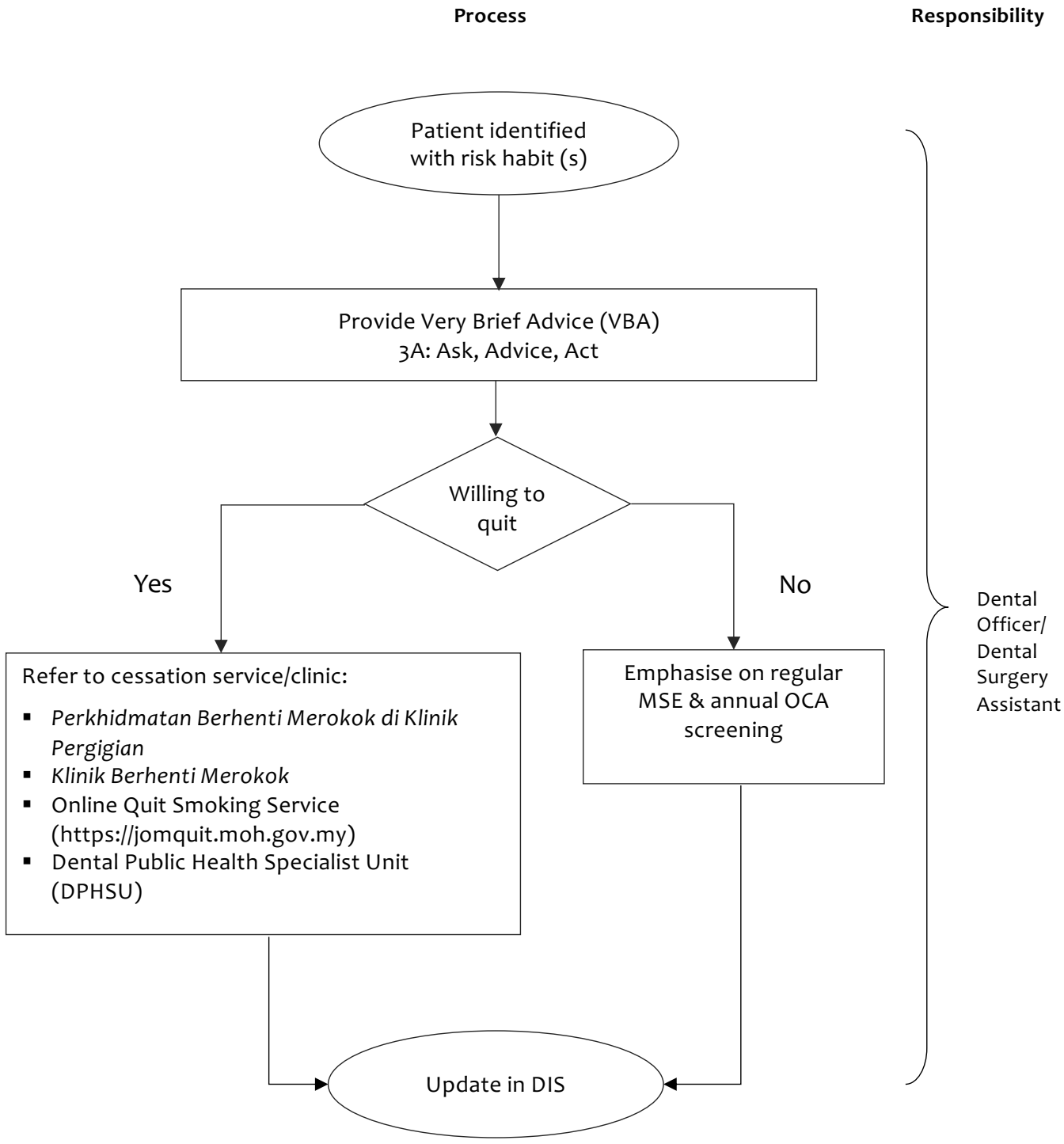
Appendix 1

Flow Chart for Oral Cancer Screening and Referral Process



Flow Chart for Management of Patients with Risk Habits



Appendix 3

OCAS 1

ORAL POTENTIALLY MALIGNANT DISORDERS AND ORAL CANCER SCREENING REFERRAL FORM

PATIENT DETAILS

Full Name (As in ID):

ID No. (NRIC/Passport):

Home Address:

Age: Gender: ☐ M ☐ F

Contact No.:

E-mail:

Next of Kin

Contact No.: E-mail:

MEDICAL HISTORY

Present illness (please specify)

Medication (please specify)

SITE OF ORAL LESION (tick ☑ on the relevant box)

Lip
- ☐ Right ☐ Left
- ☐ Upper ☐ Lower
- ☐ Commisure ☐ External
- ☐ Labial

Buccal Mucosa
- ☐ Right ☐ Left

Floor of Mouth
- ☐ Right ☐ Left
- ☐ Anterior

Tongue
- ☐ Right ☐ Left
- ☐ Dorsum ☐ Lateral
- ☐ Ventral ☐ Tip

Mandible
- ☐ Right ☐ Left
- ☐ Alveolus

Palate
- ☐ Right ☐ Left
- ☐ Hard ☐ Soft

Maxilla
- ☐ Right ☐ Left
- ☐ Alveolus

☐ Others (please specify)

SIGN & SYMPTOMS (tick ☑ on the relevant box)

- ☐ White patch
- ☐ Red patch
- ☐ Mixed red & white patch
- ☐ Unexplained ulceration >2 weeks
- ☐ Lump & bump (growth)
- ☐ Others (please specify)

RISK HABITS & FACTORS (tick ☑ on the relevant box)

- ☐ No risk habit/factor
- ☐ Smoking (cigarette/e-cigarette/shisha/cigar/pipe)
- ☐ Smokeless tobacco (snuff)
- ☐ Alcohol drinking
- ☐ Betel quid chewing
- ☐ Patient's history of cancer
- ☐ Family's history of cancer
- ☐ Exposure factor (sunlight/radiation/chemical)
- ☐ Others (please specify)

DIAGNOSIS & NOTES

Referral Notes:

Provisional Diagnosis:

Signature & official stamp

Date:

Name of Practitioner:

Name of Referral Clinic:

For OMFS or OPOM usage only:

bit.ly/m/OCSMOH

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Appendix 4

LAPORAN PENCAPAIAN PROGRAM PRIMARY PREVENTION &
EARLY DETECTION OF ORAL POTENTIALLY MALIGNANT DISORDERS & ORAL CANCER
PROGRAM KESIHATAN PERGIGIAN, KEMENTERIAN KESIHATAN MALAYSIA (PKP KKM)
BULAN: TAHUN:

Negeri:
Daerah:
Klinik:

Bil	Perkara	
MAKLUMAT SARINGAN KANSER MULUT DI PERKHIDMATAN PERGIGIAN PRIMER		
1	Bilangan pesakit warganegara berumur 18 tahun dan ke atas yang disaring lesi mulut di perkhidmatan pergigian primer (fasiliti KKM dan program komuniti).	N
	Jumlah kedatangan baru pesakit warganegara berumur 18 tahun dan ke atas yang mendapatkan pemeriksaan pergigian di perkhidmatan pergigian primer (fasiliti KKM dan program komuniti).	D
	Peratus pesakit warganegara berumur 18 tahun dan ke atas yang disaring lesi mulut di perkhidmatan pergigian primer (fasiliti KKM dan program komuniti) (N/D x 100).	%
MAKLUMAT SARINGAN KANSER MULUT DI PROGRAM KOMUNITI		
2	Bilangan pesakit warganegara berumur 18 tahun dan ke atas yang disaring lesi mulut di program komuniti.	N
	Jumlah kedatangan baru pesakit warganegara berumur 18 tahun dan ke atas yang mendapatkan pemeriksaan pergigian di program komuniti.	D
	Peratus pesakit warganegara berumur 18 tahun dan ke atas yang disaring lesi mulut di program komuniti (N/D x 100).	%
MAKLUMAT PESAKIT YANG MEMPUNYAI LESI MULUT MENGHADIRI JANJI TEMU DI KLINIK PERGIGIAN PAKAR APABILA DIRUJUK		
3	Bilangan pesakit warganegara berumur 18 tahun dan ke atas yang mempunyai lesi mulut dan menghadiri janji temu di Klinik Pergigian Pakar apabila dirujuk.	N
	Jumlah pesakit warganegara berumur 18 tahun dan ke atas yang mempunyai lesi mulut dan dirujuk ke Klinik Pergigian Pakar.	D
	Peratus pesakit yang mempunyai lesi mulut menghadiri janji temu di Klinik Pergigian Pakar apabila dirujuk bagi meningkatkan pengesanan awal kanser mulut (N/D x 100).	%
MAKLUMAT PROGRAM KOLABORASI INTERAGENSI BERKAITAN KANSER MULUT		
4	Bilangan Program Promosi dan Pendidikan Kesihatan Pergigian Bersama Komuniti di Fasiliti Kesihatan Swasta (PRO1010)	
	Bilangan Program Kolaboratif Promosi Kesihatan Pergigian dengan Agensi Awam (PRO1011)	
	Bilangan Program Kolaboratif Promosi Kesihatan Pergigian dengan Agensi Swasta (PRO1012)	
	Bilangan Program Kolaboratif Promosi Kesihatan Pergigian dengan Badan Bukan Kerajaan (PRO1013)	
	Bilangan Program Kolaboratif Promosi Kesihatan Pergigian dengan Pihak Antarabangsa (PRO1014)	
	Bulan Kesedaran Kanser Mulut (MCAM) (PRO1015)	
	Jumlah	

Appendix 5

OCAS 3

LAPORAN AM LATIHAN ANGGOTA KESIHATAN
PROGRAM PRIMARY PREVENTION & EARLY DETECTION OF ORAL POTENTIALLY MALIGNANT DISORDERS & ORAL CANCER
PROGRAM KESIHATAN PERGIGIAN KEMENTERIAN KESIHATAN MALAYSIA (PKP KKM)
BULAN : **TAHUN:**

NEGERI :
DAERAH:

DAERAH	SESI KALIBRASI		SESI KESEDARAN DAN PEMERIKSAAN MULUT KENDIRI (MSE)												LATIHAN PEMBERHENTIAN TABIAT BERISIKO		CATATAN
			KERAJAAN								SWASTA						
			PEGAWAI PERGIGIAN		ANGGOTA SOKONGAN PERGIGIAN		PEGAWAI PERUBATAN		LAIN-LAIN ANGGOTA KESIHATAN		PENGAMAL PERGIGIAN		PENGAMAL PERUBATAN				
	BILANGAN SESI	BILANGAN PEGAWAI	BILANGAN SESI	BILANGAN PEGAWAI	BILANGAN SESI	BILANGAN ANGGOTA	BILANGAN SESI	BILANGAN PEGAWAI	BILANGAN SESI	BILANGAN ANGGOTA	BILANGAN SESI	BILANGAN PENGAMAL	BILANGAN SESI	BILANGAN PENGAMAL	BILANGAN SESI	BILANGAN ANGGOTA PERGIGIAN	
JUMLAH	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	

*Nyatakan di ruang Catatan

DISEDIAKAN OLEH : **DISEMAK OLEH :**

TARIKH : **TARIKH :**