



Agensi Kelayakan Malaysia  
Malaysian Qualifications Agency

# **PROGRAMME STANDARDS: DENTAL SPECIALTIES**

Programme Standards: Dental Specialties  
First Edition 2019

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## ABBREVIATIONS

DrDPH	:	Doctor in Dental Public Health
DrEndo	:	Doctor in Endodontology
DrForensicOdont	:	Doctor in Forensic Odontology
DrOMPPathMed	:	Doctor in Oral Maxillofacial Pathology and Oral Medicine
DrOMFS	:	Doctor in Oral Maxillofacial Surgery
DrOrth	:	Doctor in Orthodontics
DrPaedDent	:	Doctor in Paediatric Dentistry
DrPerio	:	Doctor in Periodontology
DrProsthodontics	:	Doctor in Prosthodontics
DrResDent	:	Doctor in Restorative Dentistry
DrSCDent	:	Doctor in Special Care Dentistry
DentSEdC	:	Dental Specialty Education Committee
HEP	:	Higher Education Provider
MDC	:	Malaysian Dental Council
MoE	:	Ministry of Education
MoH	:	Ministry of Health
MQA	:	Malaysian Qualifications Agency
MQF	:	Malaysian Qualifications Framework
JTCEDSP	:	Joint Technical Committee for Evaluation of Dental Specialty Programmes
SLT	:	Student Learning Time
JPT	:	Jabatan Pendidikan Tinggi (Department of Higher Education)

## **PROGRAMME STANDARDS FOR DENTAL SPECIALTIES**

### **A. INTRODUCTION**

The primary aim of the Joint Technical Committee for Evaluation of Dental Specialty Programmes (JTCEDSP), is to develop, maintain and continuously improve the quality of specialty training in the nationally recognised specialty areas of dentistry. The JTCEDSP is endorsed by the Ministry of Education (MoE), Malaysian Qualification Agency (MQA) and the profession as the dedicated committee to evaluate and recommend accreditation of specialty training programmes in dentistry. The main responsibility of JTCEDSP and its affiliated Dental Specialty Education Committees (DentSEdC) is to plan and ensure the quality of educational programmes for dental specialists.

Malaysian standards have been developed to ensure the training of dental specialties is well-guided. This document serves as a basis for quality assurance and as the national reference point for specialty training programmes offered in the country. The standards will be used by the Panel of Assessors (PoA) to evaluate and recommend the accreditation of dental specialties programmes.

For any new training programme, the Higher Education Provider (HEP) is assessed on its readiness and capacity to conduct and maintain the programmes (Provisional Accreditation). An application may be approved unconditionally, approved with conditions or rejected by the MoE. The essential and core components of the programme and training must achieve minimum standards and be in place and established before a degree can be awarded (Full Accreditation).

For all processes, on receipt of the appropriate documents from the HEP, MQA will forward it to the JTCEDSP which later will assign to PoA of the specific specialty. The PoA has a paramount responsibility to carry out the evaluation exercise which generally may include a site visit. The PoA will report its findings to the JTCEDSP, which will then make recommendations to MQA Accreditation Committee. MQA's decision will be forwarded to the HEP.

Programme accreditation is carried out in two stages;

- a) Provisional Accreditation; and
- b) Full Accreditation.

### **B. COMMITTEES**

#### **a. Joint Technical Committee for Evaluation of Dental Specialty Programmes (JTCEDSP)**

The member shall consist of:

- i. Six (6) Deans of Malaysian Dental Institutions;
- ii. Principal Director of Oral Health, Ministry of Health;
- iii. Two (2) Representatives from the Oral Health Programme, Ministry of Health;
- iv. One (1) Representative from Academic Development Management Division, Department of Higher Education, Ministry of Education;

- v. One (1) Representative from Registration and Standards Division, Department of Higher Education, Ministry of Education;
- vi. One (1) Representative from the Malaysian Dental Council; and
- vii. One (1) Representative from Malaysian Qualifications Agency (MQA).

Members will be appointed for a term of two (2) years by the MQA. Chairman of the Deans' Council shall be Chairman of the JTCEDSP.

**b. Dental Specialties Education Committee (DentSEdC)**

There are 12 nationally recognized specialties under DentSEdC. These are:

1. Endodontology
2. Dental Public Health
3. Forensic Odontology
4. Orthodontics
5. Oral and Maxillofacial Imaging
6. Oral and Maxillofacial Surgery
7. Oral Pathology and Oral Medicine
8. Paediatric Dentistry
9. Periodontology
10. Prosthodontics
11. Restorative Dentistry
12. Special Care Dentistry

Each committee shall comprise specialists in their respective disciplines and appointed by the JTCEDSP which consist of:

- i. Three (3) academicians from university who are specialists in the area;
- ii. Two (2) dental specialists from Ministry of Health (MoH); and
- iii. One (1) dental specialist from private practice or Armed Forces Dental Division.

The committees shall comprise registered specialists in the respective field. In cases where there is no specialist who fulfil the above criteria, the JTCEDSP will nominate a suitable person in the related area. Chairman of the JTCEDSP will make the appointment for a period of 2 years.

The number of dental specialty may increase depending on the needs of the nation.

**c. Panel of Assessors (PoA)**

Accreditation process will be conducted by the PoA. Three (3) members will be appointed by the MQA on recommendation of the JTCEDSP when there is submission to start a programme.

## **C. TERMS OF REFERENCE OF COMMITTEES**

### **Joint Technical Committee for Evaluation of Dental Specialty Programmes (JTCEDSP)**

- i. To set the standards to be used by all HEPs in offering the specialty training programme;
- ii. To appoint members of Dental Specialty Education Committee (DentSEdC);
- iii. To recommend to MQA for appointment of PoA;
- iv. To recommend to MQA based on PoA's report to MQA:
  - on readiness of the HEP to start a programme.
  - the period of accreditation.
- v. To consider the need of future dental clinical specialty programmes.

### **Dental Specialty Education Committee (DentSEdC)**

- i. To develop standards for respective specialty in accordance to needs of training programme; and
- ii. To review standards and criteria periodically and make recommendations on matters related to the specialty.

### **Panel of Assessors (PoA)**

- i. To assess the programme for compliance with the Malaysian Qualifications Framework (MQF), current policy, discipline standards and seven areas of evaluation, as well as against the educational goals of the HEP and the programme objectives and outcomes;
- ii. To verify and assess all information about the programme submitted by the HEP, and the proposed improvement plans; and
- iii. To make recommendations for accreditation of a programme to the JTCEDSP.

## **D. NOMENCLATURE AND DURATION OF PROGRAMMES**

In Malaysia, all clinical dental specialties programmes will be a total of four (4) years, comprising of one (1) year prerequisite Master's coursework programme in the related discipline and three (3) years of specialty training.

Nomenclature of one (1) year master's programme will be decided by the HEP. The programme is at MQF Level 7.

The three (3) years specialty training shall be known as the following:

- i. Doctor in Dental Public Health (DrDPH)
- ii. Doctor in Endodontology (DrEndo)
- iii. Doctor in Forensic Odontology (DrForensicOdont)
- iv. Doctor in Oral Maxillofacial Pathology and Oral Medicine (DrOMPPathMed)
- v. Doctor in Oral Maxillofacial Surgery (DrOMFS)
- vi. Doctor in Orthodontics (DrOrth)
- vii. Doctor in Paediatric Dentistry (DrPaedDent)
- viii. Doctor in Periodontology (DrPerio)
- ix. Doctor in Prosthodontics (DrProsth)
- x. Doctor in Restorative Dentistry (DrResDent)



- xi. Doctor in Special Care Dentistry (DrSCDent)

These clinical doctorate programmes are at MQF Level 8.

## **E. ENTRY REQUIREMENTS**

An applicant for admission to the 1-year Master program will have the following:

- i. Bachelor of Dental Surgery or equivalent qualification;
- ii. Registered with the Malaysian Dental Council (MDC) and holds current Annual Practising Certificate (APC) or registered with the dental regulatory body in another country and eligible to be granted a Temporary Practising Certificate (TPC) by MDC; and
- iii. Health and other requirements as required by HEP.

An applicant for admission to the 3-year specialty program will have the following:

- i. Bachelor of Dental Surgery or equivalent qualification; and
- ii. Master's degree in dental sciences or equivalent qualification as required by HEP. This degree must have a total Student Learning Time (SLT) ranging from 1600 – 2000 hours. A minimum of 800 – 1000 hours of this degree must include among others a preclinical training component which contribute towards the specialty training.
- iii. Registered with the MDC and holds current Annual Practising Certificate (APC) or registered with the dental regulatory body in another country and eligible to be granted a Temporary Practising Certificate (TPC) by MDC;
- iv. A minimum of two (2) years clinical practice after basic degree, excluding the Master's training; and
- v. Health and other requirements as required by HEP.

## **F. PROGRAMME LEARNING OUTCOMES**

### **Master's programme**

At the end of the programme, the graduate must be able to:

- i. demonstrate mastery of knowledge in the relevant field;
- ii. apply practical skills in the relevant field;
- iii. relate ideas to societal issues in the relevant field;
- iv. prepare research proposal and/or conduct research with minimal supervision
- v. adhere to legal, ethical and professional codes of practice;
- vi. demonstrate leadership qualities through communicating and working effectively with peers and stakeholders;
- vii. solve clinical-related problems based on scientific evidence and critical thinking skills; and
- viii. manage information for lifelong learning.

## Doctorate programme

At the end of the programme, the graduate must be able to:

- i. synthesise knowledge in the relevant field;
- ii. adapt evidence based clinical procedures for proficient patient management in the relevant field;
- iii. provide expert advice to society in the relevant field;
- iv. conduct research independently;
- v. adhere to legal, ethical and professional codes of practice;
- vi. display leadership qualities through communicating and working effectively with peers and stakeholders;
- vii. generate solutions to problems using scientific and critical thinking skills;
- viii. exhibit attributes of independent lifelong learners; and
- ix. display skills in clinical governance.

## G. STUDENT LEARNING TIME (SLT)

### Master's programme

The master's programme shall consist of basic science, research methodology, specialty and electives courses.

No.	Course	Minimum SLT (hours)
1.	Basic Science	800
2.	Research Methodology and Biostatistics	
3.	Electives	
4.	Specialty	800
	<b>Total</b>	<b>1600</b>

### Doctorate programme

Three (3) years doctorate programme shall abide to the guide provided below:

- i. Minimum SLT : 6400 hrs
- ii. Maximum SLT : 8000 hrs
- iii. Coursework : 60 – 70% of total SLT

No.	Course	Minimum SLT (hours)
1.	Coursework (including laboratory, clinical and fieldwork)	4480*
2.	Research	1920*
	<b>Total</b>	<b>6400</b>

\*Note: For the DrDPH, DentSEdC will determine the proportion.

## **H. PROGRAMME DELIVERY**

A variety of techniques should be used in the delivery of the programme, subject to the overall programme structure. These may include the following:

- i. Lecture, seminar, laboratory.
- ii. Action learning, such as clinical related practices, clinical teaching, simulation and practical.
- iii. Collaborative Learning, such as projects, assignments and report.
- iv. Self-directed learning.
- v. Cooperative learning, such as problem-based learning and project-based learning.
- vi. Technology-based delivery, such as online methods, Tele-conferences, Game-based methods and Mobile systems.
- vii. Experiential method, such as Field work, project-based learning, and On-Site learning or visits.
- viii. Work-Based Learning (WBL) method such as practicum and clinical attachment.

However, the above list is not exhaustive.

## **I. ASSESSMENTS METHODS**

Assessment, in general, serves the purposes to:

- i. promote learning;
- ii. measure performance, by awarding grades which indicate whether and how well a particular student has attained the stated LOs;
- iii. determine whether a particular student is sufficiently well prepared in a subject area to proceed to the next level of instruction;
- iv. provide feedback to students which indicates levels of attainment and diagnoses misunderstandings and learning difficulties; and
- v. provide feedback to teaching staff to identify and diagnose ineffective teaching methods/techniques.

### **Master Programme:**

- i. Consists of formative and summative assessment.
- ii. Coursework and research components must be assessed.

The basic science course must have a final written examination. The research component shall be assessed based on project or proposal.

### **Doctorate Programme:**

- i. Consists of formative and summative assessment.
- ii. The clinical coursework and research components must be assessed separately.
- iii. Clinical proficiency should be defined by each specialty.

Further details are in the respective Programme Standards for Dental Specialties.

## **J. HUMAN RESOURCE**

- i. The programme director shall be a recognised specialist in the specified field of the programme with minimum clinical experience of 5 years.
- ii. Teaching staff shall be from the related specialties.
- iii. HEP must show evidence of adequate teaching and support staff with relevant experience and qualification.
- iv. In cases of newly introduced specialty, the programme director may be a recognised specialist in related field with minimum clinical experience of 5 years.

## ACCREDITATION PROCESS FOR SPECIALTY TRAINING PROGRAMME

### Introduction

The accreditation process for Master's and Doctorate programmes involve the assessment of the following seven (7) areas:

- i. Programme Development and Delivery;
- ii. Assessment of Student Learning;
- iii. Student Selection and Support Services;
- iv. Academic Staff;
- v. Educational Resources;
- vi. Programme Management; and
- vii. Programme Monitoring, Review and Continual Quality Improvement.

Each of these seven areas contains quality standards and criteria. The degree of compliance with these seven areas of evaluation (and the criteria and standards accompanying them) expected of the HEPs.

### A. PROGRAMME ACCREDITATION

Programme accreditation is carried out in two stages, i.e., Provisional Accreditation and Full Accreditation.

#### Provisional Accreditation

The purpose of Provisional Accreditation exercise is to ascertain that the minimum requirements have been met in order to conduct a programme of study. The HEPs must meet the standards for the seven areas of evaluation, especially Area 1: Programme Development and Delivery, Area 4: Academic Staff and Area 5: Educational Resources. Where necessary, a visit may be conducted to confirm the availability and the suitability of the facilities at the HEPs' premises. The evaluation involves an external and independent assessment conducted by MQA through its Panel of Assessors (PoA). The findings of the PoA are tabled to the respective Accreditation Committee for a decision. The HEPs use the decision to seek approval from MoE to offer the programme.

#### Full Accreditation

The purpose of a Full Accreditation is to reaffirm that the delivery of the programme has met the standards set by the Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty. The Full Accreditation exercise is usually carried out when the first cohort of students are in their final year. It involves an external and independent assessment conducted by MQA through its PoA. An evaluation visit to the HEP will be conducted by the PoA to validate and verify the information furnished by the HEPs before the PoA submits its recommendations to MQA's Accreditation Committee through a formal Final Accreditation Report. Accreditation may be awarded for a maximum of 5 years. HEP has to reapply for renewal of Full Accreditation six (6) months prior to the expiry date of the accreditation.

In the full accreditation exercise, the feedback processes between the Agency and the HEPs are communicated through the panel's oral exit report and a written accreditation report presented in a spirit of transparency and accountability to reinforce continual quality improvement.

The accreditation report aims to be informative. It recognises context and allows comparison over time. It discerns strengths and areas of concern as well as provides specific recommendations for quality enhancement in the structure and performance of the HEPs, based on peer experience and the consensus on quality as embodied in the standards.

If an HEP fails to achieve accreditation for the programme and it is unable to rectify the conditions for the rejection, MQA will inform the relevant authorities concerned for necessary action to be taken.

The MQA Act provides for the accreditation of professional programmes and qualifications to be conducted through the JTCEDSP. Accreditation gives significant value to programmes and qualifications. It enhances public confidence and can become a basis of recognition nationally and internationally. The Accreditation Report can be used for benchmarking and for revising quality standards and practices. Benchmarking focuses on how to improve the educational process by exploiting the best practices adopted by institutions around the world.

The flow chart is given in **Appendix II**.

## **B. CRITERIA AND STANDARDS**

The criteria and standards define the expected level of attainment of each criterion and serve as performance indicators.

These standards, which are benchmarked against international best practices, are the minimum requirements that must be met and compliance must be demonstrated during a programme accreditation exercise. In principle, an HEP must establish that it has met all the standards for its programme to be fully accredited, taking into account flexibility and recognition of diversity to facilitate creative growth of the dental specialties programme.

CRITERIA		STANDARD
<b>Area 1: Programme Development and Delivery</b>		
1.1	Statement of Educational Objectives of Academic Programme and Learning Outcomes	<ul style="list-style-type: none"> <li>i. The programme can only be considered after a need assessment has indicated a necessity for the programme to be established (applicable for Provisional Accreditation only).</li> <li>ii. The programme must define its educational objectives and learning outcomes in compliance with the standards and criteria.</li> <li>iii. The Programme Educational Objectives (PEO) and Programme Learning Outcomes (PLO) must be consistent with and supportive of the vision and mission of the HEP.</li> <li>iv. The PLO must define the competencies that the trainee should demonstrate on completion of the programme. These competencies must be consistent with those listed in the document Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty.</li> <li>v. The PLO must be aligned with the PEO.</li> <li>vi. The PEO and PLO must be periodically reviewed in consultation with the relevant stakeholders.</li> </ul>
1.2	Programme Development: Process, Content, Structure and Teaching-Learning Methods	<ul style="list-style-type: none"> <li>i. The HEP must have sufficient autonomy to design the curriculum and allocate resources necessary for its implementation in achieving the learning outcomes. (Where applicable, the above provision must also cover collaborative programmes and programmes franchised to, or from other HEPs in accordance with national policies).</li> <li>ii. The HEP must have an appropriate process by which the curriculum is established.</li> <li>iii. The HEP must consult relevant stakeholders in the development of the curriculum.</li> <li>vii. The duration of the programme must comply with the Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty.</li> <li>viii. The learning outcomes must include cognitive, psychomotor and affective (CPA) competencies which are appropriate to the needs of the nation and must be measurable and in line</li> </ul>

		<p>with the Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty.</p> <ul style="list-style-type: none"> <li>ix. Curriculum content must fulfil the requirement of the Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty.</li> <li>iv. Evidence-based dental practice component must include teaching of the principles of scientific and evidence-based dentistry, analytical and critical thinking, research methodology, report writing and scientific communication.</li> <li>v. Ethics and humanities component must incorporate aspects of ethics, jurisprudence and humanities that enable effective communication, decision-making and ethical practice. The ethics and humanities aspects are adapted from time to time to suit the scientific needs of the programme, the changing demographic as well as the cultural contexts and needs of society.</li> <li>vi. The HEP should establish mechanisms to access to current information and to identify up-to-date topics of importance for inclusion in the curriculum and its delivery for example through the use of the latest technology and through global networking.</li> </ul>
1.3	Programme Delivery	<ul style="list-style-type: none"> <li>i. The HEP must take responsibility to ensure the effective delivery of the programme.</li> <li>ii. Trainees must be provided with the current documented information about the aims, outline, learning outcomes, and methods of assessment of the programme.</li> <li>iii. The programme must have an appropriate coordinator and a team of academic staff (e.g. programme committee) with adequate authority and responsible for effective delivery of the programme.</li> <li>iv. The programme team must have access to adequate resources to implement teaching and learning activities and conduct programme evaluation for quality improvement.</li> <li>v. The HEP must provide trainees with a conducive learning environment.</li> <li>vi. The HEP must encourage innovations in teaching, learning and assessment.</li> </ul>



**Area 2: Assessment of Student Learning**

2.1	Assessment Methods	<ul style="list-style-type: none"> <li>i. The frequency, methods, and criteria of trainees assessment, including the grading criteria and appeal policies, must be documented and communicated to students at the commencement of the programme.</li> <li>ii. There must be a variety of methods and tools to assess learning outcomes and competencies. These must fulfil the Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty. These include formative and summative assessments.</li> <li>iii. Formative assessment: 40% – 60% of the total assessment should be part of the summative assessment.</li> <li>iv. There must be mechanisms to ensure the validity, reliability, consistency, currency and fairness of the assessment methods.</li> <li>v. The HEP must employ mechanism for external examiners to be included in professional examinations.</li> <li>vi. Changes to student assessment methods must follow established procedures and regulations and communicated to students prior to their implementation.</li> </ul>
2.2	Relationship between Assessment and Learning Outcomes	<ul style="list-style-type: none"> <li>i. Assessment principles, methods and practices must be aligned to the learning outcomes of the programme as stipulated in the Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty.</li> <li>ii. The assessment must be consistent with the levels defined in the MQF, the domains of learning outcomes and the programme standards as in the Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty.</li> <li>i. The link between assessment and the achievement of learning outcomes in the programme must be reviewed periodically to ensure its effectiveness.</li> </ul>
2.3	Management of Student Assessment	<ul style="list-style-type: none"> <li>i. The HEP and its academic staff must have adequate level of autonomy in the management of student assessment.</li> </ul>

		<ul style="list-style-type: none"> <li>ii. There must be mechanisms to ensure the security of assessment documents and records.</li> <li>iii. Results of assessment must be communicated to the student within a reasonable time frame after endorsement by the relevant authority.</li> <li>iv. The HEP must have an appropriate mechanism to address cases of academic plagiarism.</li> <li>v. The HEP must periodically review the management of student assessment and act on the findings of the review.</li> </ul>
<b>Area 3: Student Selection and Support Services</b>		
3.1	Student Selection	<ul style="list-style-type: none"> <li>i. The programme must have a clear policy on criteria and processes of student selection. These policies must be consistent with the Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty.</li> <li>ii. The HEP must have a policy regarding blood-borne viruses for candidates and students. This standard must be consistent with the guidelines issued by MDC.</li> <li>iii. Student enrolment must commensurate with the capacity of the HEP to effectively deliver the programme.</li> <li>iv. The criteria and processes of student selection must be transparent and objective.</li> <li>v. There must be a clear policy on, and appropriate mechanisms for appeal on student selection.</li> <li>vi. The admission policy for the programme must be monitored and reviewed periodically to continuously improve the selection processes.</li> </ul>
3.2	Student Support Services	<ul style="list-style-type: none"> <li>i. Students must have access to appropriate and adequate support services.</li> <li>ii. There must be a designated administrative unit responsible for planning and implementing student support services.</li> <li>iii. An effective induction to the programme must be made available to students and evaluated regularly.</li> </ul>

		<ul style="list-style-type: none"> <li>iv. Academic, non-academic and career counselling must be provided by adequate and qualified staff where issues pertaining to counselling remain confidential.</li> <li>v. The HEP must have clearly defined and documented processes and procedures in handling student disciplinary cases including plagiarism.</li> <li>vi. There must be a grievance mechanism for students to make appeals on academic and non-academic matters.</li> <li>vii. Student support services must be evaluated regularly to ensure their adequacy, effectiveness and safety.</li> <li>viii. There must be mechanisms that actively identify and assist students who are in need of academic support.</li> </ul>
3.4	Student Representation and Participation	<ul style="list-style-type: none"> <li>i. There must be programmes to encourage active student participation in matters related to their interests and welfare.</li> <li>ii. Student rights and responsibilities must be acknowledged, clearly documented, and made known to them.</li> <li>iii. There must be adequate student representation and organization at the institutional and faculty levels.</li> <li>iv. Student should be facilitated to develop linkages with external stakeholders and to participate in activities to gain skills in preparation for the workplace.</li> <li>v. Student activities and organizations should be facilitated to participate in activities that encourage character building, inculcate a sense of belonging and responsibility, and promote active citizenship.</li> </ul>
3.5	Alumni	<ul style="list-style-type: none"> <li>i. The HEP must foster active linkages with its graduates to improve the programme.</li> <li>ii. The HEP must involve the alumni to play a role in the development, review and continuous improvement of the programme and in preparing the students for their professional future through linkages with industry and the profession.</li> </ul>

**Area 4: Academic and Support Staff**

4.1	Recruitment and Management	<ul style="list-style-type: none"><li>i. The HEP must have a clearly defined plan for its human resource needs.</li><li>ii. The HEP must have a clear and documented recruitment policy for academic and support staff.</li><li>iii. Qualification of the academic staff must comply to the Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty.</li><li>iv. The HEP must have adequate number of full-time academic staff responsible for implementing the programme (1 full-time staff is equivalent to 3 part-time staff). The criteria indicated below provide the guide in fulfilling this standard:<ul style="list-style-type: none"><li>a. Overall at least 60% of academic staff must be full-time.</li><li>b. At least 30% of academic staff are Malaysian citizens.</li></ul></li><li>v. The staff–student ratio for the programme must be appropriate to the teaching-learning methods and must comply with the Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty.</li><li>vi. There must be a combination of teaching, research and service roles (community/promotion activities) for all academic staff.</li><li>vii. The policy of the HEP must reflect an equitable distribution of responsibilities among the academic staff.</li><li>viii. Recognition and reward through promotion, salary increment or other remuneration must be based on equitable work distribution and meritorious academic roles using clear and transparent policies and procedures.</li><li>ix. The HEP should have active national and international linkages to provide for the involvement of well renowned academics and professionals in order to enhance teaching and learning of the programme.</li></ul>
4.2	Service and Development	<ul style="list-style-type: none"><li>i. The HEP must have policies addressing matters related to service, professional development and appraisal of the academic staff.</li></ul>

		<p>ii. The academic staff must be given sufficient autonomy to focus on areas of his expertise.</p> <p>iii. The HEP must have a clearly stated policy on conflict of interest, particularly in the area of private practice, multiple employment and consultancy services.</p> <p>iv. The HEP must have clearly defined and documented processes and procedures in handling disciplinary cases involving the academic staff.</p> <p>v. The HEP must have mechanisms and processes for periodic student evaluation of the academic staff for purposes of quality improvement.</p> <p>vi. The HEP must have a staff development programme particularly for new academic staff including mentoring and formative guidance.</p> <p>vii. The HEP must provide opportunities for academic staff to participate in professional, academic and other relevant activities, nationally and internationally and where relevant, for them to obtain professional qualifications to enhance teaching-learning experience.</p>
4.3	Support Staff	<p>i. There should be sufficient support staff for teaching and learning purposes. Refer to the Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty.</p> <p>ii. There must be adequate numbers of Dental Surgery Assistants to ensure smooth running of the clinical activities.</p>
<b>Area 5: Educational Resources</b>		
5.1	Physical Facilities	<p>i. The programme must have sufficient and appropriate physical facilities and educational resources such as facilities for practical and clinical teaching to ensure its effective delivery.</p> <ul style="list-style-type: none"> <li>• Educational resources include lecture hall/auditorium, tutorial room, seminar room, computer lab, medical science lab and strong room.</li> <li>• General facilities include cafeteria, toilet, locker rooms, store rooms, <i>surau</i>, students common room, sports facilities and hostel.</li> </ul>

		<ul style="list-style-type: none"> <li>ii. The library or resource centre must have adequate and up-to-date reference materials and availability of qualified staff that meet the needs of the programme and research amongst academic staff and students. This would include provisions for appropriate computer and information and communication technology-mediated reference materials.</li> <li>iii. Specific equipment and facilities for training must be adequately provided for practical and clinical-based programmes as stipulated in the Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty.</li> <li>iv. All equipment (eg autoclaves, x-rays, compressor) must comply with the relevant laws and regulations.</li> <li>v. The facilities available in the HEP must be user friendly to patients with special needs.</li> <li>vi. The educational resources, services and facilities must be periodically reviewed and improved upon to maintain their quality and appropriateness for current education and training.</li> </ul>
5.2	Research and Development	<ul style="list-style-type: none"> <li>i. The HEP must have a policy and a programme on research and availability of adequate facilities to sustain them.</li> <li>ii. The HEP must periodically review its research resources and facilities and take continuous appropriate action to enhance its research capabilities and to promote a conducive research environment.</li> </ul>
5.3	Expertise in Education	<ul style="list-style-type: none"> <li>i. The HEP must utilize personnel with educational expertise in planning its programmes and in the development of new teaching and assessment methods.</li> </ul>
5.4	Financial Resources	<ul style="list-style-type: none"> <li>i. The HEP must have a clear line of responsibility and authority for budgeting and resource allocation that takes into account the specific needs of the HEP.</li> <li>ii. The HEP must have clear procedures to ensure that its financial resources are sufficient and that it is capable of utilising them efficiently and responsibly.</li> <li>iii. The HEP must be given sufficient autonomy to allocate resources appropriately to achieve the programme educational objectives.</li> </ul>

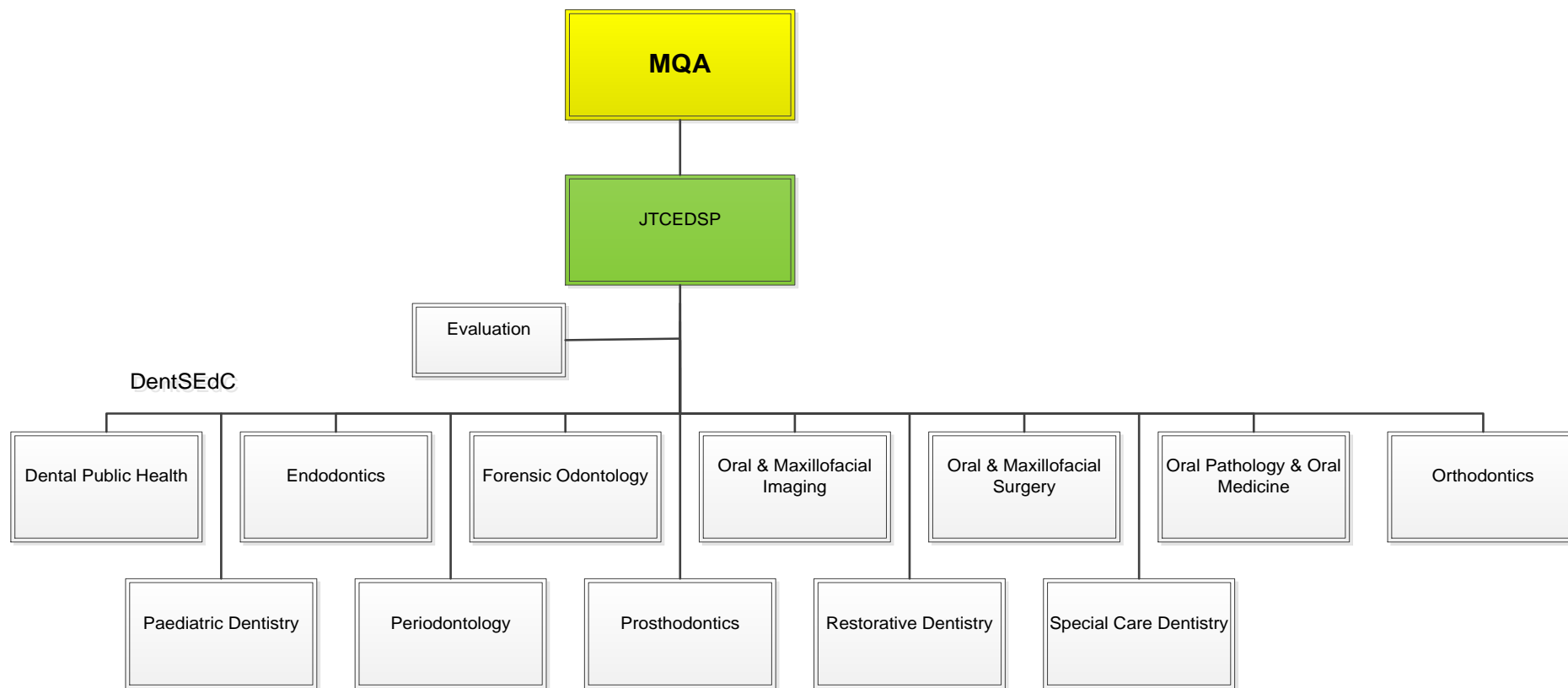
<b>Area 6: Programme Management</b>		
6.1	Programme Management	<ul style="list-style-type: none"> <li>i. The HEP must clarify its governance structure and function, the relationships within them, and their impact on the programme, and these must be communicated to all parties involved based on the principles of transparency, accountability and authority.</li> <li>ii. The HEP must have policies, procedures and mechanisms for regular reviewing and updating of its structures, functions, strategies and core activities to ensure continuous quality improvement.</li> <li>iii. The HEP management committee must be an active policy-making body with an adequate degree of autonomy within the terms of reference.</li> <li>iv. Mechanisms to ensure functional integration and comparability of educational quality must be established for programmes conducted in campuses or partner institutions that are geographically separated.</li> <li>v. The HEP must have a formal system responsible for internal and external consultations, feedback, market needs analysis and employability projections of the programme.</li> <li>vi. The governance must involve the participation of, and the consultation with academic staff, students and external stakeholders.</li> </ul>
6.2	Programme Leadership	<ul style="list-style-type: none"> <li>i. The leadership of the programme must be held by those with appropriate qualifications and experience, and with sufficient authority for curriculum design, delivery and review as stipulated in the Programme Standards for Dental Specialties and DentSEdC Standards of the related specialty.</li> <li>ii. The HEP must establish appropriate programme leadership other than the Dean. The criteria for their appointment and responsibilities must be clearly stated.</li> <li>iii. Mechanisms and processes must be in place to allow for communication between the programme and the HEP leadership in relation to matters such as staff recruitment and training, student admission, and allocation of resources and decision-making processes.</li> </ul>

6.3	Administrative Staff	<ul style="list-style-type: none"> <li>i. The administrative staff of the HEP must be appropriately qualified, technically competent and sufficient in numbers to support the implementation of the programme and related activities. The administrative staff must include the registrar, IT personnel, financial officer, receptionist and others.</li> <li>ii. The HEP must conduct regular performance review of the programme's administrative staff.</li> <li>iii. The HEP must have an appropriate training scheme for the advancement of the administrative staff as well as to fulfil the specific needs of the programme, for example, risk management, technology management, maintenance of specialised equipment, and advanced technical skills.</li> </ul>
6.4	Academic Records	<ul style="list-style-type: none"> <li>i. The HEP must have appropriate policies and practices concerning the nature and security of student and academic staff records.</li> <li>ii. The HEP must implement policies on the rights of individual privacy and the confidentiality of records.</li> <li>iii. The HEP should continuously review policies on security of records including increased use of electronic technologies and safety systems.</li> </ul>
<b>Area 7: Programme Monitoring, Review and Continual Quality Improvement</b>		
7.1	Mechanisms for Programme Monitoring, Review and Continual Quality Improvement	<ul style="list-style-type: none"> <li>i. The HEP must have clear policies and appropriate mechanisms for regular monitoring and review of the programme. The curriculum must be reviewed every 5 years.</li> <li>ii. The HEP must have a dedicated Quality Assurance (QA) unit or personnel responsible for internal quality assurance of the faculty.</li> <li>iii. The HEP must have an internal monitoring and review committee headed by a designated coordinator who is dedicated to continuously review the programme. The review must involve external experts.</li> <li>iv. Programme evaluation must involve the relevant stakeholders whose views are taken into consideration.</li> <li>v. Teacher and student feedback must be sought. Students have channels for informing issues to heads of programmes</li> </ul>



		<p>before they become major problems. The faculty has mechanisms for students to assess their lecturers.</p> <ul style="list-style-type: none"> <li>vi. The content of the programme must be periodically reviewed to keep abreast with scientific, technological and knowledge development of the discipline, and with the needs of the society.</li> <li>vii. Various aspects of student performance, progression and attrition must be analysed for the purpose of continual quality improvement.</li> <li>viii. In collaborative arrangements, the partners involved must share the responsibilities of programme monitoring and review.</li> <li>ix. The findings of a programme review must be presented to the HEP for its attention and further action.</li> <li>x. There must be a link between the HEP quality assurance processes and the achievement of the institutional goals.</li> <li>xi. The HEP's review system must constructively engage relevant experts (nationally and internationally) to identify areas of concerns and demonstrate ways to improve the programme.</li> <li>xii. The HEP must make the report on programme review accessible to relevant stakeholders in order to seek their views.</li> <li>xiii. The HEP must embrace the spirit of continual quality improvement based on prospective studies and analysis that leads to the revision of its current policies and practices, taking into consideration past experiences, present conditions, and future possibilities.</li> </ul>
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STRUCTURE OF JOINT TECHNICAL COMMITTEE FOR EVALUATION OF DENTAL SPECIALTY PROGRAMMES (JTCEDSP)

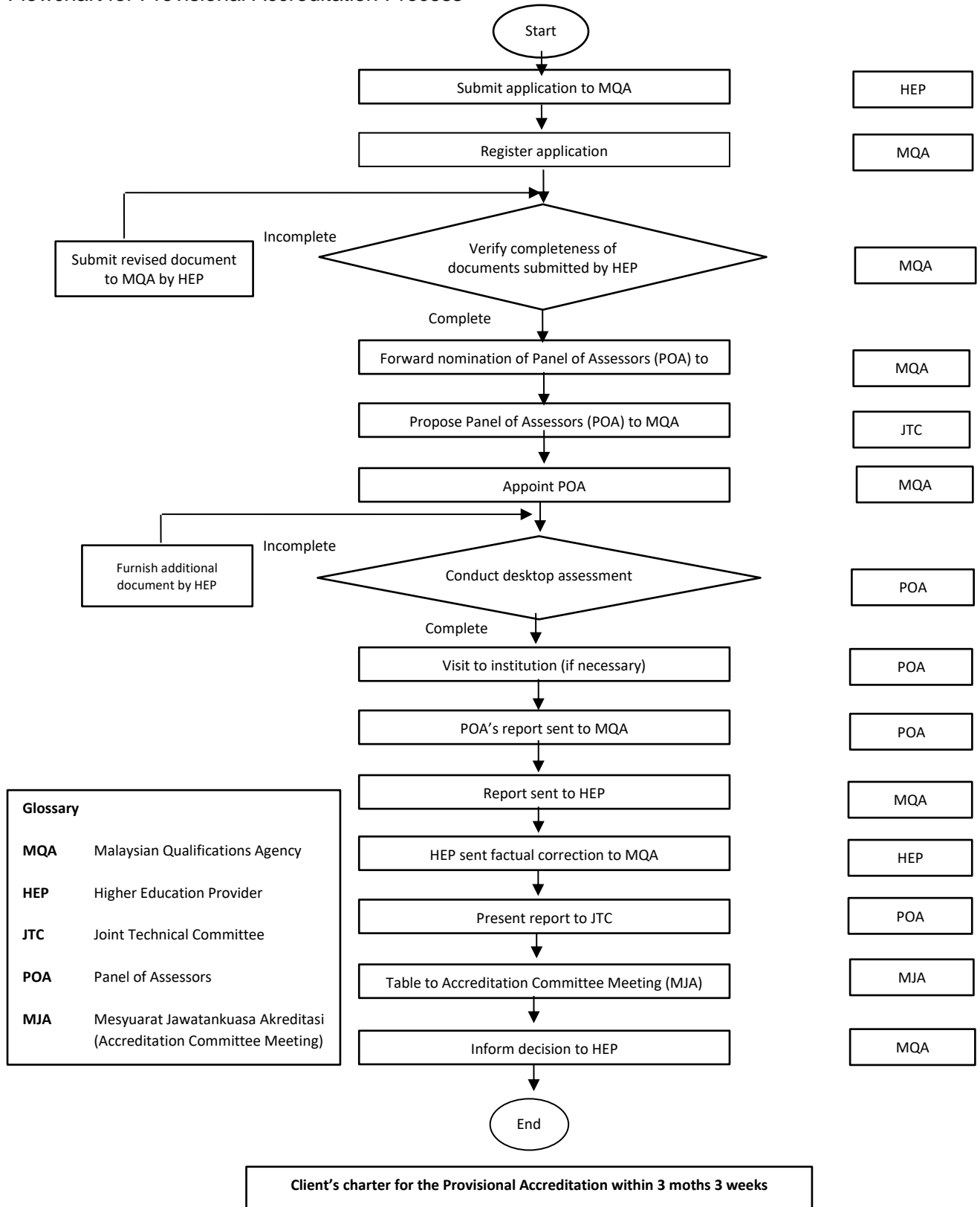


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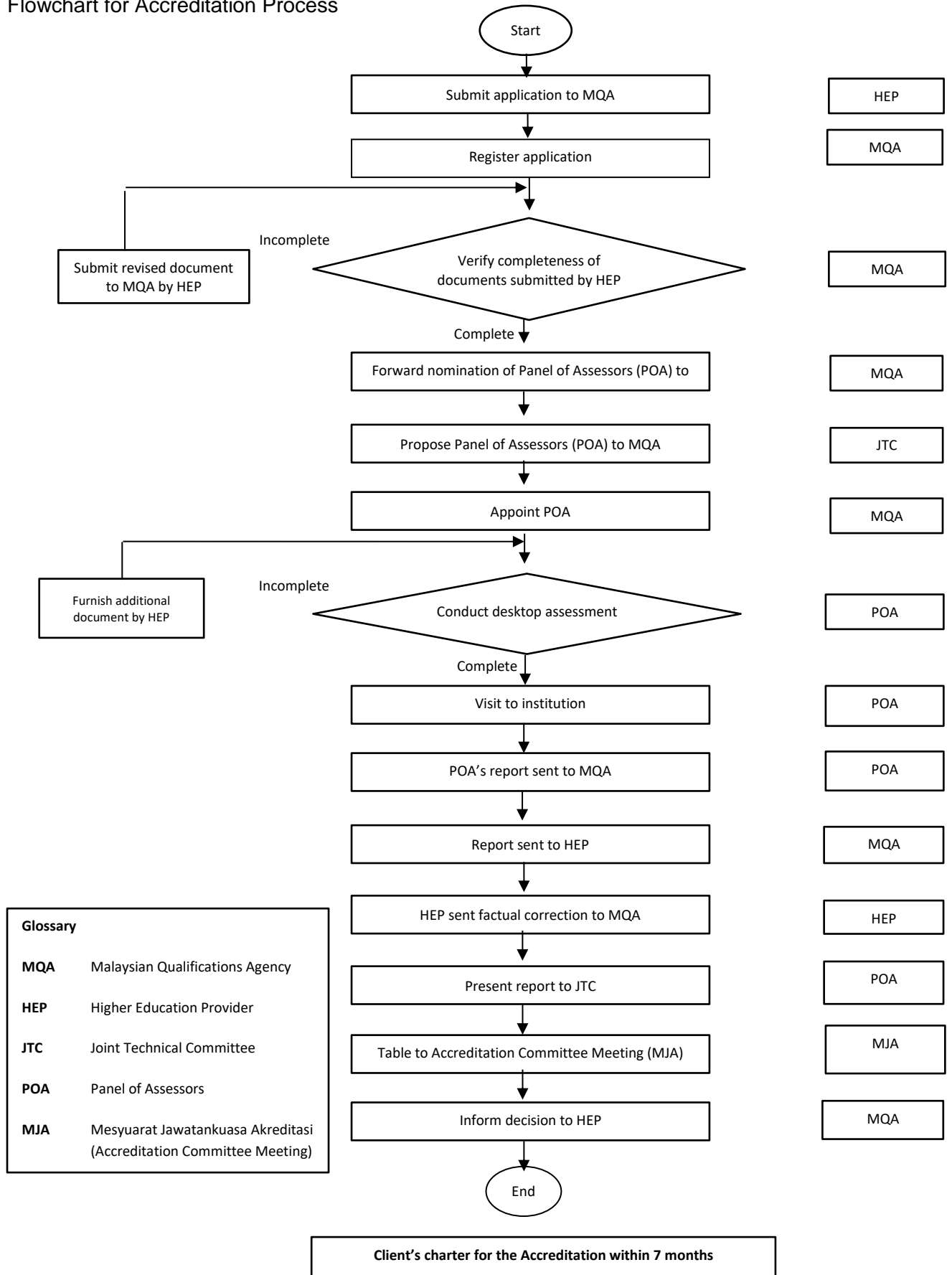
DentSEdC: Dental Specialties Education Committee Education Committee

**APPLICATION PROCEDURE**

Flowchart for Provisional Accreditation Process



## Flowchart for Accreditation Process



**PROGRAMME STANDARDS  
FOR  
DENTAL SPECIALTIES**

**STANDARDS FOR  
DOCTOR IN ENDODONTOLOGY**

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## **STANDARDS FOR DOCTOR IN ENDODONTOLOGY**

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### **1. DEVELOPMENT OF THE STANDARDS**

The development of the guidelines for specialty training in Endodontics was initiated by the Dental Specialty Education Committee (DentSEdC) subsequent to recent guidance from the Joint Technical Committee for Evaluation of Dental Specialty Programme (JTCEdSP). This document has been developed by a working party from the DentSEdC in Endodontics, chaired by Associate Professor Dr. Dalia Abdullah with members comprising Dr. Lam Jac Meng, Dr. Majinah Ahmad, Associate Professor Dr. Mariam Abdullah, Brigadier General Datin (Dr.) Roza Anon Mohamad Ramlee and Dr. Saw Lip Hean.

### **2. PURPOSE OF THE STANDARDS**

The standards are designed to serve as a basis for quality assurance and as the national reference for Endodontic postgraduate programme. It will be used by the evaluation panel to evaluate and recommend the accreditation of the Endodontic specialty programme offered in Malaysia.

### **3. REVIEWING AND UPDATING THE STANDARDS**

Formal review, updating and validation of the content will be undertaken by the DentSEdC in Endodontics every 5 years.

### **4. AIM OF SPECIALIST TRAINING IN ENDODONTICS**

This training will produce dentists who will become specialists in Endodontics and be eligible to register in the Specialist Division of the Dental Register. The training will provide a basis for the individual to develop into a life-long learner who is capable of self-reflection and self-directed learning. It will provide the basis of further ongoing development in the field of Endodontics at Specialist level.

### **5. NOMENCLATURE OF PROGRAMME AND MQF LEVEL**

The 3 years doctorate degree Endodontic specialty training programme will lead to the award of the Doctor in Endodontology (DrEndo). This programme is equivalent to Level 8 in the Malaysian Qualifications Framework (MQF).

### **6. ENTRY REQUIREMENTS**

An applicant for admission to the 3 year specialty program will have the following:

- i. Bachelor of Dental Surgery or equivalent qualification; and
- ii. Master's degree in dental sciences or equivalent qualification as required by HEP. This degree must have a total Student Learning Time (SLT) ranging from 1600 – 2000 hours. A minimum of 800 – 1000 hours of this degree must include among others a preclinical training component which contribute towards the specialty training.



- iii. Registered with the MDC and holds current Annual Practising Certificate (APC) or registered with the dental regulatory body in another country and eligible to be granted a Temporary Practising Certificate (TPC) by MDC;
- iv. A minimum of two (2) years clinical practice after basic degree, excluding the Master's training; and
- v. Health and other requirements as required by HEP.

## **7. SPECIALTY TRAINING PERIOD**

The training period will be three (3) years full time. The SLT for the programme shall consist of 6400 – 8000 hours. The SLT should constitute 60-70% of clinical training.

## **8. SCOPE OF ENDODONTICS**

The scope of endodontics encompasses the comprehensive diagnosis and management of patients who require low to high complexity endodontic treatment. The management of cases include;

- i. Treatment of pulp and periradicular conditions with emphasis on pulp sensibility testing and radiology,
- ii. Dentine desensitisation and protection, pulp capping, partial and total pulpotomy, partial and total pulpectomy,
- iii. The biomechanical debridement and subsequent filling of root canals,
- iv. The surgical removal of pathological periapical tissues and the surgical placement of root end fillings,
- v. Restoration of the natural appearance of the crown when discoloured,
- vi. Management of cracked tooth problems,
- vii. Repositioning of luxated teeth, replantation and subsequent treatment of avulsed teeth, intentional replantation of teeth,
- viii. Transplantation of teeth, repair of traumatic or resorptive root perforations, apexification/management of immature roots, treatment of root fractures,
- ix. Endodontic re-treatment procedures, hemisection, root resection, recognition and treatment of resorptive defects and other areas related to the pulp, the periradicular tissues and their associated pathoses and,
- x. Treatment procedures related to coronal restorations by means of post and/or cores involving the root canal space.

## **9. INTERRELATIONSHIP WITH OTHER DISCIPLINES IN DENTISTRY**

Prosthodontics, periodontics, paedodontics and orthodontics should all receive some time allocation during the training programme. Close cooperation with the relevant field of specialty such as pain clinics, oral pathology and oral medicine should be encouraged.

## **10. PROGRAMME LEARNING OUTCOMES (PLO)**

At the end of the programme, graduates must be able to:

- i. synthesise knowledge in the field of endodontics;
- ii. adapt evidence based clinical procedures for proficient patient management in the field of endodontics;
- iii. conduct research independently;
- iv. provide expert advice to society in the field of endodontics;
- v. adhere to legal, ethical and professional codes of practice;

- vi. display leadership qualities through communicating and working effectively with peers and stakeholders;
- vii. generate solutions to problems using scientific and critical thinking skills;
- viii. exhibit attributes of independent lifelong learners; and
- ix. display skills in clinical governance

## **11. CONTENT OF LEARNING AND DOMAINS OF COMPETENCIES**

The training programme must be designed to build on the knowledge and skills of the undergraduate programme. This should be oriented to the accepted standards of endodontic practice as set forth in the specific standards contained in this document.

The programme must have clearly stated goals and objectives appropriate to advanced specialty education, addressing education, patient care, research and service. Planning for, evaluation of and improvement of educational quality for the program must be broad-based, systematic and continuous.

The domains of competencies are as follows;

### **DOMAIN 1: KNOWLEDGE**

PLO1: synthesise knowledge in the field of endodontics.

The trainee must be able to:

- i. integrate relevant knowledge in biology, anatomy, physiology of normal and abnormal intra- and extra-oral structures and tissues in pain management, including prevention and control (C5);
- ii. weigh the primary and supplementary techniques for local anaesthesia of the pulp (C6);
- iii. select dental materials, equipment and technology to achieve each treatment goal (C6);
- iv. choose current best evidence for effectiveness of various treatment modalities (C6);
- v. evaluate prognostic and risk factors for various modalities (C6);
- vi. justify the use of appropriate pharmaceutical agents where necessary (C4);
- vii. evaluate the factors which make a tooth unrestorable (C6);
- viii. appraise the principles and practice of restoring root treated teeth (C6);
- ix. relate the principles of occlusion and its influence on clinical practice (C6);
- x. consider the multidisciplinary of clinical cases which may require varied treatment modalities (C6);
- xi. relate technical requirements of treatment of pulp and periapical diseases to biology, anatomy, physiology, pathology and microbiology (C6);
- xii. summarize application of tissue regeneration/engineering in clinical practice (C6);
- xiii. evaluate the physical, chemical and biological properties of clinical instruments and materials (C6);
- xiv. appraise conventional and contemporary imaging techniques (C6);
- xv. appraise the different outcome measures of treatment and their assessment (C6);
- xvi. consider risks and limitations associated with non-surgical and surgical procedures (C6);
- xvii. select the procedures for the emergency management of acute dental pain and sepsis (C6).

## **DOMAIN 2: PSYCHOMOTOR SKILLS**

PLO2: adapt evidence based clinical procedures for proficient patient management in endodontics.

The trainee must be able to:

- i. take a thorough history to identify the aetiological factors for the patients' concerns such as tooth wear, parafunction (P5);
- ii. execute a thorough examination of the patient's oral condition, occlusion, existing prostheses and restorative needs of the remaining tooth structure (P5);
- iii. perform appropriate investigations (e.g. radiographic, sensitivity and vitality tests, haematological and microbiological tests and appropriately articulated study casts) (P5);
- iv. evaluate existing prosthesis and related tissues and structures and radiographic interpretation (P5);
- v. construct the appropriate diagnosis(es) based on the examination and investigation (P5);
- vi. derive the likely prognosis and outcomes of the various treatment options and relating this to the prognosis without treatment (P5);
- vii. formulate treatment plan based on appropriate diagnoses (P5);
- viii. display skills to manage medically compromised patients (P5);
- ix. advise patients on the possible and probable outcomes of the treatment options, as well as the need for future supportive care, prevention and maintenance (P5);
- x. delineate strategies and plans according to the skills of other clinicians involved in the care of the patient (P5);
- xi. integrate methods and technologies to prevent infection during treatment procedures, between patients and staff and during transport of materials and prostheses between the laboratory and the clinic (P5);
- xii. display skills to manage multidisciplinary cases (P5);
- xiii. perform endodontic treatment (non-surgical, surgical, primary and re-treatment) of moderate to high complexity cases using a range of techniques (P5);
- xiv. assess all treatment outcomes (P5);
- xv. display proficiency in the application of endodontic materials, instruments and techniques for managing post-treatment complications (P5);
- xvi. alter treatment plan in the face of unfavourable findings or setbacks, including the decision to abort treatment (P6);
- xvii. display efficiency and confidence in the management of dental trauma (P5);
- xviii. construct case reports including a standard set of photographs to illustrate the course of treatment (P7).

## **DOMAIN 2: PSYCHOMOTOR SKILLS**

PLO3: conduct research independently.

The trainee must be able to:

- i. compose written reports/articles, including preparing and altering manuscripts, where appropriate (P7);
- ii. perform research activities (P5);
- iii. display integrity in the design, conduct and criticism of research (P5);
- iv. display presentation skill in communicating research work to professional colleagues or at specialists' meetings (P5).

## **DOMAIN 3: SOCIAL RESPONSIBILITY**

PLO4: provide expert advice to society in the field of endodontics.

The trainee must be able to:

- i. display a caring and patient-centred approach to treatment planning (A5);
- ii. display confidence, insight and empathy in formulating and presenting strategies and plans to patients and colleagues (A5);
- iii. serve all patients with dignity and respect (A5);
- iv. recognise the impact of the patient's oral and general health status and the proposed advice on their quality of life (A3);
- v. recognise the need for supportive care, prevention and maintenance (A3);
- vi. adhere to the limitations of knowledge and practical experience in the assessment and management of interdisciplinary cases (A4).

#### **DOMAIN 4: ETHICAL AND PROFESSIONALISM**

PLO5: adhere to legal, ethical and professional codes of practice.

The trainee must be able to:

- i. display appropriate attitude and understanding of ethical and societal issues and the place of their specialty in the overall healthcare spectrum (A5);
- ii. adhere to the standards of practice in dentistry as determined by the Malaysian Dental Council (A4);
- iii. display the attitudes necessary for the achievement and delivery of the highest standards of specialist care, in relation to the oral health needs of populations, the needs of patients under treatment (A5);
- iv. practice ethical principles in the preparation of clinical and research reports (A5);
- v. practice medico-legal principles in relation to patients' records (A5).

#### **DOMAIN 5: LEADERSHIP, COMMUNICATION AND TEAMWORK**

PLO6: display leadership qualities through communicating and working effectively with peers and stakeholders.

The trainee must be able to:

- i. build a rapport to work effectively as part of a team and manage members appropriately (A5);
- ii. adapt methods of administration/negotiation in order to achieve an appropriate outcome (P6);
- iii. practice a non-discriminatory approach to patients, carers, colleagues and other members of the workplace team (A5);
- iv. display appropriate both verbal and non-verbal communication /presentation skills (P5);
- v. display empathy, sensitivity and awareness in communicating with patients and colleagues (P5, A5).

#### **DOMAIN 6: PROBLEM SOLVING AND CRITICAL THINKING**

PLO7: generate solutions to problems using scientific and critical thinking skills.

The trainee must be able to:

- i. consider a variety of information sources to obtain scientific papers and other evidences such as guidelines (C6, A4);
- ii. display professional judgement to implement clinical solutions in response to problems by developing an evidence-based treatment plan and taking an holistic approach (P5);

- iii. evaluate critically the scope and limitations of the various techniques, balancing the risks and cost benefits of treatment demonstrating self-direction and autonomy (C6, A5);
- iv. appraise systematically current evidence and appreciate how research activity can inform practice (C6);
- v. perform and sustain a critical argument in writing and through oral presentations (P5).

### **DOMAIN 7: LIFELONG LEARNERS**

PLO8: exhibit attributes of independent lifelong learners.

The trainee must be able to:

- i. appraise and evaluate clinical practice and procedures periodically to maintain competencies (C6);
- ii. practice the process of revalidation and the assessment of individual clinical performance (A5);
- iii. display skills of self-reflection and self-appraisal used to identify continuing professional development needs e.g. becoming a member of a professional society (A5).

### **DOMAIN 8: MANAGEMENT SKILL**

PLO9: display skills in clinical governance.

The trainee must be able to:

- i. organise clinical practice and research based on good governance (C5);
- ii. comprehend the role of the Malaysian Dental Council (MDC) and Dental Specialty Board (DSB) in the process of professional self-regulation (C2);
- iii. organise and undertake a clinical audit project including implementation of outcomes and re-audit (P4);
- iv. display proficiency in general patient management (P5);
- v. organise and manage the working environment and schedule (P4).

## **12. MODELS OF LEARNING IN ENDODONTICS**

The programme must be designed to enable the trainees to attain the skills representative of a specialist proficient in the theoretical and practical aspects of endodontics.

Training could be undertaken in the following ways;

- i. Guided theoretical learning scheduled accordingly throughout the programme. This process aims to develop an understanding of the subject by critical appraisal and synthesis of literatures through individual and group activities, and independent learning;
- ii. Technical skills development through simulation laboratory exercises;
- iii. Clinical skills development through supervised clinical practice. This learning process may include;
  - o Pre-management case discussions may be used to facilitate development of independent decision-making in diagnosis, treatment planning, planning of treatment and treatment execution.
  - o Post-treatment case discussions may be used to facilitate group reflection and integration with theoretical knowledge.

- i. Research exposure through participation in a research project (clinical, experimental or literature research) which is reported formally in a thesis, or as a manuscript prepared for submission or as published paper(s).

### **13. SUPERVISION STRUCTURE**

Specialist training will take place in programmes approved by the Ministry of Education. Higher Education Provider (HEP) in which there is training in this discipline will have a Programme Director who co-ordinates the training together with all designated teaching staff.

In the early stages of the training, trainees should be closely assessed to determine their competence base. The level of supervision initially should be close to ensure patient safety and allow the gauging of ability and potential for independent progression. As supervised tracking shows development of competence, the level of supervision may be tapered down in proportionate measure, ultimately leading to independent practice within the training period. The trainees should be exposed to a variety of philosophies within the discipline through multiple clinical supervisors.

Flexibility is encouraged for the provision of training in a variety of approved settings such as other teaching institutions, community clinics and private practice, particularly during the later stages of the programme.

### **14. FEEDBACK ON LEARNING**

Assessment of competence will be through multiple assessment methods through multiple assessors. Assessment methods may include clinical examination, direct observation of procedural skills in daily clinical session, case-based discussion, logbook records, multi-source feedback and reflective summaries. Satisfactory progress in the assessment process and success in an exit assessment by examination is required before award of degree.

A record of all appraisals will be kept in the logbook, which will be used as part of continuous assessment. Keeping the logbook and portfolio of cases completed and up to date is a trainee responsibility.

The logbook may include the following:

- i. Details of consultation clinics
- ii. Details of patients and procedures
- iii. Details of teaching experience
- iv. Journal/study groups
- v. Professional courses
- vi. Audit

### **15. ASSESSMENT**

#### **Theory and Clinical Assessment**

The purpose of clinical assessment is to ensure that trainees have achieved the appropriate knowledge and skills specified in the learning outcomes.

Clinical assessment of trainees will take two forms:

- i. Continuous Assessment  
The principal form of continuous assessment will be based on patients' treatment during clinical session throughout the entire duration of training. Trainees are assessed on work

that they are doing on a day-to-day basis and that the assessment is integrated into their daily work.

Some of the assessment methods currently available are:

- Progress tests
- Preclinical competency tests
- Clinical competency tests
- Performance during case-based discussion
- Multi-source feedback from supervisors, support staff, peer and patients
- Performance at seminars/journal clubs
- Performance of daily clinical work

Format of theory assessment could include:

- Multiple choice question [e.g. One Best Answer (OBA), True/False, Single Response Answer (SRA)]
- Written paper [e.g. Short Answer Question (SAQ), Modified Essay Question (MEQ), essay]

These assessment methods may either be formative or summative.

ii. Final Assessment

Formal completion of training will be marked by satisfactory summative assessment.

### **Research Assessment**

A supervisor must be appointed for each trainee to guide him/her in the research activities. Both the supervisor and the programme head must monitor the trainee's assessment to ensure satisfactory progress. This must be monitored through:

- i. Regular consultation (formal and informal)
- ii. Research progress (using appropriate mechanisms)
- iii. Presentation / colloquium / seminar / workshop

Assessment of research must include:

i. For formative assessment:

- Monitoring of research progress periodically (for example, through a progress report, or a proposal defence). This will assess the knowledge, critical thinking, practical, technical, professional, scientific and problem solving skills of the trainee.
- Research Presentation / Colloquium / Seminar / Workshop. This will enhance the trainee's communication skills, teamwork, leadership, organisational skills, lifelong learning and professionalism.

ii. For summative assessment:

- thesis; and
- viva voce.

### **Examiners**

At least one (1) external examiner must be appointed for each clinical and research component.

### **Criteria for graduation**

The trainee must pass the clinical and research component independently.

## 16. MINIMAL CLINICAL AND LABORATORY EXPERIENCE

The programme must provide sufficient clinical experience for the trainee to be proficient in the comprehensive treatment of a wide range of endodontic cases. The procedures are as listed below. The trainee must complete **at least** a total of 100 teeth, of which must include the following treatment:

Scope of endodontic treatment	Minimal Clinical Requirements
1. Moderate to high complexity non-surgical root canal treatment	• 30 teeth (completed)
2. Moderate to high complexity non-surgical retreatment	• 30 teeth
3. Surgical endodontics	• 5 cases
4. Management of traumatised teeth, including emergency cases	• 5 cases
5. Management for non-vital immature teeth	• 5 cases
6. Restoration of endodontically treated teeth including bleaching, post core, simple crowns/bridges	• 10 teeth
7. Interdisciplinary endodontic, which may include: <ul style="list-style-type: none"> <li>• Replacement of poorly restorable teeth</li> <li>• Endodontically-related measures in connection with crown lengthening and forced eruption procedures</li> <li>• Reimplantation</li> <li>• Management of endo perio cases</li> <li>• Regenerative endodontics</li> </ul>	• 5 cases

The range of clinical experience is recorded by maintaining a cumulative record of the number of treatment procedures undertaken within specified categories. The following listings are not considered to be totally prescriptive, if further detail to an entry is considered appropriate this can be added.

The trainee must be monitored periodically to record how the trainee progresses throughout the training period. Proof of readiness to practice independently as a specialist must be documented.

## 17. HUMAN RESOURCE

The Programme Director and at least two (2) of the teaching staff must be recognised endodontist. Other teaching staff must comprise of a minimum of two (2) recognised specialists in the related field. There should be at least 60% full time teaching staff.

The number of teaching staff must be sufficient to ensure conduct of the following;

- i. All guided teaching activities, including case conferences, seminars and others,
- ii. Review of patient evaluation, treatment planning, management, complications and outcomes of cases,
- iii. Supervision of all clinical activities,
- iv. Research activities,
- v. Assessment activities.

Supervision must be structured and supervisor(s) must be present for teaching and direct supervision of all patient care. The suggested optimal ratios for academic staff to trainee are;

- For clinical session - 1:6
- For research - 1:4



## **18. CLINICAL FACILITIES**

The HEP must provide facilities and resources to fulfil the needs of the training programme and to develop and sustain it on a continuing basis. These include;

- i. Physical facilities to permit trainee to operate under circumstances prevailing in the practice of endodontics.
- ii. Clinical facilities specifically identified for the advanced education program in endodontics. The facility must be fully equipped with dedicated endodontic armamentarium and materials to allow the standard of contemporary endodontic practice at the advanced level.
- iii. Laboratory facilities specifically identified to support the fabrication of most prostheses required in the program.
- iv. Laboratory bench spaces to accommodate the number of students/residents enrolled in the program.

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Programme Standards and Criteria for Dental Postgraduate. Draft September 2017. Joint Technical Committee for Evaluation of Dental Speciality Programme (JTCEDS)

Referral for Restorative Dental Specialist Services In The Ministry Of Health (MOH)

Standards: Masters and Doctoral Degree by Research. MQA. 2012

**SUGGESTED DETAILED COURSE CONTENT**

- i. Patient assessment and medical history.
- ii. History of the discipline and a thorough knowledge of the endodontic literature
- iii. Management of medically compromised patients.
- iv. Diagnosis of pulp and peri-radicular pathoses and the different diagnosis of other conditions with similar presentations.
- v. Evaluation of previous endodontic treatment.
- vi. Differential diagnosis of oro-facial pain.
- vii. Radiographic techniques and radiology.
- viii. Management and treatment planning of complex cases, including multidisciplinary treatment planning.
- ix. Embryology and developmental defects affecting the teeth.
- x. Local anaesthesia and sedation.
- xi. Infection control in dental practice.
- xii. Applied pharmacology and therapeutics.
- xiii. Endodontic materials and instruments.
- xiv. Pulp therapy - including: dentine desensitisation and protection, indirect pulp capping, direct pulp capping, partial pulpotomy, pulpotomy and partial pulpectomy.
- xv. Pulpectomy and associated endodontic procedures.
- xvi. Microbiology and immunology of pulp and periapical diseases.
- xvii. Endodontic management of necrotic pulps and pulpless teeth with associated periapical pathosis via root canal therapy and surgical techniques, including the management of: immature teeth, infections, canal obstructions, and iatrogenic problems.
- xviii. Methods of debridement and obturation of root canals.
- xix. Methods for isolation of teeth during endodontic treatment.
- xx. Management of endodontic emergencies.
- xxi. The management of traumatic injuries to the teeth and mouth - including crown fractures, crown/root fractures, root fractures, concussion, subluxations, luxations, avulsions, alveolar bone fractures, abrasions, contusions and lacerations.
- xxii. Replantation and transplantation of teeth and their subsequent management.
- xxiii. Aetiology, recognition and treatment of resorptive defects.
- xxiv. Aetiology and treatment of discoloured teeth.
- xxv. Diagnosis and management of cracks in teeth.
- xxvi. Combined endodontic-periodontic pathosis (conservative and surgical management).
- xxvii. Management of root perforations and other iatrogenic complications during

- endodontic treatment.
- xxviii. Paediatric endodontics.
- xxix. Compromised endodontic procedures (e.g. devitalisation, mummification, etc) and their associated problems.
- xxx. Methods of restoring endodontically treated teeth.
- xxxi. Principles of implantology.
- xxxii. Principles of tissue regeneration techniques.
- xxxiii. Advanced instrumentation techniques.
- xxxiv. Use of the dental operating microscope.
- xxxv. Report writing.
- xxxvi. Record keeping for specialist practice.

## GLOSSARY OF TERMS

The terms used in this document (i.e. must, should, may and could) were selected to indicate the relative weight that the DentSEdC /JTCEDSP attaches to each statement. The definitions of these words used in this document are as follows:

1. **Must:** Indicates an imperative need and/or duty; an essential or indispensable item; mandatory.
2. **Should:** Indicates a method to achieve the standards.
3. **May or Could:** Indicates freedom or liberty to follow a suggested alternative.
4. **Levels of Skills:**
  - a) **Proficient:** The level of skill beyond competency. It is that level of skill acquired through advanced training or the level of skill attained when a particular activity is accomplished with repeated quality and a more efficient utilization of time.
  - b) **Competent:** The level of skill displaying special ability or knowledge derived from training and experience.
  - c) **Exposed:** The level of skill attained by observation of or participation in a particular activity.
5. Clinical training is defined as training with theoretical, practical and skill-oriented instruction under the supervision, other than research.
6. **Levels of Endodontic Case Difficulty:**

The endodontic case complexity is defined based on three levels:

  - 6.1 **Low complexity (Level 1 care)** outlines the skill sets and competencies that are covered by teaching and training in the dental undergraduate programme (i.e. competent to perform root canal therapy of single rooted teeth and uncomplicated multi-rooted teeth). Achieving a predictable treatment outcome should be attainable by a competent practitioner with limited experience. Factor(s) that contribute to case selection include(s):
    - i. Patient factor:
      - a) No medical problem (ASA Class 1\*)
      - b) No history of anaesthesia problem
      - c) Cooperative and compliant
      - d) No limitation in mouth opening
      - e) No gag reflex
    - ii. Diagnostic factor
      - a) Signs and symptoms consistent with recognized pulpal and periapical conditions
      - b) Minimal difficulty in obtaining/interpreting radiographs
    - iii. Tooth factor
      - a) Anterior/premolar tooth type
      - b) Tooth has slight inclination (<10°)
      - c) Tooth has normal original crown morphology

- d) Crown allows for routine rubber dam placement
  - e) Root morphology with slight or no curvature ( $<10^\circ$ )
  - f) Root has closed apex ( $<1\text{mm}$  in diameter)
  - g) Radiographically, canal(s) visible and not reduced in size
  - h) No resorption evident
- iv. Additional factor
- a) Trauma history with uncomplicated crown fracture of mature or immature teeth
  - b) No previous endodontic treatment
  - c) No or mild periodontal disease

**6.2 Moderate complexity (Level 2 care)** is defined as procedural and/or patient complexity requiring a clinician with enhanced skills and experience who may or may not be on a specialist register. This care may require additional equipment or environment standards but can usually be provided in primary care. Achieving a predictable treatment outcome will be challenging for a competent, experienced practitioner. Providers of Level 2 care on referral may need a formal link to a specialist, to quality assure the outcome of pathway delivery. Factor(s) that contribute to case selection include(s):

- i. Patient factor:
- a) One or more medical problems (ASA Class 2\*)
  - b) Vasoconstrictor intolerance
  - c) Anxious but cooperative
  - d) Slight limitation in mouth opening
  - e) Gags occasionally with radiograph/treatment
- ii. Diagnostic factor
- a) Extensive differential diagnosis of usual signs and symptoms required
  - b) Moderate difficulty in obtaining/interpreting radiographs (e.g. high floor of mouth, narrow or low palatal vault, presence of tori)
- iii. Tooth factor
- a) Tooth type – First molar
  - b) Tooth has moderate inclination ( $10^\circ$ - $30^\circ$ )
  - c) Crown has full coverage restoration or porcelain restoration
  - d) Tooth is an abutment for a bridge
  - e) Tooth has moderate deviation from normal tooth/root form (e.g. taurodontism, microdens)
  - f) Tooth has extensive coronal destruction
  - g) Simple pretreatment modification is required for rubber dam isolation
  - h) Root morphology with moderate curvature ( $10^\circ$ - $30^\circ$ )
  - i) Root with apical opening of 1-1.5mm in diameter
  - j) Radiographically, canal(s) visible but reduced in size
  - k) Minimal apical resorption
- iv. Additional factor
- a) Trauma history with complicated crown fracture of mature teeth
  - b) Previous access without complications
  - c) Concurrent moderate periodontal disease

**6.3 High complexity case (Level 3 care)** is that which requires specialist practitioner due to complex clinical or patient factors. Achieving a predictable treatment outcome will be challenging for even the most experienced practitioner with an extensive history of favorable outcomes. This care can be provided in a primary care, dental hospital or in a secondary care setting depending on the needs of the patient and/or local arrangements, which may include current training commitments. Factor(s) that contribute to case selection include(s):

- i. Patient factor:
  - a) Complex medical history/serious illness/disability (ASA Class 3-5\*)
  - b) Difficulty achieving anesthesia
  - c) Uncooperative
  - d) Significant limitation in mouth opening
  - e) Extreme gag reflex which has compromised past dental care
- ii. Diagnostic factor
  - a) Confusing and complex signs and symptoms, difficult to diagnose
  - b) Has history of chronic oral/facial pain
  - c) Extreme difficulty in obtaining/interpreting radiographs (e.g. superimposed anatomical structure)
- iii. Tooth factor
  - a) Tooth type – second or third molar
  - b) Tooth has extreme inclination ( $>30^\circ$ )
  - c) Restoration present does not reflect original anatomy/alignment
  - d) Tooth has significant deviation from normal tooth/root form (e.g. fusion, dens in dente)
  - e) Extensive pretreatment modification is required for rubber dam isolation
  - f) Root morphology with extreme curvature ( $>30^\circ$ ) or S-shaped curve
  - g) Tooth with anomalies [e.g. Mandibular premolar or anterior with 2 roots, maxillary premolar with 3 roots, very long tooth ( $>25\text{mm}$ )]
  - h) Root with open apex ( $>1.5\text{mm}$  in diameter)
  - i) Radiographically, canal(s) not visible or shows indistinct canal path
  - j) Presence of resorption (e.g. extensive apical resorption, internal resorption, external resorption)
- iv. Additional factor
  - a) Trauma history with complicated crown fracture of immature teeth, horizontal root fracture, alveolar fracture, intrusive, extrusive or lateral luxation or avulsion
  - b) Previous access with complications (e.g. perforation, non-negotiated canal, ledge, separated instrument)
  - c) Previous surgical or non-surgical endodontic treatment completed
  - d) Concurrent severe periodontal disease
  - e) Cracked teeth with periodontal complications
  - f) Combined endodontic/periodontic lesion
  - g) Root amputation prior to endodontic treatment

\*American Society of Anaesthesiologists (ASA) Classification System

Class 1: No systemic illness. Patient healthy.

Class 2: Patient with mild degree of systemic illness, but without functional restrictions e.g. well-controlled hypertension

- Class 3: Patient with severe degree of systemic illness which limits activities but does not immobilize the patient.
- Class 4: Patient with severe systemic illness that immobilizes and is sometimes life-threatening.
- Class 5: Patient will not survive more than 24 hours whether or not surgical intervention takes place.



**STANDARDS FOR  
DOCTOR IN  
FORENSIC ODONTOLOGY**

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## **STANDARDS FOR DOCTOR IN FORENSIC ODONTOLOGY**

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### **1. THE DEVELOPMENT OF THE STANDARDS**

The development of the standards for specialty training in Forensic Odontology was initiated by the Dental Specialties Education Committee (DentSEdC) after recent guidance from the Joint Technical Committee for Evaluation of Dental Specialty Programmes (JTCEDSP). This document has been developed by a working party from the DentSEdC in Forensic Odontology, chaired by Assoc. Prof. Dr. Mohd Fadhli Khamis, with members comprising Major General Dato' Dr. Mohd Ilham Haron, Prof. Dr. Phrabhakaran Nambiar, Dr. Norhayati Jaffar dan Dr. Nor Atika Md Ahyar.

### **2. PURPOSE OF THE STANDARDS**

The standards are designed to serve as a basis for quality assurance and as the national reference for Forensic Odontology postgraduate programme. It will be used by the evaluation panel to evaluate and recommend the accreditation of the Forensic Odontology specialty programme offered in Malaysia.

### **3. REVIEWING AND UPDATING THE STANDARDS**

Formal review, updating and validation of the content will be undertaken by the DentSEdC in Forensic Odontology every 5 years.

### **4. AIM OF SPECIALIST TRAINING IN FORENSIC ODONTOLOGY**

This training will produce dentists who will become specialists in Forensic Odontology and be eligible to register in the Specialist Division of the Dental Register. The training will provide a basis for the individual to develop into a life-long learner who is capable of self-reflection and self-directed learning. It will provide the basis for further ongoing development in the field of Forensic Odontology at specialist level.

### **5. NOMENCLATURE OF PROGRAMME & MQF LEVEL**

The 3 years doctorate degree Forensic Odontology specialty training programme will lead to the award of the Doctor in Forensic Odontology (DrForensicOdont). This programme is equivalent to level 8 in the Malaysian Qualifications Framework (MQF).

### **6. ENTRY REQUIREMENTS**

An applicant for admission to the 3-year specialty program will have the following:

- i. Bachelor of Dental Surgery or equivalent qualification; and
- ii. Master's degree in dental sciences or equivalent qualification as required by HEP. This degree must have a total Student Learning Time (SLT) ranging from 1600 – 2000 hours. A minimum of 800 – 1000 hours of this degree must include among others a preclinical training component which contribute towards the specialty training.

- iii. Registered with the MDC and holds current Annual Practising Certificate (APC) or registered with the dental regulatory body in another country and eligible to be granted a Temporary Practising Certificate (TPC) by MDC;
- iv. A minimum of two (2) years clinical practice after basic degree, excluding the Master's training; and
- v. Health and other requirements as required by HEP.

## **7. SPECIALTY TRAINING PERIOD**

The training period will be 3 years full time. The SLT for the programme shall consist of 6400-8000 hours. The SLT should constitute 60%-70% of forensic training (coursework).

No	Course	Minimum SLT (hours)
1.	Forensic work (including laboratory, forensic and fieldwork)	4480
2.	Research	1920
	TOTAL	6400

## **8. SCOPE OF FORENSIC ODONTOLOGY**

Forensic odontology is defined by the World Dental Federation as: "A branch of dentistry that deals with the proper handling and examination of dental evidence and with the proper evaluation and presentations of the dental findings in the interest of justice". Thus, this dental discipline mainly concerns with expression of an expert opinion based on scientific principles in the interest of law.

Therefore, the scope of training in forensic odontology shall prepare the trainees to be proficient in handling forensic cases which requires the trainees to deal with a very thorough, meticulous examination and subsequent investigation of any dental evidence recovered from the referred cases; this could vary from a single fragmented tooth or broken denture found at the crime scene or even just abraded skin surfaces due to teeth marks on either a living or deceased person. The trainees will analyse and give his/her expert opinion according to the findings from the examination and investigation which would then be converted into a proper forensic report. The training shall also prepare the trainees to be proficient in delivering his/her expert opinion in the case where they may be subpoenaed to the court as an expert witness to assist in the proceeding of the case if the presiding judge needs further clarifications.

## **9. INTER-PROFESSIONAL RELATIONSHIP WITH OTHER MEMBERS OF HEALTH CARE/FORENSIC SCIENCE TEAM**

The programme shall include multidisciplinary involvement of other forensic science specialists, health care professionals, law enforcement agencies and other government and non-governmental organizations.

## **10. PROGRAMME LEARNING OUTCOMES (PLO)**

At the end of the programme, graduates must be able to:

- i. synthesise the knowledge in the field of forensic odontology

- ii. construct proficient case management in the field of forensic odontology based on scientific evidence
- iii. conduct research independently
- iv. provide expert advice to society in the field of forensic odontology
- v. adhere to legal, ethical and professional codes of practice
- vi. display leadership qualities through communicating and working effectively with peers and stakeholders
- vii. generate solutions to problems using scientific and critical thinking skills
- viii. exhibit attributes of independent lifelong learners
- ix. display skills in forensic governance

## 11. CONTENT OF LEARNING AND DOMAINS OF COMPETENCIES

The trainee is expected to achieve the following competencies on completion of the programme:

### DOMAIN 1: KNOWLEDGE

PO1: synthesise knowledge in the field of forensic odontology

The trainee must be able to:

- i. relate relevant biology, anatomy, physiology of normal and abnormal intra- and extra-oral structures and tissues to gender and race (C6);
- ii. relate knowledge of embryology and anatomy of human cranio-facial structures in dental profiling involving skeletons of a baby or toddler (C6);
- iii. relate dental anatomy, histology and embryology with human identification and age assessment for isolated dental or tooth evidence found at the crime scene (C6);
- iv. appraise age changes to teeth and jaws (C6);
- v. formulate differential diagnosis of soft tissue injuries and the causative agents (C6);
- vi. appraise causes of teeth and bone fractures (C6);
- vii. evaluate signs of soft tissue injuries including child and adult abuse (physical and sexual) (C6);
- viii. differentiate biology of wound healing and tissue reaction patterns following trauma and emergency trauma management (C6);
- ix. appraise clinical features which may indicate an unfavourable tissue response to trauma management (C6);
- x. relate dental, medical and social history factors to the presenting condition and its previous management (C6);
- xi. evaluate decision-making theory and contributory factors (C6);
- xii. differentiate between human and various animals' teeth (C6);
- xiii. appraise history of forensic odontology and forensic medicine (C6);
- xiv. appraise medico-legal autopsy and post-mortem changes (C6);
- xv. consider hazards of the mortuary and crime scene (C6);
- xvi. recognise bitemarks and other wounds to the external surface of the bodies (either alive or dead) (C6);
- xvii. relate knowledge of dental materials and prosthetics to the dental profiling and human identification (C6);
- xviii. appraise anatomical reconstruction of facial features (C6);
- xix. appraise the sensitivity and specificity of forensic tests (C6);
- xx. appraise the principles of radiographic quality assurance and the practice of applied quality control (C6);
- xxi. interpret imaging, photography and radiological evidences (C6);

- xxii. appraise the conventional and contemporary techniques for Forensic Odontology imaging (including software) and photography (C6), and its legal implication;
- xxiii. describe the organisation of police forces (C2);
- xxiv. describe the liaison with police and legal profession (C2);
- xxv. discuss the Criminal Procedure Code (CPC) as well as the Dental in relation to the forensic odontology work and cases done (C6)
- xxvi. relate Malaysian Law regarding forensic odontology cases (C6)
- xxvii. summarise the management of crime scene, disaster victim identification and exhumation process (C6);
- xxviii. select recording methods and preparation of reports before, during and after the investigation (C6);
- xxix. discuss the roles of the expert witness (C6);
- xxx. appraise the legal implications of mass disasters and repatriation (C6);
- xxxi. evaluate the authenticity of dental diseases, dental treatments and dental records in fraud case (C6).

## **DOMAIN 2: PSYCHOMOTOR SKILLS**

PLO2: construct proficient case management in the field of forensic odontology based on scientific evidence

The trainee must be able to:

- i. assemble field-kits (P5);
- ii. perform a complete and accurate examination of the oral mucosa and related structures, periodontium, dental hard tissues and make appropriate diagnoses (P5);
- iii. perform a complete and accurate examination of any existing dental treatment, prosthesis and related tissues and structures (P5);
- iv. perform medico-legal and dental autopsy (P5);
- v. perform deoxyribonucleic acid analyses (DNA) for human identification (P4);
- vi. perform age estimation of the living and deceased person, either for identification or due to lack of proper legal documentations (P5);
- vii. recognise the signs of abuse and neglect in victims (either physical or sexual) (P5);
- viii. assess and interpret cranio-facial injuries (P5);
- ix. assess and interpret soft tissue injuries regarding the causative agent) (P5);
- x. perform impression taking on living and deceased person – intra-oral and bitemark injuries (P5);
- xi. perform impression taking on non-human subjects (animal or inanimate objects) related to bitemark evidence investigation, (P5);
- xii. perform forensic photography on living and deceased person – extraoral, intra-oral and bitemark injuries (P5);
- xiii. construct study model and their duplications (P5);
- xiv. analyse digital image of radiographs and photographs (P5);
- xv. organize a standard set of photographs illustrating progress through a course of cases (P5);
- xvi. manage mass disaster investigations (P5);
- xvii. perform comparative identification process (P5);
- xviii. perform reconstructive identification process including gender, ethnic and age estimation (P5);
- xix. manage sexual assault case (P5);
- xx. differentiate between human and non-human oral maxillofacial structures, either loose or intact, to facilitate the on-going investigation of the case (comparative dental anatomy) (P5);
- xxi. construct forensic reports and give testimony in court (P5).

PLO3: conduct research independently

The trainee must be able to:

- i. compose written reports/articles, including preparing and altering manuscripts, where appropriate (P7);
- ii. perform research activities with minimal supervision (P5);
- iii. display integrity in the design, conduct and criticism of research (P5);
- iv. display presentation skill in communicating research work to professional colleagues or at specialists' meetings (P5).

### **DOMAIN 3: SOCIAL RESPONSIBILITY**

PLO4: provide expert advice to society in the relevant field

The trainee must be able to:

- i. display confidence, insight and empathy in formulating and presenting strategies and plans to investigate officer (IO) and family members (A5);
- ii. serve all cases/subjects with dignity and respect (A5);
- iii. act on limitations of knowledge and practical experience in the assessment and management of interdisciplinary cases (A5);
- iv. act ethically in seeking the best interdisciplinary approach for forensic cases (A6);
- v. recognise the medico-legal importance of patients' records and forensic reports (A3);

### **DOMAIN 4: ETHICAL & PROFESSIONALISM**

PLO5: adhere to legal, ethical and professional codes of practice

The trainee must be able to:

- i. display appropriate attitude and understanding of ethical and societal issues (A5);
- ii. comply to the standards of practice in dentistry as determined by the Malaysian Dental Council (A4);
- iii. display the attitudes necessary for the achievement and delivery of the highest standards of specialist services (A5);
- iv. practice ethical principles in the preparation of forensic and research reports (A5);
- v. practice medicolegal principles in relation to patients' records (A5).

### **DOMAIN 5: LEADERSHIP, COMMUNICATION & TEAMWORK**

PLO6: display leadership qualities through communicating and working effectively with peers and stakeholders

The trainee must be able to:

- i. build rapport to work effectively as part of a team and manage members appropriately (A5);
- ii. adapt methods of administration/negotiation to achieve an appropriate outcome (P6);
- iii. practice a non-discriminatory approach to patients, carers, colleagues and other members of the workplace team (A5);

- iv. display appropriate both verbal and non-verbal communication/presentation skills (P5);
- v. display empathy, sensitivity, and awareness in communicating with patients and colleagues (P5, A5);
- vi. plan, conduct and execute any related training in forensic odontology field to any relevant party (P5); and
- vii. display leadership skills in managing a forensic odontology team, either locally or internationally (P4).

## **DOMAIN 6: PROBLEM SOLVING & CRITICAL THINKING**

PLO7: generate solutions to problems using scientific and critical thinking skills

The trainee must be able to:

- i. search a variety of information sources to obtain scientific papers and other evidences such as forensic guidelines (P5, A4);
- ii. display professional judgement to implement forensic solutions in response to problems by developing an evidence-based plan and taking an holistic approach (P5);
- iii. evaluate critically the scope and limitations of the various techniques, balancing the risks and cost benefits of investigation demonstrating self-direction (C6, A5);
- iv. appraise systematically current evidence and appreciate how research activity can be translated to practice (C6);
- v. perform and sustain a critical argument in writing and through oral presentations (P5); and
- vi. formulate relevant paperwork deemed essential to the enrichment and further establishment of the forensic odontology specialty in future (C6).

## **DOMAIN 7: LIFELONG LEARNERS**

PLO8: exhibit attributes of independent lifelong learners

The trainee must be able to:

- i. appraise and evaluate forensic practice and procedures periodically to maintain competencies (C6);
- ii. practise the process of revalidation and the assessment of individual forensic performance (A5);
- iii. display skills of self-reflection and self-appraisal used to identify continuing professional development needs (A5).

## **DOMAIN 8: MANAGEMENT SKILL**

PLO9: display skills in forensic governance

The trainee must be able to:

- i. organise forensic practice and research based on good governance (C5);
- ii. comprehend the role of the Malaysian Dental Council (MDC) and DSEC in the process of professional regulation (C2);



- iii. organise and undertake a forensic audit project including implementation of outcomes and re-audit (P4);

## **12. MODELS OF LEARNING IN FORENSIC ODONTOLOGY**

Delivery methods shall cover the three main domains *ie* cognitive, psychomotor and affective through a variety of techniques. These may include but are not limited to the following:

- i. A structured theoretical class which encourages understanding of the subject by critical appraisal and synthesis of the classical and contemporary literatures through individual and group activities, involving journal club, seminars, conferences, case-based learning (CBL) and problem-based learning (PBL). Few fundamental lectures shall be conducted in the form of e.g. traditional lectures and flipped-classroom.
- ii. Technical skills development through systematic simulation laboratory exercises.
- iii. Forensic skills development under direct supervision in the mortuary, field case-work and forensic laboratory. Students shall attend the training workshops and web-based resources identified by faculty. Mock trial shall be conducted to prepare candidates to appear as expert witness.
- iv. Work-based learning methods
  - o Candidates shall be posted with other forensic science disciplines. Evidence of skills development shall be kept in the portfolio/logbook.
  - o Candidates may be posted with other ministry for attachment. Evidence of skills development shall be kept in the portfolio/logbook.
  - o Trauma and wound healing observation shall be done in Oral and Maxillofacial Surgery posting
- v. Candidates shall keep evidence of cases and activities attended including onsite/fieldwork/project-based. The candidates shall report a summary of knowledge and skills development and learning issues and keep up to date in logbook/portfolio.

It is a good practice to provide opportunity for candidates to attach with recognized international forensic facilities. The experiences obtained from the attachment shall be counted as part of learning experience in which proof like portfolio or logbook is necessary.

## **13. SUPERVISION STRUCTURE**

Specialist training will take place in programmes approved by the Ministry of Education. Higher Education Provider (HEP) in which there is training in this discipline will have a Programme Director who co-ordinates the training.

In the early stages of the training, trainees should be closely assessed to determine their competence base. The level of supervision initially should be close to ensure integrity and accuracy of forensic cases and allow the gauging of ability and potential for independent progression. As supervised record shows development of competence, the level of supervision may be tapered down in proportionate measure, ultimately leading to independent practice within the training period. The trainees should be exposed to a variety of philosophies within the discipline through multiple forensic supervisors.

Flexibility is encouraged for the provision of training in a variety of approved settings by the Senate such as other teaching institutions, industrial postings (e.g. Ministry of Health, Forensic Institute), particularly during the later stages of the programme. A regular progress report of trainees shall be scheduled biannually. Feedback of performance shall be given to the trainee regularly.

#### **14. FEEDBACK ON LEARNING**

Assessment of competence will be through multiple assessment methods through multiple assessors. Assessment methods may include formal examination, workplace-based assessment which include direct observation of practical skills and case-based discussions, and portfolio of workplace-based assessment and other activities that contribute to their development as forensic odontologists. Satisfactory progress in the assessment process and success in an exit assessment by examination is required before award of the degree.

Trainees shall initiate the portfolio from year 1. The portfolio keeps all evidences of scholastic activities, workplace-based assessment, logbook, reflection on practice, research competence and other professional developments.

#### **15. ASSESSMENTS**

##### **Theory and Clinical Assessment**

The purpose of assessment is to ensure that trainees have achieved the appropriate knowledge and skills specified in the learning outcomes.

Trainees shall be assessed of their competencies in both clinical (forensic) and research components. The competencies are defined in the programme learning outcomes. The assessment shall consist of formative, continuous and summative assessments.

##### **Clinical (Forensic) component**

###### **1) Formative assessment**

This assessment is aimed to provide feedback to trainees of their progress and to familiarise them with summative assessment expectations.

###### **2) Continuous assessment (40-60%)**

Trainees are assessed on a day-to-day basis and that the assessment is integrated into their daily work.

Assessments, if possible by a range of assessors, should cover a broad range of activities and procedures appropriate to the stage of training.

Some of the assessment methods are (but not limited to):

- Direct observation of practical skills (DOPS);
- Work-place based assessment;
- Case-based discussion (CBD);
- Performance at seminars/journal clubs/PBL
- Progress tests
- Assignment such as essays, case reports

A record of all appraisals will be kept in the portfolio which will be used as part of continuous assessment. Keeping the logbook of forensic cases completed and up to date is a trainee's responsibility.

The logbook may include at least the following:

- a) Details of consultation
- b) Details of cases and procedures
- c) Audit

3) Summative assessment (60-40%)

Formal completion of training will be marked by satisfactory summative assessment

### **Research Assessment**

A supervisor must be appointed for each trainee to guide in the research activities. Both the supervisor and the programme head must monitor the trainee's assessment to ensure satisfactory progress. This must be monitored through:

- i. Regular consultation (formal and informal);
- ii. Research progress (using appropriate mechanism);
- iii. Presentation/colloquium/seminar/workshop

Assessment of research must include:

- i. For formative assessment:
  - a. Monitoring of research progress periodically (for example, through a progress report, or a proposal defence). This will assess the knowledge, critical thinking, critical appraisal skill, practical, technical, professional, scientific and problem solving skills of the trainee.
  - b. Research presentation/colloquium/seminar/workshop. This will enhance the trainee's communication skills, teamwork, leadership, organisational skills, lifelong learning and professionalism.
- ii. For summative assessment:
  - a. thesis;
  - b. viva voce and
  - c. at least a manuscript prepared for journal submission

### **Examiners**

At least one (1) external examiner must be appointed for each clinical (forensic) and research component.

### **Criteria for graduation**

The trainee must pass the clinical (forensic) and research component independently.

## **16. MINIMAL CLINICAL (FORENSIC) EXPERIENCE**

The programme must provide sufficient forensic experience for the trainee to be proficient in the comprehensive management of a wide range of Forensic Odontology cases. The trainee must complete the following cases:

<b>Scope of Forensic Odontology cases</b>	<b>Minimal Clinical (Forensic) Experience</b>
1. Human identification including mass disaster identification	• 10 cases/P5
2. Post mortem dental profiling, which include age estimation, gender and ethnic determination of an unknown body	• 10 cases/P5
3. Bitemark and other wounds to the external bodies (either dead or alive)	• 3 cases/P5
4. Age assessment for living individuals	• 10 cases/P5
5. DNA procurement from dental tissue and saliva as one of the methods for identification	• 3 cases/P5
6. Trauma/Abuse/Injury cases in the forensic context	• 5 cases/P5
7. Fraud/Negligence/Malpractice in dentistry	• 3 cases/P5
8. Dental autopsy	3 cases/P5

The range of minimal forensic work experience is recorded by maintaining a cumulative record of the number of procedures undertaken within specified categories.

The trainee must be monitored periodically to record how the trainee progresses throughout the training period. Proof of readiness to practice independently as a specialist must be documented.

## **17. HUMAN RESOURCE**

The Programme Director and at least two (2) of the teaching staff must be recognised forensic odontologists. Other teaching staff must comprise a minimum of two (2) recognised specialists in the related field. There should be at least 60% full-time academic staff.

The number of teaching staff must be sufficient to ensure the conduct of the following:

- i. All guided teaching activities, including case conferences, self-study activities and seminars etc;
- ii. Review of case evaluation, case planning, management, complications and outcomes of all cases;
- iii. Supervision of all forensic activities;
- iv. Research activities;
- v. Assessment activities.

Supervision must be structured and supervisor(s) must be present for teaching and direct supervision of all cases. The suggested optimal ratios for academic staff to trainee are:

- For clinical session - 1:6
- For research - 1:4

## **18. CLINICAL FACILITIES**

The HEP must provide facilities and resources to fulfil the needs of the training programme and to develop and sustain it on a continuing basis. These include;

- i. Physical facilities to permit trainee to operate under circumstances prevailing in the practice of forensic odontology;
- ii. Facilities specifically identified for the advanced education program in forensic odontology; The facility must be fully equipped with dedicated armamentarium and materials to allow the standard of practice at the advanced level;
- iii. Laboratory facilities specifically identified to support the fabrication of dental casts and analyses with contemporary techniques required in the program;
- iv. Laboratory bench spaces to accommodate the number of students/residents enrolled in the program

## **REFERENCES**

Graduate Diploma Forensic Odontology Handbook Programme, University of Adelaide, Australia, 2016

Master of Science in Forensic Dentistry, Handbook University Western Cape South Africa, 2013

Royal College of Pathologists of Australasia, Forensic Odontology Curriculum, 2016.

National Specialist Register Paperwork, August 2012.

**Minimum course contents**

1. Basic medical and dental science subjects
  - a. Pathology and oral pathology
  - b. Anatomy, oral anatomy and comparative anatomy
  - c. Applied Biomaterials
  - d. Biochemistry and Molecular genetics
2. Applied forensic science and Law subjects
  - a. Forensic Pathology
  - b. Forensic Anthropology-including craniofacial superimposition
  - c. Forensic Genetics- including direct supervision under forensic geneticist
  - d. Forensic Radiology
  - e. Forensic Sciences – Criminology and Crime scene, Fingerprint, Questioned document
  - f. Law of Malaysia
    - i. Criminal procedure code
    - ii. Personal Data Act
    - iii. Police Act
    - iv. Malaysian Judiciary system
3. Research project/paper
  - a. The project shall bear originality, novelty, scholarly reporting and significant contribution to science.
  - b. The quality of the project shall be publishable in peer-reviewed journals.
4. Biostatistics and research methods
5. Forensic Odontology training includes
  - a. Identification of unknown body;
    - i. Single and Multiple (disaster)
  - b. Age estimation;
    - i. Unknown body and Living person (no legal documents)
  - c. Dental profiling in post-mortem
  - d. Sex and race determination of an unknown body
  - e. Investigation and interpretation of bite marks and lip prints
    - i. Dead body, Alive person and Abuse cases (adult or children)
    - ii. Animal bites
  - f. DNA procurement from dental tissue and saliva as one of the method for identification
  - g. Determining legal significance of dentomaxillofacial traumatology
  - h. Litigation case; Fraud, Dental malpractice and Negligence

**Programme delivery**

A variety of recommended programme delivery techniques but not limited to the following:

- i. Face to face delivery, e.g. lecture, seminar, laboratory and clinical.
- ii. Action learning, e.g. forensic practice, forensic teaching, simulation and practical.
- iii. Collaborative Learning, e.g. projects, assignments and report.

- iv. Self-directed learning
- v. Cooperative learning, such as problem-based learning and project based learning
- vi. Technology-based delivery, such as online methods, Tele-conferences, Game-based methods and Mobile systems.
- vii. Experiential method, such as Field work, project-based learning, and On-Site learning or visits
- viii. Work-based learning (WBL) method such as practicum and clinical attachment.



## **GLOSSARY OF TERMS**

The terms used in this document (*ie* must, should, may and could) were selected to indicate the relative weight that the DentSEdC/JTCEDSP attaches to each statement. The definitions of these words used in this document are as follows:

Must/shall: indicates an imperative need and/or duty; an essential or indispensable item; mandatory

Should: indicates a method to achieve the standards.

May or could: indicates freedom or liberty to follow a suggested alternative.

### **Levels of knowledge:**

- In depth: A thorough knowledge of concepts and theories for the purpose of critical analysis and the synthesis of more complete understanding.
- Understanding: Adequate knowledge with the ability to apply.
- Familiarity: A simplified knowledge for the purpose of orientation and recognition of general principles.

### **Level of skills:**

- Proficient: The level of skill beyond competency. It is that level of skill acquired through advanced training or the level of skill attained when a particular activity is accomplished with repeated quality and a more efficient utilization of time.
- Competent: The level of skill displaying special ability or knowledge derived from training and experience.
- Exposed: The level of skill attained by observation of or participation in a particular activity.

**STANDARDS FOR  
DOCTOR IN ORTHODONTICS**

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## **STANDARDS FOR DOCTOR IN ORTHODONTICS**

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### **1. DEVELOPMENT OF THE STANDARDS**

The development of the guidelines for specialty training in Orthodontics was initiated by the Dental Specialty Education Committee (DentSEdC) after recent guidance from the Joint Technical Committee for Evaluation of Dental Specialty Programme (JTCEDSP). This document has been developed by a working party from the DentSEdC in Orthodontics, chaired by Professor Dr Rohaya Megat Abdul Wahab and its members are Associate Professor Dr Siti Adibah Othman, Professor Dr Rozita Hassan, Dr Maryati Md Dasor, Dr Rashidah Burhanudin, Dr Evelyn Lee Gaik Lyn, Col. Dr Mizalazrin Madzlan and Dr Norzakiah Mohamed Zam Zam.

### **2. PURPOSE OF THE STANDARDS**

The standards are designed to serve as a basis for quality assurance and as the national reference for Orthodontic specialist training programme. It will be used by the evaluation panel to evaluate and recommend the accreditation of the Orthodontic specialty programme offered in Malaysia.

### **3. REVIEWING AND UPDATING THE STANDARDS**

Formal review, updating and validation of the content will be undertaken by the DentSEdC in Orthodontics every 5 years.

### **4. AIM OF SPECIALIST TRAINING IN ORTHODONTICS**

The training will produce dental specialists in Orthodontics and be eligible to register in Specialist Division of the Dental Register, Malaysian Dental Council and recognized as a specialist in Orthodontics.

### **5. NOMENCLATURE OF PROGRAMME & MQF LEVEL**

The 3 years' doctorate degree Prosthodontics specialty training programme will lead to the award of the Doctor in Orthodontics (DrOrth). This programme is equivalent to Level 8 in the Malaysian Qualifications Framework (MQF).

### **6. ENTRY REQUIREMENTS**

An applicant for admission to the 3 year specialty program will have the following:

- i. Bachelor of Dental Surgery or equivalent qualifications;
- ii. Master's degree in Dental Sciences or equivalent qualification as required by HEP. This degree must have a total student learning time (SLT) ranging from 1600 – 2000 hours.

A minimum of 800 – 1000 hours of this degree must include among others a preclinical training component which contribute towards the specialty training.

- iii. Registered with the MDC and holds current Annual Practicing Certificate or registered with the dental regulatory body in another country and eligible to be granted a Temporary Practicing Certificate (TPC) by the MDC;
- iv. A minimum of two (2) years clinical practice after basic degree, excluding the Master's training;
- v. Health and other requirements as required by HEP.

## **7. SPECIALTY TRAINING PERIOD**

The training period will be three (3) years full-time. Total SLT for the programme shall consist of 6400 – 8000 hours. The SLT should constitute 60-70% of clinical training.

## **8. SCOPE OF ORTHODONTICS**

The scope of orthodontics encompasses the comprehensive diagnosis and management of patients who require simple to complex orthodontic treatment comprising of;

- i. an understanding in breadth and depth of Orthodontics knowledge.
- ii. appropriate knowledge, attitudes and skills of an Orthodontist with an emphasis on evaluation, diagnosis and formulate the orthodontic treatment plan.
- iii. full range of technical and clinical skills in Orthodontics to execute simple and complex treatment procedures and evaluate orthodontic progress and treatment outcomes.
- iv. the skill to communicate effectively and professionally and collaborate with other dental specialties personnel for multidisciplinary clinical management of patients.
- v. attitudes necessary for the achievement and delivery of the highest standards of orthodontic care, in relation to the oral health needs of populations, the needs of patients under treatment and to his or her own personal development.
- vi. understanding of research to critically assess classical or new research work and have the ability to carry out a research project.
- vii. maintaining responsibilities related to continuing professional development and instill a life-long learning philosophy.
- viii. Knowledge in the practice of clinical governance.
- ix. appropriate attitude and understanding of ethical and societal issues and the position of their specialty in the overall healthcare spectrum.
- x. maintaining standards of practice in dentistry and orthodontics as determined by the Malaysian Dental Council (MDC).

## **9. INTERRELATIONSHIP WITH OTHER DISCIPLINES IN DENTISTRY**

- i. Orthodontics and Restorative dentistry; integration of orthodontics with restorative and periodontal management.

- ii. Orthodontics, Oral and Maxillofacial Surgery, other dental and medical disciplines; management of craniofacial disharmony and deformities that requires surgery.
- iii. Orthodontics and Paediatric Dentistry; interceptive management.

## **10. PROGRAMME LEARNING OUTCOMES (PLO)**

At the end of the programme, graduates must be able to:

- i. synthesise knowledge in the field of orthodontics;
- ii. adapt evidence based clinical procedures for proficient patient management in the field of orthodontics;
- iii. conduct research independently;
- iv. provide expert advice to society in the field of orthodontics;
- v. adhere to legal, ethical and professional codes of practice;
- vi. display leadership qualities through communicating and working effectively with peers and stakeholders;
- vii. generate solutions to problems using scientific and critical thinking skills;
- viii. exhibit attributes of independent lifelong learners;
- ix. display skills in clinical orthodontics governance.

## **11. CONTENT OF LEARNING AND DOMAINS OF COMPETENCIES**

The training programme must be designed to build on the knowledge and skills of the undergraduate programme. This should be oriented to the accepted standards of orthodontic practice as set forth in the specific standards contained in this document. The programme must have clearly stated goals and objectives appropriate to advanced specialty education, addressing education, patient care, research and service. Planning for, evaluation of and improvement of educational quality for the programme must be broad-based, systematic and continuous.

The domains of competences are as follows;

### **DOMAIN 1: KNOWLEDGE**

PLO1: Synthesise knowledge in the field of orthodontics

The trainee must be able to:

- i. integrate relevant knowledge in biology, anatomy, physiology of normal growth and development of dental structures in relation to the management of the orthodontic patients (C6);
- ii. deduce anomalies of dentition, facial structure and functional condition and detect malocclusion, deviations of development of dentition, facial growth and occurrence of functional abnormalities (C6);

- iii. justify the use of orthodontic records to diagnose, formulate treatment plan and assess treatment progress (C5);
- iv. appraise the best option of dental/orthodontic materials, equipment, technology and biomechanics to achieve treatment aims and objectives (C6);
- v. evaluate risk and benefit analysis in various treatment modalities (C6);
- vi. recommend various types of techniques and biomechanics for the management of orthodontic cases (C6);
- vii. relate the knowledge and role of comprehensive and adjunctive orthodontics management in conjunction with other disciplines (C6);
- viii. analyse and interpret the conventional and contemporary techniques of dental imaging (C6);
- ix. appraise the use of orthodontic indices in identifying treatment needs and outcomes (C5);
- x. evaluate the limitation of orthodontic treatment (camouflage vs orthognathic surgery) in management of craniofacial discrepancies and anomalies (C6);
- xi. integrate scientific evidence-based knowledge in managing and solving problems in orthodontics (C6);
- xii. combine the knowledge analysis and interpretation of research data to spark innovative ideas in specialty of orthodontics (C6);
- xiii. compose detailed knowledge of all aspects of research writing (C5).

## **DOMAIN 2: PSYCHOMOTOR SKILLS**

PLO2: Adapt evidence based clinical procedures for proficient patient management in orthodontics.

The trainee must be able to:

- i. develop treatment plan based on appropriate diagnoses obtained from (P5);
  - a. a thorough clinical assessment and examination of patient's extra and intra oral presentations, occlusion and habits.
  - b. dental records (orthodontic study model, radiographs, photographs),
  - c. appropriate investigations; sensibility tests, and/or related dental imaging.
- ii. manage various types of malocclusion with different treatment mechanics and modalities (P5);
- iii. manage craniofacial anomalies and syndromic patients such as craniosynostosis and cleft lip and palate (P5);
- iv. integrate methods and technologies to prevent cross infection during treatment procedures and delivery of impression materials and appliances (P5);
- v. display and demonstrate skills to manage multidisciplinary cases (P4);
- vi. perform the orthodontic treatment using different range of techniques and biomechanics (P2);
- vii. grade and assess the orthodontic treatment needs, complexity and outcomes (P5);

- viii. design and construct appropriate retention appliances and regime (P7);
- ix. manage the orthodontic complications and iatrogenic effects (soft tissues and hard tissue damage) (P5).

PLO3: Conduct research independently

The trainee must be able to:

- i. compose written dissertation and articles, including preparing manuscripts (P7);
- ii. perform research activities with minimal supervision (P5);
- iii. display integrity in the design, conduct and criticism of research (P5);
- iv. display presentation skill in communicating research work to professional colleagues or at conferences (P5).

### **DOMAIN 3: SOCIAL RESPONSIBILITY**

PLO4: Provide expert advice to society in the field of orthodontics

The trainee must be able to:

- i. display a caring and patient-centred approach to treatment planning (A5);
- ii. display confidence, insight and empathy in formulating and presenting strategies and plans to patients and colleagues (A5);
- iii. serve all patients with dignity and respect (A5);
- iv. recognise the impact of the patient's oral and general health status and the proposed advice on their quality of life (A3);
- v. recognise the need for supportive care, prevention and maintenance (A3);
- vi. adhere to the limitations of knowledge and practical experience in the assessment and management of interdisciplinary cases (A4).

### **DOMAIN 4: ETHICAL & PROFESSIONALISM**

PLO5: Adhere to legal, ethical and professional codes of practice

- i. The trainee must be able to:
- ii. display appropriate attitude and understanding of ethical and societal issues and the position of their specialty in the overall healthcare spectrum (A5);
- iii. adhere to the standards of practice in dentistry as determined by the Malaysian Dental Council (A4);
- iv. display the attitudes necessary for the achievement and delivery of the highest standards of specialist care, in relation to the oral health needs of populations, the needs of patients under treatment (A5);
- v. practice ethical principles in the preparation of clinical and research dissertation (A5);
- vi. practice medico-legal principles in relation to patients' records (A5).



## **DOMAIN 5: LEADERSHIP, COMMUNICATION & TEAMWORK**

PLO6: Display leadership qualities through communicating and working effectively with peers and stakeholders

The trainee must be able to:

- i. build a rapport to work effectively as part of a team and manage members appropriately (A5);
- ii. adapt methods of administration/ negotiation in order to achieve an appropriate outcome (P6);
- iii. practice a non-discriminatory approach to patients, carers, colleagues and other members of the workplace team (A5);
- iv. display appropriate both verbal and non-verbal communication /presentation skills (P5);
- v. display empathy, sensitivity and awareness in communicating with patients and colleagues (A5).

## **DOMAIN 6: PROBLEM SOLVING & CRITICAL THINKING**

PLO7: Generate solutions to problems using scientific and critical thinking skills

The trainee must be able to:

- i. consider a variety of information sources to obtain scientific papers and other evidences such as guidelines (C6, A4);
- ii. display professional judgement to implement clinical solutions in response to problems by developing an evidence-based treatment plan and taking a holistic approach (P5);
- iii. evaluate critically the scope and limitations of the various techniques, balancing the risks and cost benefits of treatment demonstrating self-direction and autonomy (C6, A5);
- iv. appraise systematically current evidence and appreciate how research activity can inform practice (C6);
- v. perform and sustain a critical argument in writing and through oral presentations (P5).

## **DOMAIN 7: LIFELONG LEARNERS**

PLO8: Exhibit attributes of independent lifelong learners

The trainee must be able to;

- i. appraise and evaluate clinical practice and procedures periodically to maintain competencies (C6);
- ii. practice the process of revalidation and the assessment of individual clinical performance (A5);
- iii. display skills of self-reflection and self-appraisal used to identify continuing professional development needs (A5).

## **DOMAIN 8: MANAGEMENT SKILL**

PLO9: Display skills in clinical orthodontics governance

The trainee must be able to;

- i. organise clinical practice and research based on good governance (C5);
- ii. comprehend the role of the Malaysian Dental Council (MDC) and DSEC in the process of professional regulation (C2);
- iii. organise and undertake a clinical audit project including implementation of outcomes and re-audit (P4);
- iv. display proficiency in general patient management (P5);
- v. organise and manage the working environment and schedule (P4).

## **12. MODELS OF LEARNING IN ORTHODONTICS**

The trainee should acquire the appropriate knowledge, attitudes and skills of an Orthodontist. Trainees should possess a sense of professionalism, interest and enquiry. These characteristics should encourage the specialist to maintain competency throughout their career by the continuous pursuit of Continuing Professional Development. The programme must be designed to enable the trainees to attain the skills representative of a specialist proficient in the theoretical and practical aspects of orthodontics.

Training can be undertaken in the following ways:

- The specialist training programme commence with a laboratory based practical course (typodont) for the development of orthodontic skills appropriate to the clinical situation. Trainees must demonstrate sufficient knowledge and skill before beginning clinical procedures on patients. Technical skills development through systematic simulation laboratory exercises, with development of a presentation portfolio, reflection and discussion of outcomes through peer presentation and trainer feed-back;
- Clinical training must include; assessing new and review patients, examination, investigation, diagnosis and treatment planning, as well as the personal treatment of patients. The full-time trainee should spend at least six sessions per week involved in-patient contact.
- In addition to work-based experiential learning, all trainees must have access to formal teaching, lectures, staff-led seminars, tutorials and research supervision. The formal training modules map to the agreed national training modules. Additional training opportunities will include clinical meetings, student-led seminars (Journal Club or similar) and participation in audit (both self-directed and departmental meetings).
- Research exposure through participation in a research project (clinical, experimental or literature research) which is reported formally in a dissertation, or as a manuscript prepared for submission or as published paper(s).

### **13. SUPERVISION STRUCTURE**

Specialist training will take place in programme approved by the Ministry of Education. Higher Education Provider (HEP) where there is training in this discipline will have a Programme Director who co-ordinates the training together with all designated teaching staff.

In the early stages of the training, trainees should be closely assessed to determine their competence base. The level of supervision initially should be close to ensure patient safety and allow the gauging of ability and potential for independent progression. As supervised tracking shows development of competence, the level of supervision may be tapered down in proportionate measure, ultimately leading to independent practice within the training period. The trainees should be exposed to a variety of philosophies within the discipline through multiple clinical supervisors.

Flexibility is encouraged for the provision of training in a variety of approved settings such as other teaching institutions, community clinics and private practice, particularly during the later stages of the programme.

### **14. FEEDBACK ON LEARNING**

The objective of the training programme is to equip the trainee, at the end of the training period, with the knowledge, skills, attitudes and competence to provide the services of a specialist Orthodontist. This objective should, in part, be met by having sufficient clinical experience to ensure that the development of these characteristics is both realistic and achievable within the work-based experiential environment. Whilst individual trainees will vary in their ability and progress in developing and achieving the appropriate knowledge, skills and attitudes, the following is a guide as to the anticipated patient caseload.

A record of all appraisals will be kept in the log book which will be used as part of continuous assessment. Keeping the log book and portfolio of cases completed and up to date is a trainee responsibility.

The log book may include the following:

- d) Details of consultation clinics
- e) Details of patients and procedures
- f) Details of teaching experience
- g) Journal/study groups
- h) Professional courses
- i) Audit

## 15. ASSESSMENT

An assessment blueprint exercise has been undertaken which maps appropriate assessment methods to the curriculum in a systematic manner and covers the domains of knowledge, skills and attitudes. Assessments are both formative and summative.

### Theory and Clinical Assessment

The purpose of assessment is to ensure that trainees have achieved the appropriate skills specified in the learning outcomes.

Some of the assessment methods currently available are:

- a) Theory
  - Multiple choice question [e.g. One Best Answer (OBA), True/False, Single Response Answer (SRA)]
  - Written paper [e.g. Short Answer Question (SAQ), Modified Essay Question (MEQ), essay]
  
- b) Clinical
  - Preclinical competency tests
  - Clinical competency tests
  - Performance during Case-based discussion
  - Multi-source feedback (MSF) from supervisors, support staff, peer and patients.
  - Performance at seminars/journal clubs
  - Progress tests
  - Performance of daily clinical work

These assessment methods may either be formative or summative.

Summative assessment of trainees will take two forms:

- i. Continuous Assessment  
The principal form of continuous assessment will be based on patients' treatment during clinical session throughout the entire duration of training. Trainees are assessed on work that they are doing on a day-to-day basis and that the assessment is integrated into their daily work.
  
- ii. Final assessment  
Formal completion of training will be marked by satisfactory summative assessment in the final examination, which must include theory and clinical assessment.

### Research Assessment

A supervisor must be appointed for each trainee to guide him/her in the research activities. Both the supervisor and the programme head must monitor the trainee's assessment to ensure satisfactory progress. This must be monitored through:

- i. Regular consultation (formal and informal)
- ii. Research progress (using appropriate mechanisms)
- iii. Presentation / colloquium / seminar / workshop

Assessment of research must include:

- i. For formative assessment:
  - Monitoring of research progress periodically (for example, through a progress report, or a proposal defense). This will assess the knowledge, critical thinking, practical, technical, professional, scientific and problem solving skills of the trainee.
  - Research presentation/ Colloquium/ Seminar/ Workshop. This will enhance the trainee’s communication skills, teamwork, leadership, organizational skills, lifelong learning and professionalism.
- ii. For summative assessment:
  - Thesis; and
  - Viva voce

**Examiners**

At least one (1) external examiner must be appointed for each clinical and research component.

**Criteria for Graduation**

The trainee must pass the clinical and research component independently.

**16. MINIMAL CLINICAL AND LABORATORY EXPERIENCE**

The programme must provide sufficient clinical experience for the trainee to be proficient in the comprehensive treatment of a wide range of orthodontic cases. The following is the minimum expected exposure for the case mix before the trainee graduates. The trainee must treat **at least** a total of 120 cases, of which **80** (minimum) must be **new** patients. These cases must include the following case complexity and orthodontic treatment;

Scope of case complexity	Minimal Clinical Requirement
1. Class I malocclusion	10 cases
2. Class II division 1 malocclusion	10 cases
3. Class II division 2 malocclusion	1 case
4. Class III malocclusion	6 cases
5. Dental anomalies e.g. hypodontia, impacted canines	2 cases
6. Severe skeletal discrepancy requiring orthognathic intervention	1 case
7. Cleft lip and/or palate	1 case

<b>Scope of orthodontic treatment</b>	<b>Minimal Clinical Requirements</b>
8. Fixed appliances (may be in combination with the list below depending on the case complexity)	100 cases
9. Removable appliances (including Functional appliances)	5 cases
10. Adjunct anchorage devices (e.g. headgear, TADs, TPA, Lingual arch etc)	10 cases
11. Completed the case that the trainee started i.e. debond	20 cases
12. Transfer cases	20 cases
13. Multidisciplinary cases, which may include: <ul style="list-style-type: none"> <li>a. Cleft cases</li> <li>b. Restorative / periodontology / paedodontic management</li> <li>c. Orthognathic cases</li> </ul>	10 cases

This requirement was made taking into account of the common case types within the country. The requirement for each trainee may be considered based on the combination of case complexity and treatment.

The range of clinical experience is recorded by maintaining a cumulative record of the number of treatment procedures undertaken within specified categories.

The trainee must be monitored periodically to record how the trainee progresses throughout the training period. Proof of readiness to practice independently as a specialist must be documented.

## **17. HUMAN RESOURCE**

The Programme Director and at least two (2) of the teaching staff must be recognised Orthodontists. Other teaching staff must comprise of a minimum of two (2) recognised specialists in the related field. There should be at least 60% full time academic staff.

The number of teaching staff must be sufficient to ensure the following;

- i. All guided teaching activities, including case conferences, seminars etc.,
- ii. Review of patient evaluation, treatment planning, management, complications and outcomes of cases,
- iii. Supervision of all clinical activities,
- iv. Research activities'
- v. Assessment activities.

Supervision must be structured and supervisor(s) must be present for teaching and direct supervision of all patient care. The suggested optimal ratios for academic staff to trainee are;

- For clinical session - 1:6
- For research – 1:4

## **18. CLINICAL FACILITIES**

The HEP must provide facilities and resources to fulfil the needs of the training programme and to develop and sustain it on a continuing basis. These include;

- i. Physical facilities to permit trainee to operate under circumstances prevailing in the practice of orthodontics;
- ii. Clinical facilities specifically identified for the advanced education programme in orthodontics. The facility must be fully equipped with dedicated orthodontic armamentarium and materials to allow the standard of contemporary orthodontics practice at the advanced level;
- iii. Laboratory facilities specifically identified to support the fabrication of most removable and fixed appliances required in the programme;
- iv. Laboratory bench spaces to accommodate the number of students/residents enrolled in the program.

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**Must:** Indicates an imperative need and/or duty; an essential or indispensable item; mandatory.

**Should:** Indicates a method to achieve the standards.

**May or Could:** Indicates freedom or liberty to follow a suggested alternative.

### **Levels of Knowledge:**

- In-depth: A thorough knowledge of concepts and theories for the purpose of critical analysis and the synthesis of more complete understanding.
- Understanding: Adequate knowledge with the ability to apply.
- Familiarity: A simplified knowledge for the purpose of orientation and recognition of general principles.

### **Levels of Skills:**

- Proficient: The level of skill beyond competency. It is that level of skill acquired through advanced training or the level of skill attained when a particular activity is accomplished with repeated quality and a more efficient utilization of time.
- Competent: The level of skill displaying special ability or knowledge derived from training and experience.
- Exposed: The level of skill attained by observation of or participation in a particular activity.

**STANDARDS FOR  
DOCTOR IN PERIODONTOLOGY**

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## **STANDARDS FOR DOCTOR IN PERIODONTOLOGY**

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### **1. DEVELOPMENT OF THE STANDARDS**

The development of the guidelines for specialty training in Periodontics was initiated by the Dental Specialty Education Committee (DentSEdC) after recent guidance from the Joint Technical Committee for Evaluation of Dental Specialty Programmes (JTCEDSP). This document has been developed by a working party from the DentSEdC in Periodontics, chaired by Dr Ahmad Sharifuddin Mohd Asari and its members are Dr Haslina Taib, Dr Nor Adinar binti Baharuddin, Dr Badiah binti Baharin, Dr Jeanette Chua and Dr Salmah Kamin, and Dr Norhani A Rani.

### **2. PURPOSE OF THIS STANDARDS**

The standards are designed to serve as a basis for quality assurance and as the national reference for Periodontology postgraduate programme. It will be used by the evaluation panel to evaluate and recommend the accreditation of the Periodontology specialty programme offered in Malaysia.

### **3. REVIEWING AND UPDATING THE STANDARDS**

Formal review, updating and validation of the content will be undertaken by the DentSEdC in Periodontology every 5 years

### **4. AIM OF SPECIALIST TRAINING IN PERIODONTICS**

This training will produce specialists in the field of Periodontology, and be eligible to register in the Specialist Division of the Dental Register in Malaysia.

### **5. NOMENCLATURE OF PROGRAMME AND MQF LEVEL**

The 3 years' doctorate degree Periodontic specialty training programme will lead to the award of the Doctor in Periodontology (DrPerio). This programme is equivalent to Level 8 in the Malaysian Qualifications Framework (MQF).

### **6. ENTRY REQUIREMENTS**

An applicant for admission to the 3-year specialty program will have the following:

- i. Bachelor of Dental Surgery or equivalent qualification; and
- ii. Master's degree in dental sciences or equivalent qualification as required by HEP. This degree must have a total Student Learning Time (SLT) ranging from 1600 – 2000 hours. A minimum of 800 – 1000 hours of this degree must include among others a preclinical training component which contribute towards the specialty training.
- iii. Registered with the MDC and holds current Annual Practising Certificate (APC) or registered with the dental regulatory body in another country and eligible to be granted a Temporary Practising Certificate (TPC) by MDC;

- iv. A minimum of two (2) years clinical practice after basic degree, excluding the Master's training; and
- v. Health and other requirements as required by HEP.

## **7. SPECIALTY TRAINING PERIOD**

The training period will be three (3) years full time. The SLT for the programme shall consist of 6400 – 8000 hours. The SLT should constitute 60-70% of clinical training.

## **8. SCOPE OF THE PERIODONTICS**

The scope of the programme encompasses:

- i. Prevention, diagnosis and treatment of diseases of the periodontium and dental implants.
- ii. Maintenance of health, functions and aesthetics of all supporting structures and tissue.
- iii. Tissue regeneration, management of muco-gingival conditions and periodontal-endodontic lesions
- iv. Provision of dental implants as an integral component of comprehensive periodontal therapy.

## **9. INTERRELATIONSHIP WITH OTHER DISCIPLINES IN DENTISTRY**

Multidisciplinary approach toward holistic management of patients shall be incorporated in the programme for relevant disciplines of dentistry and medicine.

## **10. PROGRAMME LEARNING OUTCOMES (PLO)**

At the end of the programme, graduates must be able to;

- i. synthesise knowledge in the field of Periodontology
- ii. adapt evidence-based clinical procedures for proficient patient management in the field of Periodontology
- iii. conduct research independently
- iv. provide expert advice to society in the field of Periodontics
- v. adhere to legal, ethical and professional codes of practice
- vi. display leadership qualities through communicating and working effectively with peers and stakeholders
- vii. generate solutions to problems using scientific and critical thinking skills
- viii. exhibit attributes of independent lifelong learners
- ix. display skills in clinical governance

## **11. CONTENT OF LEARNING AND DOMAINS OF COMPETENCIES**

The training programme must be designed to build on the knowledge and skills of the undergraduate programme and those gained during practice after graduation. This should be

oriented to the accepted standards of periodontics practice as set forth in the specific standards contained in this document.

The programme must have clearly stated goals and objectives appropriate to advanced specialty education, addressing education, patient care, research and service. Planning for, evaluation of and improvement of educational quality for the programme must be broad-based, systematic and continuous.

The domains of competencies are as follows;

### **DOMAIN 1: KNOWLEDGE**

PLO1: synthesise knowledge in the field of periodontics.

The trainee must be able to:

- i. integrate relevant knowledge in biology, anatomy, physiology of normal and abnormal intra- and extra-oral structures and tissues in the management of periodontal disease (C5);
- ii. weigh the primary and supplementary techniques for local anaesthesia of the periodontal tissues (C6);
- iii. select dental materials, equipment and technology to achieve each treatment goal (C6);
- iv. choose current best evidence for effectiveness of various treatment modalities (C6);
- v. evaluate prognostic and risk factors for various modalities (C6);
- vi. justify the use of appropriate pharmaceutical agents where necessary (C4);
- vii. evaluate the factors which make a tooth not saveable (C6);
- viii. appraise the principles and practice of periodontally compromised teeth (C6);
- ix. relate the principles of occlusion and its influence on clinical practice (C6);
- x. consider the multidisciplinary of clinical cases which may require varied treatment modalities (C6);
- xi. relate technical requirements of treatment of periodontal diseases to biology, anatomy, physiology, pathology and microbiology (C6);
- xii. summarize application of tissue regeneration/engineering in clinical practice (C6);
- xiii. evaluate the physical, chemical and biological properties of clinical instruments and periodontal materials (C6);
- xiv. appraise conventional and contemporary imaging techniques (C6);
- xv. appraise the different outcome measures of treatment and their assessment (C6);
- xvi. consider risks and limitations associated with non-surgical and surgical procedures (C6);
- xvii. select the procedures for the emergency management of acute periodontal disease and sepsis (C6).

### **DOMAIN 2: PSYCHOMOTOR SKILLS**

PLO2: adapt evidence based clinical procedures for proficient patient management in periodontics.

The trainee must be able to:

- i. take a thorough history to identify the aetiological factors for the patients' concerns (P5);
- ii. execute a thorough periodontal examination of the patient (P5);
- iii. perform appropriate investigations (e.g. radiographic, sensitivity and vitality tests, haematological and microbiological tests (P5);
- iv. evaluate existing periodontium and related structures and radiographic interpretation (P5);
- v. construct the appropriate diagnosis(es) based on the examination and investigation (P5);
- vi. derive the likely prognosis and outcomes of the various treatment options and relating this to the prognosis without treatment (P5);
- vii. formulate treatment plan based on appropriate diagnoses (P5);
- viii. display skills to manage medically compromised patients (P5);
- ix. advise patients on the possible and probable outcomes of the treatment options, as well as the need for future supportive care, prevention and maintenance (P5);
- x. delineate strategies and plans according to the skills of other clinicians involved in the care of the patient (P5);
- xi. integrate methods and technologies to prevent infection during treatment procedures, between patients and staff and during transport of materials and prostheses between the laboratory and the clinic (P5);
- xii. display skills to manage multidisciplinary cases (P5);
- xiii. display the use of chemical agent in the management periodontal problems (P5)
- xiv. perform periodontal treatment (non-surgical, surgical, mucogingival surgeries and treatment of infrabony defects) of moderate to high complexity cases using a range of techniques (P5);
- xv. display skill and knowledge to treat patients requiring dental implant therapy (P5);
- xvi. assess all treatment outcomes (P5);
- xvii. display proficiency in the application of periodontal materials, instruments and techniques for managing post-treatment complications (P5);
- xviii. alter treatment plan in the face of unfavourable findings or setbacks, including the decision to abort treatment (P6);
- xix. construct case reports including a standard set of photographs to illustrate the course of treatment (P5).

## **DOMAIN 2: PSYCHOMOTOR SKILLS**

PLO3: conduct research independently.

The trainee must be able to:

- i. compose written reports/articles, including preparing and altering manuscripts, where appropriate (P7);
- ii. perform research activities (P5);
- iii. display integrity in the design, conduct and criticism of research (P5);
- iv. display presentation skill in communicating research work to professional colleagues or at specialists' meetings (P5).

### **DOMAIN 3: SOCIAL RESPONSIBILITY**

PLO4: provide expert advice to society in the field of periodontics

The trainee must be able to:

- i. display a caring and patient-centred approach to treatment planning (A5);
- ii. display confidence, insight and empathy in formulating and presenting strategies and plans to patients and colleagues (A5);
- iii. serve all patients with dignity and respect (A5);
- iv. recognise the impact of the patient's oral and general health status and the proposed advice on their quality of life (A3);
- v. recognise the need for supportive care, prevention and maintenance (A3);
- vi. adhere to the limitations of knowledge and practical experience in the assessment and management of interdisciplinary cases (A4);

### **DOMAIN 4: ETHICAL & PROFESSIONALISM**

PLO5: adhere to legal, ethical and professional codes of practice

The trainee must be able to:

- i. display appropriate attitude and understanding of ethical and societal issues and the place of their specialty in the overall healthcare spectrum (A5);
- ii. adhere to the standards of practice in dentistry as determined by the Malaysian Dental Council (A4);
- iii. display the attitudes necessary for the achievement and delivery of the highest standards of specialist care, in relation to the oral health needs of populations, the needs of patients under treatment (A5);
- iv. practice ethical principles in the preparation of clinical and research reports (A5);
- v. practice medico-legal principles in relation to patients' records (A5).

### **DOMAIN 5: LEADERSHIP, COMMUNICATION & TEAMWORK**

PLO6: display leadership qualities through communicating and working effectively with peers and stakeholders

The trainee must be able to:

- i. build a rapport to work effectively as part of a team and manage members appropriately (A5);
- ii. adapt methods of administration/negotiation in order to achieve an appropriate outcome (P6);
- iii. practice a non-discriminatory approach to patients, carers, colleagues and other members of the workplace team (A5);
- iv. display appropriate both verbal and non-verbal communication /presentation skills (P5);
- v. display empathy, sensitivity and awareness in communicating with patients and colleagues (P5, A5).



## **DOMAIN 6: PROBLEM SOLVING & CRITICAL THINKING**

PLO7: generate solutions to problems using scientific and critical thinking skills

The trainee must be able to:

- i. consider a variety of information sources to obtain scientific papers and other evidences such as guidelines (C6, A4);
- ii. display professional judgement to implement clinical solutions in response to problems by developing an evidence-based treatment plan and taking an holistic approach (P5);
- iii. evaluate critically the scope and limitations of the various techniques, balancing the risks and cost benefits of treatment demonstrating self-direction and autonomy (C6, A5);
- iv. appraise systematically current evidence and appreciate how research activity can inform practice (C6);
- v. perform and sustain a critical argument in writing and through oral presentations (P5).

## **DOMAIN 7: LIFELONG LEARNERS**

PLO8: exhibit attributes of independent lifelong learners

The trainee must be able to:

- i. appraise and evaluate clinical practice and procedures periodically to maintain competencies (C6);
- ii. practice the process of revalidation and the assessment of individual clinical performance (A5);
- iii. display skills of self-reflection and self-appraisal used to identify continuing professional development needs e.g. becoming a member of a professional society (A5).

## **DOMAIN 8: MANAGEMENT SKILL**

PLO9: display skills in clinical governance

The trainee must be able to:

- i. organise clinical practice and research based on good governance (C5);
- ii. comprehend the role of the Malaysian Dental Council (MDC) and Dental Specialist Evaluation Committee (DSEC) in the process of professional self-regulation (C2);
- iii. organise and undertake a clinical audit project including implementation of outcomes and re-audit (P4);
- iv. display proficiency in general patient management (P5);
- v. organise and manage the working environment and schedule (P4).

## **12. MODELS OF LEARNING IN PERIODONTICS**

The programme must be designed to enable the trainees to attain the skills representative of a specialist proficient in the theoretical and practical aspects of Periodontology.

Training could be undertaken in the following ways;

- i. Guided theoretical learning scheduled accordingly throughout the programme. This process aims to develop an understanding of the subject by critical appraisal and synthesis of literatures through individual and group activities, and independent learning;
- ii. Technical skills development through simulation laboratory exercises;
- iii. Clinical skills development through supervised clinical practice. This learning process may include;
  - o Pre-management case discussions may be used to facilitate development of independent decision-making in diagnosis, planning of treatment and treatment execution.
  - o Post-treatment case discussions may be used to facilitate group reflection and integration with theoretical knowledge.
- iv. Research exposure through participation in a research project (clinical, experimental or literature research) which is reported formally in a dissertation. Manuscript prepared for submission or as published paper(s) are encouraged.

### **13. SUPERVISION STRUCTURE**

Specialist training will take place in programmes approved by the Ministry of Education. Higher Education Provider (HEP) in which there is training in this discipline will have a Programme Director who co-ordinates training together with all designated teaching staff.

Trainees should be assessed to determine their baseline competency. At the initial stage, it must be a personalised supervision and moves towards independent practice. The trainees should be exposed to a variety of philosophies within the discipline through multiple clinical supervisors.

The provision of training must include a variety of approved settings in other institutions, particularly during the later stages of the programme.

### **14. FEEDBACK ON LEARNING**

Assessment of competence will be through multiple assessment methods with multiple assessors. Assessment methods may include clinical examination, direct observation of procedural skills in daily clinical session, case-based discussion, logbook records, multi-source feedback and reflective summaries. Satisfactory progress in the assessment process and success in an exit assessment by examination is required before award of degree.

A record of all appraisals will be kept in the logbook, which will be used as part of continuous assessment. Keeping the logbook and portfolio of cases completed and up to date is the responsibility of the trainee.

### **15. ASSESSMENT**

In general, the format of assessment is as follow:

- i. Coursework  
The purpose of clinical assessment is to ensure that trainees have achieved the appropriate skills specified in the learning outcomes.

Coursework assessment of trainees will take two forms:

- a. Formative
  - i. audit
  - ii. log book
  - iii. case report
  - iv. assignment
- b. Summative
  - i. Continuous  
The principal form of continuous assessment will be based on patients' treatment during clinical session throughout the entire duration of training. Trainees are assessed on work that they are doing on a day-to-day basis and that the assessment is integrated into their daily work.
  - ii. Final  
Formal completion of training will be marked by satisfactory summative assessment in the final examination.

- ii. Research  
A supervisor must be appointed for each trainee to guide him/her in the research activities. Both the supervisor and the programme head must monitor the trainee's assessment to ensure satisfactory progress. The assessment will also be through formative and summative:

- a. Formative
  - i. Research progress  
Monitoring of research progress periodically (for example, through a progress report, or a proposal defence). This will assess the knowledge, critical thinking, practical, technical, professional, scientific and problem solving skills of the trainee.
  - ii. Research Presentation / Colloquium / Seminar / Workshop. This will enhance the trainee's communication skills, teamwork, leadership, organisational skills, lifelong learning and professionalism.
- b. Summative: Final
  - i. Thesis; and
  - ii. Viva voce.

### **Examiners**

At least one (1) external examiner must be appointed for each clinical and research component.

### **Criteria for graduation**

The trainee must pass the coursework and research component independently.

## 16. MINIMAL CLINICAL EXPERIENCE

The programme must provide sufficient clinical experience for the trainee to be proficient in the comprehensive treatment of a wide range of periodontal cases, refer list in attachment B. The range of clinical experience is recorded by maintaining a cumulative record of the number of treatment procedures undertaken within specified categories.

The trainee must be monitored periodically to record how the trainee progresses throughout the training period. Proof of readiness to practice independently as a specialist must be documented.

Scope of Procedures	Minimal Clinical Requirements	Remarks
<b>a. Management of cases</b> <ul style="list-style-type: none"> <li>▪ Periodontitis (various complexity)</li> <li>▪ Non-periodontitis and/or related cases (acute lesions, gingival overgrowth, peri-implantitis)</li> <li>▪ Multidisciplinary cases (Perio – Restorative/Prosthetic/Endo/Orthodontic /Oral Surgery and Special Needs/Medically compromised patients)</li> <li>▪ Supportive Periodontal Therapy</li> </ul>	45*	<i>*70% should be new periodontitis cases and of complexity 2 and 3</i>
<b>b. Non-surgical Procedures</b> <ul style="list-style-type: none"> <li>▪ Scaling and root surface debridement (with and without antibiotic)</li> </ul>	50	
<b>c. Basic Periodontal Surgical Procedures</b> <ul style="list-style-type: none"> <li>▪ Open Flap Debridement/Access flap</li> <li>▪ Osseous defect management               <ul style="list-style-type: none"> <li>○ Osteoplasty/ostectomy</li> <li>○ Furcation management (tunneling/hemisection/root resection)</li> </ul> </li> </ul>	30*	<i>*Must cover all of variety of procedures</i>
<b>d. Advanced Periodontal Surgical Procedures</b> <ul style="list-style-type: none"> <li>▪ Regenerative / Reconstructive Surgery               <ul style="list-style-type: none"> <li>○ Bone Substitute (e.g. autogenous)</li> <li>○ Guided Tissue Regeneration (GTR)</li> <li>○ Combine procedures (GTR and bone substitute/biomolecule/Active Biomolecule e.g. Emdogain, Growth Factors)</li> </ul> </li> </ul>	4*	<i>*Must cover all variety of procedures</i>
<b>e. Mucogingival/Periodontal Plastic Surgery</b> <ul style="list-style-type: none"> <li>▪ Gingivectomy</li> <li>▪ Crown lengthening</li> <li>▪ Root coverage</li> <li>▪ Soft tissue ridge augmentation</li> <li>▪ Frenectomy/Frenotomy</li> </ul>	5 5 1 1 2	

Scope of Procedures	Minimal Clinical Requirements	Remarks
<b>f. Hard Tissue Ridge Preservation/Expansion</b> <ul style="list-style-type: none"> <li>▪ Socket preservation</li> <li>▪ Guided Bone Regeneration (GBR)</li> <li>▪ Lateral sinus graft and/or vertical sinus graft</li> </ul>	2 1 Optional	
<b>g. Other procedures</b> <ul style="list-style-type: none"> <li>▪ Implant placement</li> <li>▪ Endo single canal cases</li> <li>▪ Endo Molar Cases</li> <li>▪ Biopsy</li> <li>▪ Periodontal Therapy with special device (Electrocautery, laser, piezosurgery machine, Photodynamic therapy (PDT), PRF machine)</li> </ul>	2 2 Optional 1 Optional	

## 17. HUMAN RESOURCE

The Programme Director and at least two (2) of the teaching staff must be recognised periodontist. Other teaching staff must comprise of a minimum of two (2) recognised specialists in the related field. There should be at least 60% full time academic staff.

The number of teaching staff must be sufficient to ensure conduct of the following;

- i. All guided teaching activities, including case conferences, seminars and others,
- ii. Review of patient evaluation, treatment planning, management, complications and outcomes of cases,
- iii. Supervision of all clinical activities,
- iv. Research activities,
- v. Assessment activities.

Supervision must be structured and supervisor(s) must be present for teaching and direct supervision of all patient care. The suggested optimal ratios for academic staff to trainee are;

- For clinical session - 1:6
- For research – 1:4

## 18. CLINICAL FACILITIES

The HEP must provide facilities and resources to fulfill the needs of the training programme and to develop and sustain it on a continuing basis. These include;

- i. Physical facilities to permit trainee to operate under circumstances prevailing in the practice of Periodontics;
- ii. Clinical facilities specifically identified for the advanced education program in Periodontics. The facility must be fully equipped with dedicated periodontic armamentarium and materials to allow the standard of contemporary periodontic practice at the advanced level;
- iii. Laboratory facilities specifically identified to support the programme.

## REFERENCES

- Quality Standards for Graduate Programs In Periodontology, Periodontics And Implant Dentistry  
European Federation of Periodontology 30 June 1996 (updated 7/9/2017)  
[https://www.efp.org/education/postgraduate/documents/Quality\\_Standards\\_2017.pdf](https://www.efp.org/education/postgraduate/documents/Quality_Standards_2017.pdf)
- British Society of Periodontology: Referral Policy and Parameters Of Care.  
[https://www.bsperio.org.uk/publications/.../28\\_143801\\_parameters\\_of\\_care.pdf](https://www.bsperio.org.uk/publications/.../28_143801_parameters_of_care.pdf)

## GLOSSARY OF TERMS

The terms used in this document (i.e. must, should, may and could) were selected to indicate the relative weight that the DentSEdC /NCBBPDE attaches to each statement. The definitions of these words used in this document are as follows:

1. **Must:** Indicates an imperative need and/or duty; an essential or indispensable item; mandatory.
2. **Shall:** must
3. **Should:** Indicates a method to achieve the standards.
4. **May or Could:** Indicates freedom or liberty to follow a suggested alternative
5. **Research:** all related activities pertaining to the research component of the programme
6. **Coursework / clinical:** the components in the curriculum other than research
7. **Complexity of case** – adopted from British Society of Periodontology:
  - a. COMPLEXITY 1: Basic Periodontal Examination (BPE) Score 1 – 3 in any sextant
  - b. COMPLEXITY 2: BPE Score of 4 in any sextant
  - c. COMPLEXITY 3:
    - i. BPE Score of 4 in at least one sextant, and one or more of the following factors:
      1. Concurrent medical factor directly affecting the periodontal tissues (eg diabetes, medications etc)
      2. Complicating root morphologies / anatomical factors
      3. Non-response to previous optimally carried out treatment
    - ii. Diagnosis of aggressive periodontitis as assessed either by severity of disease for age or based on rapid rate of periodontal breakdown;
    - iii. Patients requiring surgical procedures involving tissue augmentation or regeneration, including surgical management of mucogingival problems;
    - iv. Patients requiring surgery involving bone removal (eg crown lengthening);
    - v. Patients requiring surgery associated with osseointegrated implants

**STANDARDS FOR  
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## **STANDARDS FOR DOCTOR IN PROSTHODONTICS**

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### **1. DEVELOPMENT OF THE STANDARDS**

The development of the standards for specialty training in Prosthodontics was initiated by the Dental Specialty Education Committee (DentSEdC) subsequent to recent guidance from the Joint Technical Committee for Evaluation of Dental Specialty Programmes (JTCEDSP). This document has been developed by a working party from the DentSEdC in Prosthodontics chaired by Professor Dr. Noor Hayaty Abu Kasim with members comprising Dr. Balkis Ghazali, Dr. Kamarul Hisham Kamarudin, Dr. Mohd Muzafar Hamiruddin, Associate Professor Dr. Rohana Ahmad and Associate Professor Dr. Zaihan Ariffin.

### **2. PURPOSE OF THE STANDARDS**

The standards are designed to serve as a basis for quality assurance and as the national reference for Prosthodontic postgraduate programme. It will be used by the evaluation panel to evaluate and recommend the accreditation of the Prosthodontic specialty programme offered in Malaysia.

### **3. REVIEWING AND UPDATING THE STANDARDS**

Formal review, updating and validation of the content will be undertaken by the DentSEdC in Prosthodontics every 5 years.

### **4. AIM OF SPECIALIST TRAINING IN PROSTHODONTICS**

This training will produce dentists who will become specialists in Prosthodontics and be eligible to register in the Specialist Division of the Dental Register. The training will provide a basis for the individual to develop into a life-long learner who is capable of self-reflection and self-directed learning. It will provide the basis for further ongoing development in the field of Prosthodontics at specialist level.

### **5. NOMENCLATURE OF PROGRAMME AND MQF LEVEL**

The 3 years' doctorate degree Prosthodontics specialty training programme will lead to the award of the Doctor in Prosthodontics (DrProstho). This programme is equivalent to Level 8 in the Malaysian Qualifications Framework (MQF).

### **6. ENTRY REQUIREMENTS**

An applicant for admission to the 3 year specialty program will have the following:

- i. Bachelor of Dental Surgery or equivalent qualification; and
- ii. Master's degree in dental sciences or equivalent qualification as required by HEP. This degree must have a total Student Learning Time (SLT) ranging from 1600 – 2000 hours. A minimum of 800 – 1000 hours of this degree must include among others a preclinical training component which contribute towards the specialty training.
- iii. Registered with the MDC and holds current Annual Practising Certificate (APC) or registered with the dental regulatory body in another country and eligible to be granted a Temporary Practising Certificate (TPC) by MDC;

- iv. A minimum of two (2) years clinical practice after basic degree, excluding the Master's training; and
- v. Health and other requirements as required by HEP.

## **7. SPECIALTY TRAINING PERIOD**

The training period will be three (3) years full time. The SLT for the programme shall consist of 6400 – 8000 hours. The SLT should constitute 60-70% of clinical training.

## **8. SCOPE OF PROSTHODONTICS**

The scope of Prosthodontic training encompasses the comprehensive diagnosis and management to patients who require complex prosthodontic treatment including maxillofacial prosthetics. Trainees are required to conduct research in relevant areas. Training also exposes candidates to a multidisciplinary health team and imparts understanding of the socio-economic consequences of providing a comprehensive prosthodontic service for all types of communities, and evaluate alternative procedures and technology appropriate for different socio- economic resources in relation to the national oral health policy.

## **9. INTERRELATIONSHIP WITH OTHER DISCIPLINES IN DENTISTRY**

Restorative Dentistry, Periodontology, Orthodontics, Oral Maxillofacial Surgery, Special Need Dentistry and relevant medical disciplines should all receive some time allocation during the training programme.

## **10. PROGRAMME LEARNING OUTCOMES (PLO)**

At the end of the programme, graduates must be able to;

- i. synthesise knowledge in the field of prosthodontics
- ii. adapt evidence based clinical procedures for proficient patient management in the field of prosthodontics
- iii. conduct research independently
- iv. provide expert advice to society in the field of prosthodontics
- v. adhere to legal, ethical and professional codes of practice
- vi. display leadership qualities through communicating and working effectively with peers and stakeholders
- vii. generate solutions to problems using scientific and critical thinking skills
- viii. exhibit attributes of independent lifelong learners
- ix. display skills in clinical governance

## **11. CONTENT OF LEARNING AND DOMAINS OF COMPETENCIES**

The training programme must be designed to build on the knowledge and skills of the undergraduate programme. This should be oriented towards the accepted standards of prosthodontics practice as set forth in the specific standards contained in this document.

The programme must have clearly stated goals and objectives appropriate to advanced specialty education, addressing education, patient care, research and service. Planning for, evaluation of and improvement of educational quality for the programme must be broad-based, systematic, continuous and designed to promote achievement of programme goals related to education, patient care, research and service.

The domains of competencies are as follows;

### **DOMAIN 1: KNOWLEDGE**

PLO1: synthesise knowledge in the field of prosthodontics.

The trainee must be able to:

- i. integrate relevant knowledge in biology, anatomy, physiology of normal and abnormal intra- and extra-oral structures and tissues in pain management, including prevention and control (C5);
- ii. weigh the primary and supplementary techniques for local anaesthesia of the pulp (C6);
- iii. select dental materials, equipment and technology to achieve each treatment goal (C6);
- iv. choose current best evidence for effectiveness of various treatment modalities (C6);
- v. evaluate prognostic and risk factors for various modalities (C6);
- vi. justify the use of appropriate pharmaceutical agents where necessary (C4);
- vii. evaluate the factors which make a tooth restorable (C6);
- viii. appraise the principles and practice of restoring root treated teeth (C6);
- ix. relate the principles of occlusion and its influence to clinical practice (C6);
- x. consider the multidisciplinary of clinical cases which may require varied treatment modalities(C6);
- xi. relate technical requirements of treatment of pulp and periapical diseases to biology, anatomy, physiology, pathology and microbiology (C6);
- xii. summarize application of tissue regeneration/engineering in clinical practice (C6);
- xiii. evaluate the physical, chemical and biological properties of clinical instruments and materials (C6);
- xiv. appraise conventional and contemporary techniques for imaging (C6);
- xv. appraise the different outcome measures of treatment and their assessment (C6);
- xvi. consider risks and limitations associated with non-surgical and surgical procedures (C6);
- xvii. select the procedures for the emergency management of acute dental pain and sepsis (C6).

### **DOMAIN 2: PSYCHOMOTOR SKILLS**

PLO2: adapt evidence based clinical procedures for proficient patient management in the field prosthodontics.

The trainee must be able to:

- i. select the appropriate diagnosis(es) obtained from (P5);
  - a. a thorough history to identify the aetiological factors for the patients' concerns such as tooth wear, parafunction and other;
  - b. a thorough examination of the patient's oral condition, occlusion, existing prostheses and restorative needs of the remaining tooth structure;
  - c. the various appropriate investigations (e.g. radiographic, sensitivity and vitality tests, haematological and microbiological tests and appropriately articulated study casts).
- ii. formulate treatment plan based on (P5);
  - a. a thorough evaluation of any existing prosthesis and related tissues and structures;
  - b. radiographic interpretation;
  - c. the likely prognosis and outcomes of the various treatment options and relating this to the prognosis without treatment;

- d. the patients' needs and preferences, including future need for further corrective or supportive therapy;
  - e. the patient's participation and compliance in their own oral care;
  - f. discussion and decision while working as part of a multi-disciplinary team such as implant retained or supported fixed or removable prostheses.
- iii. perform occlusal examination and recording of occlusion using facebow and articulators (P5);
  - iv. display the ability to manage patients' occlusion in cases of altered vertical dimensions and occlusal schemes (P5);
  - v. perform restorative procedures in the provision of fixed and removable prostheses such as tooth wear, maxillofacial defects and endodontically treated teeth (P5);
  - vi. perform surgical procedures for placement of dental implants (P5);
  - vii. display the ability to use the appropriate techniques, materials and technologies available to manage tooth wear, alteration of tooth colour and proportion;
  - viii. construct restorations and prostheses in the laboratory to aid in effective communication with laboratory technicians (P5);
  - ix. display skills to manage medically compromised and special needs patients (P5);
  - x. advise patients on the possible and probable outcomes of the treatment options, as well as the need for future supportive care, prevention and maintenance (P5);
  - xi. integrate methods and technologies to prevent infection during treatment procedures, between patients and staff and during transport of materials and prostheses between the laboratory and the clinic (P5);
  - xii. display skills to manage multidisciplinary cases (P5);
  - xiii. assess and monitor treatment outcomes (P5);
  - xiv. display proficiency in the application of materials, instruments and techniques for managing post-treatment complications (P5);
  - xv. alter treatment plan in the face of unfavourable findings or setbacks, including the decision to abort treatment (P6);
  - xvi. construct case reports including a standard set of photographs to illustrate the course of treatment (P5).

## **DOMAIN 2: PSYCHOMOTOR SKILLS**

PLO3: conduct research independently.

The trainee must be able to:

- i. compose written reports/articles, including preparing and altering manuscripts, where appropriate (P7);
- ii. perform research activities with minimal supervision (P5);
- iii. display integrity in the design, conduct and criticism of research (P5);
- iv. display presentation skill in communicating research work to professional colleagues or at specialists' meetings (P5).

## **DOMAIN 3: SOCIAL RESPONSIBILITY**

PLO4: provide expert advice to society in the field of prosthodontics.

The trainee must be able to:

- i. display a caring and patient-centred approach to treatment planning (A5);
- ii. display confidence, insight and empathy in formulating and presenting strategies and plans to patients and colleagues (A5);
- iii. serve all patients with dignity and respect (A5);
- iv. recognise the impact of the patient's oral and general health status and the proposed advice on their quality of life (A3);
- v. recognise the need for supportive care, prevention and maintenance (A3);

- vi. adhere to the limitations of knowledge and practical experience in the assessment and management of interdisciplinary cases (A4).

#### **DOMAIN 4: ETHICAL AND PROFESSIONALISM**

PLO5: adhere to legal, ethical and professional codes of practice.

The trainee must be able to;

- i. display appropriate attitude and understanding of ethical and societal issues and the place of their specialty in the overall healthcare spectrum (A5);
- ii. adhere to the standards of practice in dentistry as determined by the Malaysian Dental Council (A4);
- iii. display the attitudes necessary for the achievement and delivery of the highest standards of specialist care, in relation to the oral health needs of populations, the needs of patients under treatment (A5);
- iv. practice ethical principles in the preparation of clinical and research reports (A5);
- v. practice medico-legal principles in relation to patients' records (A5).

#### **DOMAIN 5: LEADERSHIP, COMMUNICATION & TEAMWORK**

PLO6: display leadership qualities through communicating and working effectively with peers and stakeholders.

The trainee must be able to:

- i. build a rapport to work effectively as part of a team and manage members appropriately (A5);
- ii. adapt methods of administration/negotiation in order to achieve an appropriate outcome (P6);
- iii. practice a non-discriminatory approach to patients, carers, colleagues and other members of the workplace team (A5);
- iv. display appropriate verbal and non-verbal communication /presentation skills (P5);
- v. display empathy, sensitivity and awareness in communicating with patients and colleagues (P5, A5).

#### **DOMAIN 6: PROBLEM SOLVING AND CRITICAL THINKING**

PLO7: generate solutions to problems using scientific and critical thinking skills.

The trainee must be able to;

- i. consider a variety of information sources to obtain scientific papers and other evidences such as guidelines (C6, A4);
- ii. display professional judgement to implement clinical solutions in response to problems by developing an evidence-based treatment plan and taking an holistic approach (P5);
- iii. evaluate critically the scope and limitations of the various techniques, balancing the risks and cost benefits of treatment, demonstrating self-direction and autonomy (C6, A5);
- iv. appraise systematically current evidence and appreciate how research activity can inform practice (C6);
- v. perform and sustain a critical argument in writing and through oral presentations (P5).

## **DOMAIN 7: LIFELONG LEARNERS**

PLO8: exhibit attributes of independent lifelong learners.

The trainee must be able to;

- i. appraise and evaluate clinical practice and procedures periodically to maintain competencies (C6);
- ii. practice the process of revalidation and the assessment of individual clinical performance (A5);
- iii. display skills of self-reflection and self-appraisal to identify continuing professional development needs e.g. becoming a member of a professional society (A5).

## **DOMAIN 8: MANAGEMENT SKILL**

PLO9: display skills in clinical governance.

The trainee must be able to;

- i. organise clinical practice and research based on good governance (C5);
- ii. comprehend the role of the MDC and DentSEdC in the process of professional self-regulation (C2);
- iii. organise and undertake a clinical audit project including implementation of outcomes and re-audit (P4);
- iv. display proficiency in general patient management (P5);
- v. organise and manage the working environment and schedule (P4).

## **12. MODELS OF LEARNING IN PROSTHODONTICS**

The programme must be designed to enable the trainees to attain these skills representative of a specialist proficient in the theoretical and practical aspects of prosthodontics.

Training could be undertaken in the following ways;

- i. Guided theoretical learning scheduled accordingly throughout the programme. This process aims to develop an understanding of the subject by critical appraisal and synthesis of literatures through individual and group activities, and independent learning,
- ii. Technical skills development through simulation laboratory exercises,
- iii. Clinical skills development through supervised clinical practice. This learning process may include;
  - a. Pre-management case discussions may be used to facilitate development of independent decision-making in diagnosis, treatment planning, planning of treatment and treatment execution.
  - b. Post-treatment case discussion may be used to facilitate group reflection and integration with theoretical knowledge.
- iv. Research exposure through participation in a research project (clinical, experimental or literature research) which is reported formally in a thesis, or as a manuscript prepared for submission or as published paper(s).

## **13. SUPERVISION STRUCTURE**

Specialist training will take place in programmes approved by the Ministry of Education. Higher Education Provider (HEP) in which there is training in this discipline will have a Programme Director who co-ordinates the training together with all designated teaching staff.

In the early stages of the training, trainees should be closely assessed to determine their competence base. The level of supervision initially should be close to ensure patient safety

and allow the gauging of the trainees' ability and potential for independent progression. As supervised tracking shows development of competence, the level of supervision may be tapered down in proportionate measure, ultimately leading to independent practice within the training period. The trainees should be exposed to a variety of philosophies within the discipline through multiple clinical supervisors.

Flexibility is encouraged for the provision of training in a variety of approved settings such as other teaching institutions, community clinics and private practice, particularly during the later stages of the programme.

#### **14. FEEDBACK ON LEARNING**

Assessment of competence will be through multiple assessment methods through multiple assessors. Assessment methods may include clinical examination, direct observation of procedural skills in daily clinical session, case-based discussion, logbook records, multi-source feedback and reflective summaries. Satisfactory progress in the assessment process and success in an exit assessment by examination is required before the degree is awarded.

A record of all appraisals will be kept in a logbook, which will be used as part of continuous assessment. Keeping the log book and portfolio of cases completed and up to date is a trainee responsibility.

The log book may include the following:

- i. Details of consultation clinics
- ii. Details of patients and procedures
- iii. Details of teaching experience
- iv. Journal/study groups
- v. Professional courses
- vi. Audit

#### **15. ASSESSMENT**

##### **Theory and Clinical Assessment**

The purpose of assessment is to ensure that trainees have achieved the appropriate knowledge and skills specified in the learning outcomes.

Clinical assessment of trainees will take two forms:

i. Continuous Assessment

The principal form of continuous assessment will be based on patients' treatment during clinical session throughout the entire duration of training. Trainees are assessed on work that they are doing on a day-to-day basis and that the assessment is integrated into their daily work.

Some of the assessment methods currently available are:

- Written
- Preclinical competency tests
- Clinical competency tests
- Performance during case-based discussion
- Multi-source feedback from supervisors, support staff, peer and patients
- Performance at seminars/journal clubs
- Progress tests
- Performance of daily clinical work



Format of theory assessment could include:

- Multiple choice question [e.g. One Best Answer (OBA), True/False, Single Response Answer (SRA)]
- Written paper [e.g. Short Answer Question (SAQ), Modified Essay Question (MEQ), Essays]

These assessment methods may either be formative or summative.

ii. Final Assessment

Formal completion of training will be marked by satisfactory summative assessment.

### **Research Assessment**

A supervisor must be appointed for each trainee to guide him/her in the research activities. Both the supervisor and the programme head must monitor the trainee's assessment to ensure satisfactory progress. This must be monitored through:

- i. Regular consultation (formal and informal)
- ii. Research progress (using appropriate mechanisms)
- iii. Presentation / colloquium / seminar / workshop

Assessment of research must include:

i. For formative assessment:

- Monitoring of research progress periodically (for example, through a progress report, or a proposal defence). This will assess the knowledge, critical thinking, practical, technical, professional, scientific and problem-solving skills of the trainee.
- Research Presentation / Colloquium / Seminar / Workshop. This will enhance the trainee's communication skills, teamwork, leadership, organisational skills, lifelong learning and professionalism.

ii. For summative assessment:

- Thesis; and
- Viva voce.

### **Examiners**

At least one (1) external examiner must be appointed for each clinical and research component.

### **Criteria for Graduation**

The trainee must pass the clinical and research component independently.

## **16. MINIMAL CLINICAL AND LABORATORY EXPERIENCE**

The programme must provide sufficient clinical experience for the trainee to be proficient in the comprehensive treatment of a wide range of oral rehabilitation/prosthetic cases. The procedures are as listed below. The trainee must manage at least a total of 30 cases, of which must include the followings:

<b>Scope of oral rehabilitation procedures</b>	<b>Minimal Clinical Requirements</b>
Tooth wear	5 cases (of which at least 2 are completed cases)
Prosthodontics (moderate to severe degree of complexity) – Fixed, removable and combination	10 cases (of which 2 cases involve all laboratory procedures for the prosthesis fabrication)
Implant prosthodontics – Fixed, removable and combination	7 cases (of which 2 cases must include all laboratory procedures for the prosthesis fabrication)
Occlusal equilibration/Temporomandibular Disorders	3 cases
Maxillofacial Prosthetics	5 cases (of which 1 case must include all laboratory procedures for the prosthesis fabrication)

The range of clinical experience is recorded by maintaining a cumulative record of the number of treatment procedures undertaken within specified categories. The above listings are not considered to be totally prescriptive; if further detail to an entry is considered appropriate this can be added.

The trainee must be monitored periodically to record how the trainee progresses throughout the training period. Proof of readiness to practice independently as a specialist must be documented.

## **17. HUMAN RESOURCE**

The Programme Director and at least two (2) of the teaching staff must be recognised prosthodontists. Other teaching staff must comprise of a minimum of two (2) recognised specialists in the related field. There should be at least 60% full time academic staff.

The number of teaching staff must be sufficient to ensure conduct of the following;

- i. All guided teaching activities, including case conferences, seminars and others,
- ii. Review of patient evaluation, treatment planning, management, complications and treatment outcomes,
- iii. Supervision of all clinical activities,
- iv. Research activities,
- v. Assessment activities.

Supervision must be structured and supervisor(s) must be present for teaching and direct supervision of all patient care. The suggested optimal ratios for academic staff to trainee are;

- For clinical session - 1:6
- For research - 1:4

## **18. CLINICAL FACILITIES**

The HEP must provide facilities and resources to fulfil the needs of the training programme and to develop and sustain it on a continuing basis. These include;

- i. Physical facilities to permit trainee to operate under circumstances prevailing in the practice of prosthodontics.
- ii. Clinical facilities specifically identified for the advanced education programme in prosthodontics.
- iii. Laboratory facilities specifically identified to support the fabrication of most prostheses required in the programme.
- iv. Laboratory bench spaces to accommodate the number of students/residents enrolled in the programme.

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McGarry TJ, et al (2004). Classification system for the completely dentate patient. *Journal of Prosthodontics*, Vol 13 (2): 73-82

Programme Standards and Criteria for Dental Postgraduate. February 2015. National Conjoint Board for Postgraduate Dental Education (NCBPDE)

Prosthodontics Diagnostic Index, American College of Prosthodontics

Tupas RG et al (2005). Parameter of care for the specialty of prosthodontics. *Journal of Prosthodontics*, Vol 14 (4) Suppl:1-103

**SUGGESTED SCOPE OF TRAINING**

- i. Evolutionary and embryological development of the oral and cranio-facial structures, the stomatognathic system and the natural dentition.
- ii. Biological (including anatomical and physiological), and functional principles to be followed in designing appropriate prostheses for the replacement of the oral and cranio-facial structures.
- iii. Changes in the form and function of the mouth and jaws brought about by loss of teeth and/or oral and cranio-facial structures and the social and behavioural consequences of this loss.
- iv. Impact of frailty on the oral health and prosthodontic needs of medically compromised and special needs patients, and the elderly people.
- v. Merits of conflicting philosophies with regard to the biological and physical rationale for the clinical and laboratory procedures employed in the construction of different types of prostheses.
- vi. The influence of prostheses on the remaining soft tissues and the underlying supporting structures.
- vii. The scope and limitations of different types of prostheses together with the bio-compatibility and physical properties of all materials used in Prosthodontics.
- viii. The need for prosthodontic intervention and the long-term consequences of any technologies used, and to demonstrate effective use of technology applicable to a given clinical situation.
- ix. The socio-economic consequences of the provision of a comprehensive prosthodontic service for all types of communities.
- x. Alternative procedures available for the provision of a prosthodontic service based on appropriate technology for communities with different socio-economic resources.

## GLOSSARY OF TERMS

The terms used in this document (i.e. must, should, may and could) were selected to indicate the relative weight that the DentSEdC / JTCEDSP attaches to each statement. The definitions of these words used in this document are as follows:

1. **Must:** Indicates an imperative need and/or duty; an essential or indispensable item; mandatory.
2. **Should:** Indicates a method to achieve the standards.
3. **May or Could:** Indicates freedom or liberty to follow a suggested alternative.
4. **Prosthodontics Specific Terms**
  - 4.1 Removable Prosthodontics is that branch of prosthodontics concerned with the replacement of teeth and contiguous structures for edentulous or partially edentulous patients by artificial substitutes that are removable from the mouth. Moderate to complex cases involve reorganize occlusal scheme and multidisciplinary in nature.
  - 4.2 Fixed Prosthodontics is that branch of prosthodontics concerned with the replacement and/or restoration of teeth by artificial substitutes that are not removable from the mouth. Moderate to complex cases involve reorganize occlusal scheme and multidisciplinary in nature.
  - 4.3 Implant Prosthodontics is that branch of prosthodontics concerned with the replacement of teeth and contiguous structures by artificial substitutes partially or completely supported and/or retained by alloplastic implants.
  - 4.4 Maxillofacial Prosthetics is that branch of prosthodontics concerned with the restoration and/or replacement of stomatognathic and associated craniofacial structures by artificial substitutes.
5. **Levels of Skills:**
  - 5.1 Proficient: The level of skill beyond competency. It is that level of skill acquired through advanced training or the level of skill attained when a particular activity is accomplished with repeated quality and a more efficient utilization of time.
  - 5.2 Competent: The level of skill displaying special ability or knowledge derived from training and experience.
  - 5.3 Exposed: The level of skill attained by observation of or participation in a particular activity.
6. **Degree of Case Complexity**
  - 6.1 Fully Dentate
    - 6.1.1 Low
      - 6.1.1.1 Tooth condition
        - a) No localised adjunctive therapy required.
        - b) Pathology that affects the coronal morphology of 3 or less teeth in a sextant.
      - 6.1.1.2 Occlusal scheme
        - a) No pre-prosthetic therapy required.
        - b) Contiguous, intact dental arches.

- 6.1.2 Moderate
- 6.1.2.1 Tooth condition
- a) Insufficient tooth structure to retain or support intracoronal or extracoronal restorations-- in one sextant.
  - b) Pathology that affects the coronal morphology of 4 or more teeth in a sextant.
  - c) Teeth require localized adjunctive therapy, i.e., periodontal, endodontic or orthodontic procedure for a single tooth or in a single sextant.
- 6.1.2.2 Occlusal scheme
- a) Anterior guidance is intact.
  - b) Occlusal scheme requires localized adjunctive therapy.
- 6.1.3 High
- 6.1.3.1 Tooth condition
- a) Insufficient tooth structure to retain or support intracoronal or extracoronal restorations-- in two sextants.
  - b) Pathology that affects the coronal morphology of four or more teeth in a sextant.
  - c) Teeth require localized adjunctive therapy, i.e., periodontal, endodontic or orthodontic procedure for teeth in two sextants.
- 6.1.3.2 Occlusal scheme
- Occlusal scheme requires major therapy to maintain the entire occlusal scheme without any change in the occlusal vertical dimension.
- 6.1.4 Severe
- 6.1.4.1 Tooth condition
- a) Insufficient tooth structure to retain or support intracoronal or extracoronal restorations-- in three or more sextants.
  - b) Pathology that affects the coronal morphology of four or more teeth in all sextant.
  - c) Teeth require localized adjunctive therapy, i.e., periodontal, endodontic or orthodontic procedure for a single tooth or in three or more sextants.
- 6.1.4.2 Occlusal scheme
- The occlusal scheme requires major therapy to re-establish the entire occlusal scheme including any changes in the occlusal vertical dimension.
- 6.2 Partial Edentulism
- 6.2.1 Low
- 6.2.1.1 Location and extent of the edentulous area(s); edentulous span confined to a single arch and one of the following:
- a) Any anterior maxillary span that does not exceed 2 missing incisors.
  - b) Any anterior mandibular span that does not exceed 4 missing incisors.
  - c) Any posterior maxillary or mandibular span that does not exceed 2 premolars or 1 premolar and 1 molar.
- 6.2.1.2 Conditioned of the abutment teeth
- No pre-prosthetic therapy is indicated.
- 6.2.1.3 Occlusal scheme
- No pre-prosthetic therapy is required.
- 6.2.1.4 Residual ridge
- a) Residual ridge morphology that resists horizontal and vertical movement of the denture base.

- b) Location of muscle attachments that are conducive to denture base stability and retention.

## 6.2.2 Moderate

6.2.2.1 Location and extent of the edentulous area(s); the edentulous span is in both arches and one of the following;

- a) Any anterior maxillary span that does not exceed 2 missing incisors.
- b) Any anterior mandibular span that does not exceed 4 missing incisors.
- c) Any posterior maxillary or mandibular span that does not exceed 2 premolars or 1 premolar and 1 molar.
- d) The maxillary or mandibular canine is missing.

6.2.2.2 Conditioned of the abutment teeth

- a) Insufficient tooth structure to retain or support intracoronal or extracoronal restorations-- in one or two sextants.
- b) Abutments require localised adjunctive therapy, i.e., periodontal, endodontic or orthodontic procedures in one or two sextants.

6.2.2.3 Occlusal scheme

The occlusal scheme requires localised adjunctive therapy (e.g. enameloplasty on premature occlusal contacts).

6.2.2.4 Residual ridge

- a) Residual ridge morphology that resists horizontal and vertical movement of the denture base.
- b) Location of muscle attachments that are conducive to denture base stability and retention.

## 6.2.3 High

6.2.3.1 Location and extent of the edentulous area(s):

- a) Any posterior maxillary or mandibular span that is greater than 3 missing teeth or 2 molars.
- b) Any edentulous span including anterior and posterior areas of 3 or more missing teeth.

6.2.3.2 Conditioned of the abutment teeth

- a) Insufficient tooth structure to retain or support intracoronal or extracoronal restorations - in four or more sextants.
- b) Abutments require localised adjunctive therapy, i.e., periodontal, endodontic or orthodontic procedures in four or more sextants.
- c) Abutments have a fair prognosis.

6.2.3.3 Occlusal scheme

The entire occlusal scheme requires reestablishment but without any change in the occlusal vertical dimension of occlusion (including loss of posterior support).

6.2.3.4 Residual ridge

- a) Residual ridge morphology that resists horizontal and vertical movement of the denture base.
- b) Location of muscle attachments that are conducive to denture base stability and retention.

## 6.2.4 Severe

6.2.4.1 Location and extent of the edentulous area(s):

- a) Any posterior maxillary or mandibular span that is greater than 3 missing teeth or 2 molars.
- b) Any edentulous span including anterior and posterior areas of 3 or more



- missing teeth.
- 6.2.4.2 Conditioned of the abutment teeth  
The abutments have a guarded prognosis.
- 6.2.4.3 Occlusal scheme  
The entire occlusal scheme requires reestablishment but without any change in the occlusal vertical dimension of occlusion (including loss of posterior support).
- 6.2.4.4 Residual ridge  
The residual ridge morphology compromised.

### 6.3 Complete Edentulism

#### 6.3.1 Low

- 6.3.1.1 Residual mandibular bone height
  - a) Well formed.
  - b) Residual bone height of 21mm or greater measured at the least vertical height of the mandible.
- 6.3.1.2 Maxillomandibular relationship
  - a) Class I maxillomandibular relationship.
  - b) Allows tooth position that has normal articulation with the teeth supported by the residual ridge.
- 6.3.1.3 Residual maxillary ridge morphology
  - a) Well formed.
  - b) Anterior labial and posterior buccal vestibular depth that resists vertical and horizontal movement of the denture base.
  - c) Palatal morphology that resists vertical and horizontal movement of the denture base.
  - d) Sufficient tuberosity definition that resists vertical and horizontal movement of the denture base.
  - e) Hamular notch is well defined to establish the posterior extension of the denture base.
  - f) Absence of tori or exostoses.
- 6.3.1.4 Muscles attachment  
Adequate attached mucosal base without undue muscular impingement during normal function in all regions.

#### 6.3.2 Moderate

- 6.3.2.1 Residual mandibular bone height
  - a) Moderately resorbed.
  - b) Residual bone height of 16 – 20 mm measured at the least vertical height of the mandible.
- 6.3.2.2 Maxillomandibular relationship
  - a) Class II maxillomandibular relationship.
  - b) Maxillomandibular relationship requires tooth position outside the normal ridge relation in order to attain phonetics and articulation; i.e., anterior or posterior tooth position not supported by the residual ridge/ anterior vertical overlap that exceeds the principles of articulation.
- 6.3.2.3 Residual maxillary ridge morphology
  - a) Moderately resorbed.
  - b) Loss of posterior buccal vestibule.
  - c) Tuberosity and hamular notch are poorly defined compromising delineation of the posterior extension of the denture base.

- d) Maxillary palatal and/or lateral tori are rounded and do not affect the posterior extension of the denture base.
  - e) Palatal vault morphology that resists vertical and horizontal movement of the denture base.
- 6.3.2.4 Muscles attachment
- a) Adequate attached mucosal base in all regions except anterior buccal vestibule - cuspid to cuspid.
  - b) High mentalis muscle attachment.
- 6.3.3 High
- 6.3.3.1 Residual mandibular bone height
- a) Resorbed.
  - b) Residual bone height of 11 – 15 mm measured at the least vertical height of the mandible.
- 6.3.3.2 Maxillomandibular relationship
- a) Class III maxillomandibular relationship.
  - b) Maxillomandibular relationship requires tooth position outside the normal ridge relation in order to attain phonetics and articulation; i.e., crossbite - anterior or posterior, tooth position not supported by the residual ridge.
- 6.3.3.3 Residual maxillary ridge morphology
- a) Resorbed.
  - b) Loss of anterior labial vestibule.
  - c) Prominent midline suture.
  - d) Maxillary palatal and/or lateral tori with bony undercuts that do not affect the posterior extension of the denture base.
  - e) Hyperplastic, mobile anterior ridge that offers minimum support and stability of the denture base.
  - f) Palatal vault morphology that offers minimal resistance to vertical and horizontal movement of the denture base.
  - g) Reduction of the post malar space by the coronoid process during mandibular opening and/or excursive movements.
- 6.3.3.4 Muscles attachment
- a) Adequate attached mucosal base in all regions except anterior buccal vestibule - cuspid to cuspid.
  - b) High genioglossus and mentalis muscle attachment.
- 6.3.4 Severe
- 6.3.4.1 Residual mandibular bone height
- a) Resorbed.
  - b) Residual bone height of 10 or less measured at the least vertical height of the mandible.
- 6.3.4.2 Maxillomandibular relationship
- All classifications of maxillomandibular relationship.
- 6.3.4.3 Residual maxillary ridge morphology
- a) Severely resorbed.
  - b) Loss of anterior labial and posterior buccal vestibules.
  - c) Maxillary palatal and/or lateral tori-rounded or undercut- that interferes with the posterior border of the denture.
  - d) Hyperplastic, redundant anterior ridge.
  - e) Palatal vault morphology that does not resist vertical or horizontal movement of the denture base.
  - f) Prominent anterior nasal spine.
- 6.3.4.4 Muscles attachment

- a) Adequate attached mucosal base only in the posterior lingual region.
  - b) All other regions are detached.
  - c) No attached mucosa in any region.
  - d) Cheek and lip movement = tongue movement.
- 6.3.4.5 Conditions requiring pre-prosthetics surgery
- a) Implant placement (complex)—augmentation required.
  - b) Surgical correction of dentofacial deformities.
  - c) Hard tissue augmentation.
  - d) Major soft tissue revision, i.e., vestibular extensions with or without soft tissue grafting.
  - e) History of paresthesia or dysesthesia.
  - f) Insufficient interarch space with surgical correction required.
  - g) Acquired or congenital maxillofacial defects.

In those instances when a patient's diagnostic criteria are mixed between two or more classes, any single criterion of a more complex class places the patient into the more complex class.

- a) Aesthetic concerns or challenges raise the classification in complexity by one or more levels in Class I and II patients.
- b) In the presence of TMD symptoms, the classification is increased in complexity by one or more levels in Class I and II patients.

The following modifying factors places the patients into the most complex class;

- a) Severe manifestations of local or systemic disease, including the sequelae from oncologic treatment.
- b) Orofacial dyskinesia, oromandibular dystonia and/or ataxi.
- c) A refractory patient—a patient who presents with chronic complaints following appropriate treatment. These patients continue to have difficulty in achieving their treatment expectations despite the thoroughness or frequency of the treatment provided.

**STANDARDS FOR  
DOCTOR IN  
RESTORATIVE DENTISTRY**

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## **STANDARDS FOR DOCTOR IN RESTORATIVE DENTISTRY**

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### **1. DEVELOPMENT OF THE STANDARDS**

The development of the standards for specialty training in Restorative Dentistry was initiated by the Dental Specialty Education Committee (DentSEdC) subsequent to recent guidance from the Joint Technical Committee for Evaluation of Dental Specialty Programme (JTCEdSP). This document has been developed by a working party from the DentSEdC in Restorative Dentistry, chaired by Associate Professor Dr Hadijah Abdullah, with members comprising Professor Dr. Seow Liang Lin, Colonel Dr. Mohamad Asri bin Din, Associate Professor Dr. Rathna Devi Vaithilingam, Dr Rohani Mahmood and Dr. Jasmina Qamaruzzaman.

### **2. PURPOSE OF THE STANDARDS**

The standards are designed to serve as a basis for quality assurance and as the national reference for Restorative Dentistry postgraduate programme. It will be used by the evaluation panel to evaluate and recommend the accreditation of the Restorative Dentistry specialty programme offered in Malaysia.

### **3. REVIEWING AND UPDATING THE STANDARDS**

Formal review, updating and validation of the content will be undertaken by the DentSEdC in Restorative Dentistry every 5 years.

### **4. AIM OF SPECIALIST TRAINING IN RESTORATIVE DENTISTRY**

This training will produce dentists who will become specialists in Restorative Dentistry and be eligible to register in the Specialist Division of the Dental Register. The training will provide a basis for the individual to develop into a life-long learner who is capable of self-reflection and self-directed learning. It will provide the basis of further ongoing development in the field of Restorative Dentistry at specialist level.

### **5. NOMENCLATURE OF PROGRAMME AND MQF LEVEL**

The 3 years' doctorate degree Restorative Dentistry specialty training programme will lead to the award of the Doctor in Restorative Dentistry (DrResDent). This programme is equivalent to level 8 in the Malaysian Qualifications Framework (MQF).

### **6. ENTRY REQUIREMENTS**

An applicant for admission to the 3-year specialty program will have the following:

- i. Bachelor of Dental Surgery or equivalent qualification; and
- ii. Master's degree in dental sciences or equivalent qualification as required by HEP. This degree must have a total Student Learning Time (SLT) ranging from 1600 – 2000 hours. A minimum of 800 – 1000 hours of this degree must include among others a preclinical training component which contribute towards the specialty training.
- iii. Registered with the MDC and holds current Annual Practising Certificate (APC) or registered with the dental regulatory body in another country and eligible to be granted a Temporary Practising Certificate (TPC) by MDC;

- iv. A minimum of two (2) years clinical practice after basic degree, excluding the Master's training; and
- v. Health and other requirements as required by HEP.

## **7. SPECIALTY TRAINING PERIOD**

The training period will be three (3) years full time. The SLT for the programme shall consist of 6400 – 8000 hours. The SLT should constitute 60-70% of clinical training.

## **8. SCOPE OF RESTORATIVE DENTISTRY**

The scope of Restorative Dentistry training encompasses the comprehensive diagnosis and management of patients who require low to high complex treatment of operative, endodontic, prosthodontics, periodontology and implantology. Training also exposes candidates to a multidisciplinary health team and imparts understanding of the socio-economic consequences of providing a comprehensive dental service for all types of communities, and evaluate alternative procedures and technology appropriate for different socio- economic resources in relation to the national oral health policy.

## **9. INTERRELATIONSHIP WITH OTHER DISCIPLINES IN DENTISTRY**

Clinical aspects of paedodontics, orthodontics, oral surgery and special need dentistry should also be covered during the training programme. Allocation of sessions with the relevant fields of specialty such as pain clinics, oral pathology and oral medicine clinics should also be encouraged.

## **10. PROGRAMME LEARNING OUTCOMES (PLO)**

At the end of the programme, graduates must be able to:

- i. synthesise knowledge in the field of endodontic, prosthodontics and periodontology;
- ii. adapt evidence based clinical procedures for proficient patient management in the field of endodontic, prosthodontics and periodontology;
- iii. conduct research independently\*;
- iv. provide expert advice to society in the field of endodontic, prosthodontics and
- v. periodontology;
- vi. adhere to legal, ethical and professional codes of practice;
- vii. display leadership qualities through communicating and working effectively with peers and stakeholders;
- viii. generate solutions to problems using scientific and critical thinking skills;
- ix. exhibit attributes of independent lifelong learners; and
- x. display skills in clinical governance.

## **11. CONTENT OF LEARNING AND DOMAINS OF COMPETENCIES**

The doctorate training programme must be designed to build on the knowledge and skills of the postgraduate programme. This should be oriented and geared to the accepted standards of restorative dentistry practice as set forth in the specific standards contained in this document.

The program must have clearly stated goals and objectives appropriate to advanced specialty education, addressing education, patient care, research and service. Planning for, evaluation

of and improvement of educational quality for the programme must be broad-based, systematic and continuous.

The domains of competencies are as follows;

### **DOMAIN 1: KNOWLEDGE**

PLO1: synthesise knowledge in the field of restorative dentistry.

The trainee must be able to:

- i. integrate relevant knowledge in biology, anatomy, physiology of normal and abnormal intra- and extra-oral structures and tissues in pain management, including prevention and control (C5);
- ii. weigh the primary and supplementary techniques for local anaesthesia of the pulp (C6);
- iii. select dental materials, equipment and technology to achieve each treatment goal (C6);
- ii. choose current best evidence for effectiveness of various treatment modalities (C6);
- iii. evaluate prognostic and risk factors for various modalities (C6);
- iv. justify the use of appropriate pharmaceutical agents where necessary (C4);
- v. evaluate the factors which make a tooth unrestorable (C6);
- vi. appraise the principles and practice of restoring root treated teeth (C6);
- vii. relate the principles of occlusion and its influence on clinical practice (C6);
- viii. consider the multidisciplinary of clinical cases which may require varied treatment modalities (C6);
- ix. relate technical requirements treatment of pulp and periapical diseases to biology, anatomy, physiology, pathology and microbiology (C6);
- x. summarize application of tissue regeneration/engineering in clinical practice (C6);
- xi. evaluate the physical, chemical and biological properties of clinical instruments and materials (C6);
- xii. appraise conventional and contemporary imaging techniques (C6);
- xiii. appraise the different outcome measures of treatment and their assessment (C6);
- xiv. consider risks and limitations associated with non-surgical and surgical procedures (C6);
- xv. select the procedures for the emergency management of acute dental pain and sepsis (C6).

### **DOMAIN 2: PSYCHOMOTOR SKILLS**

PLO2: adapt evidence based clinical procedures for proficient patient management in the field of restorative dentistry

The trainee must be able to:

- i. take a thorough history to identify the aetiological factors for the patients' concerns such as tooth wear, parafunction (P5);
- ii. execute a thorough examination of the patient's oral condition, occlusion, existing prostheses and restorative needs of the remaining tooth structure (P5);
- iii. perform appropriate investigations (e.g. radiographic, sensitivity and vitality tests, haematological and microbiological tests and appropriately articulated study casts) (P5);
- iv. evaluate existing prosthesis and related tissues and structures and radiographic interpretation (P5);
- v. construct the appropriate diagnosis(ses) based on the examination and investigation (P5);



- vi. derive the likely prognosis and outcomes of the various treatment options and relating this to the prognosis without treatment (P5);
- vii. formulate treatment plan based on appropriate diagnoses (P5);
- viii. display skills to manage medically compromised patients (P5);
- ix. advise patients on the possible and probable outcomes of the treatment options, as well as the need for future supportive care, prevention and maintenance (P5);
- x. delineate strategies and plans according to the skills of other clinicians involved in the care of the patient (P5);
- xi. integrate methods and technologies to prevent infection during treatment procedures, between patients and staff and during transport of materials and prostheses between the laboratory and the clinic (P5);
- xii. display skills to manage multidisciplinary cases (P5);
- xiii. perform occlusal examination and recording of occlusion using facebow and articulators (P5)
- xiv. display the ability to manage patients' occlusion in cases of altered vertical dimensions and occlusal schemes (P5)
- xv. perform restorative procedures in the provision of fixed and removable prostheses such as tooth wear, maxillofacial defects and endodontically treated teeth (P5)
- xvi. perform surgical procedures for placement of dental implants (P5)
- xvii. display the ability to use the appropriate techniques, materials and technologies available to manage tooth wear, alteration of tooth colour and proportion.
- xviii. construct restorations and prostheses in the laboratory to aid in effective communication with laboratory technicians (P5)
- xix. display skills to manage medically compromised and special needs patients (P5);
- xx. assess and monitor treatment outcomes (P5);
- xxi. display proficiency in the application of materials, instruments and techniques for managing post-treatment complications (P5);
- xxii. alter treatment plan in the face of unfavourable findings or setbacks, including the decision to abort treatment (P6);
- xxiii. construct case reports including a standard set of photographs to illustrate the course of treatment (P7).

## **DOMAIN 2: PSYCHOMOTOR SKILLS**

PLO3: conduct research independently

The trainee must be able to:

- i. compose written reports/articles, including preparing and altering manuscripts, where appropriate (P7);
- ii. perform research activities with minimal supervision (P5);
- iii. display integrity in the design, conduct and criticism of research (P5);
- iv. display presentation skill in communicating research work to professional colleagues or at specialists' meetings (P5).

## **DOMAIN 3: SOCIAL RESPONSIBILITY**

PLO4: provide expert advice to society in the field of restorative dentistry

The trainee must be able to:

- i. display a caring and patient-centred approach to treatment planning (A5);
- ii. display confidence, insight and empathy in formulating and presenting strategies and plans to patients and colleagues (A5);
- iii. serve all patients with dignity and respect (A5);

- ii. recognise the impact of the patient's oral and general health status and the proposed advice on their quality of life (A3);
- iii. recognise the need for supportive care, prevention and maintenance (A3);
- iv. adhere to the limitations of knowledge and practical experience in the assessment and management of interdisciplinary cases (A4).

#### **DOMAIN 4: ETHICAL AND PROFESSIONALISM**

PLO5: adhere to legal, ethical and professional codes of practice

The trainee must be able to:

- i. display appropriate attitude and understanding of ethical and societal issues and the place of their specialty in the overall healthcare spectrum (A5);
- ii. comply to the standards of practice in dentistry as determined by the Malaysian Dental Council (A4);
- iii. display the attitudes necessary for the achievement and delivery of the highest standards of specialist care, in relation to the oral health needs of populations, the needs of patients under treatment (A5);
- ii. iv. practice ethical principles in the preparation of clinical and research reports (A5);
- iii. practice medico-legal principles in relation to patients' records (A5).

#### **DOMAIN 5: LEADERSHIP, COMMUNICATION AND TEAMWORK**

PLO6: display leadership qualities through communicating and working effectively with peers and stakeholders

The trainee must be able to:

- i. build a rapport to work effectively as part of a team and manage members appropriately (A5);
- ii. adapt methods of administration/negotiation in order to achieve an appropriate outcome (P6);
- iii. practice a non-discriminatory approach to patients, carers, colleagues and other members of the workplace team (A5);
- iv. display appropriate both verbal and non-verbal communication /presentation skills (P5);
- v. display empathy, sensitivity and awareness in communicating with patients and colleagues (P5, A5).

#### **DOMAIN 6: PROBLEM SOLVING AND CRITICAL THINKING**

PLO7: generate solutions to problems using scientific and critical thinking skills

The trainee must be able to:

- i. consider a variety of information sources to obtain scientific papers and other evidences such as guidelines (C6, A4);
- ii. display professional judgement to implement clinical solutions in response to problems by developing an evidence based treatment plan and taking on holistic approach (P5);
- iii. evaluate critically the scope and limitations of the various techniques, balancing the risks and cost benefits of treatment demonstrating self-direction and autonomy (C6, A5);
- ii. appraise systematically current evidence and appreciate how research activity can inform practice (C6);
- iii. perform and sustain a critical argument in writing and through oral presentations (P5).

## **DOMAIN 7: LIFELONG LEARNERS**

PLO8: exhibit attributes of independent lifelong learning

The trainee must be able to:

- i. appraise and evaluate clinical practice and procedures periodically to maintain competencies (C6);
- ii. practice the process of revalidation and the assessment of individual clinical performance (A5);
- iii. display skills of self-reflection and self-appraisal used to identify continuing professional development needs e.g. becoming a member of a professional society (A5).

## **DOMAIN 8: MANAGEMENT SKILL**

PLO9: display skills in clinical governance

The trainee must be able to:

- i. organise clinical practice and research based on good governance (C5);
- ii. comprehend the role of the Malaysian Dental Council and Dental Specialty Board in the process of professional self-regulation (C2);
- iii. organize and undertake a clinical audit project including implementation of outcomes and re-audit (P4);
- iv. display proficiency in general patient management (P5);
- v. organise and manage the working environment and schedule (P4).

## **12. MODELS OF LEARNING IN RESTORATIVE DENTISTRY**

The programme must be designed to enable the trainees to attain these skills representative of a specialist proficient in the theoretical and practical aspects of restorative dentistry.

Training could be undertaken in the following ways:

- i. Guided theoretical learning scheduled accordingly throughout the programme. This process aims to develop an understanding of the subject by critical appraisal and synthesis of literatures through individual and group activities, and independent learning;
- ii. Technical skills development through simulation laboratory exercises;
- iii. Clinical skills development through supervised clinical practice. This learning process may include;
  - a. Pre-management case discussions may be used to facilitate development of independent decision-making in diagnosis, treatment planning, planning of treatment and treatment execution;
  - b. Post-treatment conferences may be used to facilitate group reflection and integration with theoretical knowledge;
- iv. Research exposure through participation in a research project (clinical, experimental or literature research) which is reported formally in a thesis, or as a manuscript prepared for submission or as published paper(s).

## **13. SUPERVISION STRUCTURE**

Specialist training will take place in programmes approved by the Ministry of Education. The Higher Education Provider (HEP) in which there is training in this discipline will have a Programme Director who co-ordinates the training together with all designated teaching staff.

In the early stages of the training, trainees will be closely assessed to determine their competence level. The supervision initially will be closely monitored to ensure patient's safety and to gauge their ability and potential for independent progression. As the trainees progress and show development of competence, the level of supervision may be tapered down, which ultimately leads to independent practice within the training period. The trainees will be primarily log-monitored for procedures appropriate to the competencies of the individual trainee. They should be exposed to a variety of philosophies within the discipline through multiple clinical supervisors.

Flexibility is encouraged for the provision of training in a variety of approved settings such as other teaching institutions, community clinics and private practice, particularly during the later stages of the programme.

#### **14. FEEDBACK ON LEARNING**

Assessment of competence will be through multiple assessment methods through multiple assessors. Assessment methods may include clinical examination, direct observation of procedural skills in daily clinical session, case-based discussion, log book records, multi-source feedback and reflective summaries. Satisfactory progress in the assessment process and success in an exit assessment by examination is required before award of degree.

A record of all appraisals will be kept in the log book which will be used as part of continuous assessment. Keeping the log book and portfolio of cases completed and up to date is a trainee responsibility.

The log book may include the following:

- a) Details of consultation clinics
- b) Details of patients and procedures
- c) Details of teaching experience
- d) Journal/study groups
- e) Professional courses
- f) Audit

#### **15. ASSESSMENT**

##### **Theory and Clinical Assessment**

The purpose of this assessment is to ensure that trainees have achieved the appropriate knowledge and skills specified in the learning outcomes.

Clinical assessment of trainees will take into two forms:

i. Continuous Assessment

The principal form of continuous assessment of progress and competence will be workplace-based assessments throughout the entire duration of training. The principle of workplace-based assessment is that trainees are assessed on work that they are doing on a day-to-day basis and that the assessment is integrated into their daily work.

Some of the assessment methods currently available are:

Preclinical and clinical competency tests

- Written
- Case-based discussion

- Multi-source feedback (MSF). This must involve formal 360<sup>0</sup> feedbacks at least annually.
- Performance at seminars/journal clubs
- Progress tests
- Performance of daily clinical work

Format of theory assessment should include:

- Multiple choice question [example; One Best Answer (OBA), True/False, Single Response Answer (SRA)]
- Written question [Short Answer Question (SAQ), Modified Essay Question (MEQ)]

These assessment methods may either be formative or summative.

## ii. Final Assessment

Formal completion of training will be marked by satisfactory summative assessment.

## Research Assessment

A supervisor must be appointed for each trainee to guide in the research activities. Both the supervisor and the programme head must monitor the trainee's assessment to ensure satisfactory progress. This must be monitored through:

- Regular consultation (formal and informal)
- Research progress (using appropriate mechanisms)
- Presentation / colloquium / seminar / workshop

Assessment of research must include:

### i. Formative assessment:

- Monitoring of research progress periodically (for example, through a progress report, or a proposal defence). This will assess the knowledge, critical thinking, practical, technical, professional, scientific and problem solving skills of the trainee.
- Research Presentation / Colloquium / Seminar / Workshop. This will enhance the trainee's communication skills, teamwork, leadership, organisational skills, lifelong learning and professionalism.

### ii. Summative assessment:

- completion of prescribed courses;
- thesis; and
- viva voce.

## Examiners

At least one (1) external examiner must be appointed for each clinical and research component.

## Criteria for graduation

The trainee must pass the clinical and research component independently.

## 16. MINIMAL CLINICAL AND LABORATORY EXPERIENCE

The programme must provide sufficient clinical experience for the trainee to be proficient in the comprehensive treatment of a wide range of low to high complex restorative cases. The procedures are as listed below. The trainee must manage **at least** a total of 30 cases, of which must include the followings:

<b>Scope of Procedures</b>	<b>Minimal Clinical Requirements</b>
Occlusal equilibration/Temporomandibular Disorders/splints	2 cases (occlusal splint) 2 cases (Full Mouth rehabilitation – to carry out diagnostic-wax-up) 2 cases (Management of Aesthetic)
Prosthodontics – Fixed, removable and combination	10 cases (of which 2 cases involve all laboratory procedures for the prosthesis fabrication)
Implant prosthodontics – Fixed, removable and combination	3 cases – including treatment planning, insertion and restoration (of which 2 cases must include all laboratory procedures for the prosthesis fabrication)
Endodontics	7 cases – molar RCT retreatment and surgical endodontics
Periodontics - nonsurgical and surgical therapy	10 cases non-surgical 4 cases surgical crown lengthening /open flap debridement

The range of clinical experience is recorded by maintaining a cumulative record of the number of treatment procedures undertaken within specified categories. The above listings are not considered to be totally prescriptive; if further detail to an entry is considered appropriate, this can be added.

The trainee must be monitored periodically to record how the trainee progresses throughout the training period. Proof of readiness to practice independently as a specialist must be documented.

## **17. HUMAN RESOURCE**

The Programme Director and at least two (2) of the teaching staff must be recognised restorative dentistry/prosthodontic. Other teaching staff must comprise of a minimum of two (2) recognised specialists in the related field. There should be at least 60% full-time academic staff.

The number of teaching staff must be sufficient to ensure conduct of the following;

- i. All guided teaching activities, including case conferences, seminars and others,
- ii. Review of patient evaluation, treatment planning, management, complications and treatment outcomes,
- iii. Supervision of all clinical activities,
- iv. Research activities,
- v. Assessment activities.

Supervision must be structured and supervisor(s) must be present for teaching and direct supervision of all patient care. The suggested optimal ratios for academic staff to trainee are;

- For clinical session - 1:6
- For research - 1:4

## **18. CLINICAL FACILITIES**

The HEP must provide facilities and resources to fulfil the needs of the training programme and to develop and sustain it on a continuing basis. These include;

- i. Physical facilities to permit trainee to operate under circumstances prevailing in the practice of restorative dentistry;
- ii. Clinical facilities specifically identified for the advanced education program in restorative dentistry; The facility must be fully equipped with dedicated armamentarium and materials to allow the standard of practice at the advanced level;
- iii. Laboratory facilities specifically identified to support the fabrication of most prostheses with contemporary techniques required in the programme;
- iv. Laboratory bench spaces to accommodate the number of students/residents enrolled in the programme;

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**LEVELS OF ENDODONTIC CASE DIFFICULTY**

1. **Minimal Complexity:** Preoperative condition indicates routine complexity (uncomplicated). These types of cases would exhibit only those factors listed in the MINIMAL DIFFICULTY category. These factors include uncomplicated patient factor, simple diagnostic and treatment considerations. Achieving a predictable treatment outcome should be attainable by a competent practitioner with limited experience.
2. **Moderate Complexity:** Preoperative condition is complicated, exhibiting one or more patient or treatment factors listed in the MODERATE DIFFICULTY category. These factors include patients with one or more medical problems, moderate tolerance to dental procedures, moderate difficulty in diagnostic and treatment considerations. Achieving a predictable treatment outcome will be challenging for a competent, experienced practitioner.
3. **High Complexity:** Preoperative condition is exceptionally complicated, exhibiting several factors listed in the MODERATE DIFFICULTY category or at least one in the HIGH DIFFICULTY category. These factors include patients with complex and serious illness, unable to tolerate dental procedures, complex and difficulty in diagnostic and treatment considerations. Achieving a predictable treatment outcome will be challenging for even the most experienced practitioner with an extensive history of favorable outcomes.

**DEGREE OF PROSTHODONTIC CASE COMPLEXITY**

**I. DEGREE OF CASE COMPLEXITY – FULLY DENTATE**

**1. Low**

Tooth condition

- No localised adjunctive therapy required
- Pathology that affects the coronal morphology of 3 or less teeth in a sextant

Occlusal scheme

- No pre-prosthetic therapy required
- Contiguous, intact dental arches

**2. Moderate**

Tooth condition

- Insufficient tooth structure to retain or support intracoronal or extracoronal restorations-  
- in one sextant
- Pathology that affects the coronal morphology of 4 or more teeth in a sextant
- Teeth require localized adjunctive therapy, i.e., periodontal, endodontic or orthodontic procedure for a single tooth or in a single sextant

Occlusal scheme

- Anterior guidance is intact
- Occlusal scheme requires localized adjunctive therapy

**3. High**

Tooth condition

- Insufficient tooth structure to retain or support intracoronal or extracoronal restorations-  
- in two sextants
- Pathology that affects the coronal morphology of four or more teeth in a sextant
- Teeth require localized adjunctive therapy, i.e., periodontal, endodontic or orthodontic procedure for teeth in two sextants

Occlusal scheme

- Occlusal scheme requires major therapy to maintain the entire occlusal scheme without any change in the occlusal vertical dimension

**4. Severe**

Tooth condition

- Insufficient tooth structure to retain or support intracoronal or extracoronal restorations-  
- in three or more sextants
- Pathology that affects the coronal morphology of four or more teeth in all sextant
- Teeth require localized adjunctive therapy, i.e., periodontal, endodontic or orthodontic procedure for a single tooth or in three or more sextants

Occlusal scheme

- Occlusal scheme requires major therapy to re-establish the entire occlusal scheme including any changes in the occlusal vertical dimension

In those instances when a patient's diagnostic criteria are mixed between two or more classes, any single criterion of a more complex class places the patient into the more complex class.

- Aesthetic concerns or challenges raise the classification in complexity by one or more levels in Class I and II patients.

- In the presence of TMD symptoms, the classification is increased in complexity by one or more levels in Class I and II patients.

The following modifying factors places the patients into the most complex class;

- Severe manifestations of local or systemic disease, including the sequelae from oncologic treatment.
- Orofacial dyskinesia , Oromandibular dystonia and/or ataxi.
- A refractory patient—a patient who presents with chronic complaints following appropriate treatment. These patients continue to have difficulty in achieving their treatment expectations despite the thoroughness or frequency of the treatment provided.

## II. DEGREE OF CASE COMPLEXITY – PARTIAL EDENTULISM

### 1. Low

#### Location and extent of the edentulous area(s)

The edentulous span is confined to a single arch and one of the following:

- Any anterior maxillary span that does not exceed 2 missing incisors
- Any anterior mandibular span that does not exceed 4 missing incisors
- Any posterior maxillary or mandibular span that does not exceed 2 premolars or 1 premolar and 1 molar

#### Condition of the abutment teeth

- No pre-prosthetic therapy is indicated

#### Occlusal scheme

- No pre-prosthetic therapy is required

#### Residual ridge

- Residual ridge morphology that resists horizontal and vertical movement of the denture base
- Location of muscle attachments that are conducive to denture base stability and retention

### 2. Moderate

#### Location and extent of the edentulous area(s)

The edentulous span is in both arches and one of the following:

- Any anterior maxillary span that does not exceed 2 missing incisors.
- Any anterior mandibular span that does not exceed 4 missing incisors.
- Any posterior maxillary or mandibular span that does not exceed 2 premolars or 1 premolar and 1 molar.
- The maxillary or mandibular canine is missing.

#### Condition of the abutment teeth

- Insufficient tooth structure to retain or support intracoronal or extracoronal restorations- in one or two sextants.
- Abutments require localised adjunctive therapy, i.e., periodontal, endodontic or orthodontic procedures in one or two sextants.

#### Occlusal scheme

- Occlusal scheme requires localised adjunctive therapy (e.g. enameloplasty on premature occlusal contacts).

#### Residual ridge

- Residual ridge morphology that resists horizontal and vertical movement of the denture base.

- Location of muscle attachments that are conducive to denture base stability and retention.

### 3. High

#### Location and extent of the edentulous area(s)

- Any posterior maxillary or mandibular span that is greater than 3 missing teeth or 2 molars.
- Any edentulous span including anterior and posterior areas of 3 or more missing teeth.

#### Condition of the abutment teeth

- Insufficient tooth structure to retain or support intracoronal or extracoronal restorations - in four or more sextants.
- Abutments require localised adjunctive therapy, i.e., periodontal, endodontic or orthodontic procedures in four or more sextants.
- Abutments have a fair prognosis.

#### Occlusal scheme

- Entire occlusal scheme requires reestablishment but without any change in the occlusal vertical dimension of occlusion (including loss of posterior support).

#### Residual ridge

- Residual ridge morphology that resists horizontal and vertical movement of the denture base.
- Location of muscle attachments that are conducive to denture base stability and retention.

### 4. Severe

#### Location and extent of the edentulous area(s)

- Any posterior maxillary or mandibular span that is greater than 3 missing teeth or 2 molars.
- Any edentulous span including anterior and posterior areas of 3 or more missing teeth.

#### Condition of the abutment teeth

- Abutments have a guarded prognosis.

#### Occlusal scheme

- Entire occlusal scheme requires reestablishment with changes in the occlusal vertical dimension of the occlusion (including loss of posterior support).

#### Residual ridge

- Residual ridge morphology compromised.

In those instances when a patient's diagnostic criteria are mixed between two or more classes, any single criterion of a more complex class places the patient into the more complex class.

- Aesthetic concerns or challenges raise the classification in complexity by one or more levels in Class I and II patients.
- In the presence of TMD symptoms, the classification is increased in complexity by one or more levels in Class I and II patients.

The following modifying factors places the patients into the most complex class;

- Advanced wear.
- Severe manifestations of local or systemic disease, including the sequelae from oncologic treatment.
- Orofacial dyskensia, oromandibular dystonia and/or ataxia.
- A refractory patient—a patient who presents with chronic complaints following appropriate treatment. These patients continue to have difficulty in achieving their treatment expectations despite the thoroughness or frequency of the treatment provided.

### III. DEGREE OF CASE COMPLEXITY – COMPLETE EDENTULISM

#### 1. Low

##### Residual mandibular bone height

- Well formed.
- Residual bone height of 21mm or greater measured at the least vertical height of the mandible.

##### Maxillomandibular relationship

- Class I maxillomandibular relationship.
- Allows tooth position that has normal articulation with the teeth supported by the residual ridge.

##### Residual maxillary ridge morphology

- Well formed.
- Anterior labial and posterior buccal vestibular depth that resists vertical and horizontal movement of the denture base.
- Palatal morphology that resists vertical and horizontal movement of the denture base.
- Sufficient tuberosity definition that resists vertical and horizontal movement of the denture base.
- Hamular notch is well defined to establish the posterior extension of the denture base.
- Absence of tori or exostoses.

##### Muscle attachments

- Adequate attached mucosal base without undue muscular impingement during normal function in all regions.

#### 2. Moderate

##### Residual mandibular bone height

- Moderately resorbed.
- Residual bone height of 16 – 20 mm measured at the least vertical height of the mandible.

##### Maxillomandibular relationship

- Class II maxillomandibular relationship.
- Maxillomandibular relationship requires tooth position outside the normal ridge relation in order to attain phonetics and articulation; i.e., anterior or posterior tooth position not supported by the residual ridge/anterior vertical overlap that exceeds the principles of articulation.

##### Residual maxillary ridge morphology

- Moderately resorbed.
- Loss of posterior buccal vestibule.
- Tuberosity and hamular notch are poorly defined compromising delineation of the posterior extension of the denture base.
- Maxillary palatal and/or lateral tori are rounded and do not affect the posterior extension of the denture base.
- Palatal vault morphology that resists vertical and horizontal movement of the denture base.

##### Muscle attachments

- Adequate attached mucosal base in all regions except anterior buccal vestibule - cuspid to cuspid.
- High mentalis muscle attachment.

### 3. High

#### Residual mandibular bone height

- Resorbed.
- Residual bone height of 10 mm or less mm measured at the least vertical height of the mandible.

#### Maxillomandibular relationship

- Class III maxillomandibular relationship.
- Maxillomandibular relationship requires tooth position outside the normal ridge relation in order to attain phonetics and articulation; i.e., crossbite - anterior or posterior, tooth position not supported by the residual ridge.

#### Residual maxillary ridge morphology

- Resorbed.
- Loss of anterior labial vestibule.
- Prominent midline suture.
- Maxillary palatal and/or lateral tori with bony undercuts that do not affect the posterior extension of the denture base.
- Hyperplastic, mobile anterior ridge that offers minimum support and stability of the denture base.
- Palatal vault morphology that offers minimal resistance to vertical and horizontal movement of the denture base.
- Reduction of the post malar space by the coronoid process during mandibular opening and/or excursive movements.

#### Muscle attachments

- Adequate attached mucosal base in all regions except anterior buccal and lingual vestibules—cuspid to cuspid.
- High genioglossus and mentalis muscle attachments.

### 4. Severe

#### Residual mandibular bone height

- Resorbed.
- Residual bone height of 10mm or less measured at the least vertical height of the mandible.

#### Maxillomandibular relationship

- All types of classification maxillomandibular relationship.

#### Residual maxillary ridge morphology

- Severely resorbed.
- Loss of anterior labial and posterior buccal vestibules.
- Maxillary palatal and/or lateral tori-rounded or undercut- that interferes with the posterior border of the denture.
- Hyperplastic, redundant anterior ridge.
- Palatal vault morphology that does not resist vertical or horizontal movement of the denture base.
- Prominent anterior nasal spine.

#### Muscle attachments

- Adequate attached mucosal base only in the posterior lingual region.
- All other regions are detached.
- No attached mucosa in any region.
- Cheek and lip movement = tongue movement.

#### Conditions requiring pre-prosthetics surgery

- Implant placement (complex)—augmentation required.
- Surgical correction of dentofacial deformities.

- Hard tissue augmentation.
- Major soft tissue revision, i.e., vestibular extensions with or without soft tissue grafting.
- History of paresthesia or dysesthesia.
- Insufficient interarch space with surgical correction required.
- Acquired or congenital maxillofacial defects.

In those instances when a patient's diagnostic criteria are mixed between two or more classes, any single criterion of a more complex class places the patient into the more complex class. The following modifying factors places the patients into the most complex class;

- Severe oral manifestation of systemic disease or conditions including sequelae from oncologic treatment.
  - Maxillomandibular ataxia.
  - Hyperactivity of tongue that can be associated with a retracted tongue position and/or its associated morphology.
  - Hyperactive gag reflex managed with medication.
- Psychosocial conditions warranting professional intervention.

## DEGREE OF PERIODONTIC CASE COMPLEXITY

### Based upon the Basic Periodontal Examination (BPE) Criteria:

#### Complexity 1:

- BPE Score 1 – 3 in any sextant

#### Complexity 2:

- BPE Score of 4 in any sextant
- Surgery involving the periodontal tissues

#### Complexity 3:

- Patients with BPE scores of 4 in at least one sextant, and one or more of the following factors:
  - Concurrent medical factor directly affecting the periodontal tissues, (eg diabetes, medication, etc);
  - Complicating root morphologies / anatomical factors;
  - Non-response to previous optimally carried out treatment
- Diagnosis of aggressive periodontitis as assessed either by severity of disease for age or based on rapid rate of periodontal breakdown;
- Patients requiring surgical procedures involving tissue augmentation or regeneration, including surgical management of mucogingival problems;
- Patients requiring surgery involving bone removal (eg crown lengthening);
- Patients requiring surgery associated with osseointegrated implants.

**The presence of a relevant modifying factor increases the complexity by 1 increment, and is not cumulative:**

#### Modifying Factors that are Relevant to Periodontal Treatment

- Co-ordinated medical or dental multi-disciplinary care;
- Medical history that significantly affects clinical management (see below);
- Regular tobacco smoking;
- Special needs for the acceptance or provision of dental treatment;
- Concurrent mucogingival disease (e.g. erosive lichen planus).

#### Medical History that Significantly Affects Clinical Management

- Patients with a history of head / neck radiotherapy or intravenous bisphosphonate therapy;
- Patients who are significantly immunocompromised or immunosuppressed;
- Patients with a significant bleeding dyscrasia / disorder;
- Patients with a potential drug interaction.



**SUGGESTED ELEMENT OF INTER-RELATED SUBJECTS**

Subjects common to several restorative elements

Caries: Updates (ICDAS, new techniques of caries detection, management)

(Lecture & Hands-on)

Treatment Planning 1 & 2

Aesthetics in Restorative Dentistry

Mandibular Movement and Related Anatomy

TMD 1 - Lecture/ CBL

TMD 2 - Lecture/CBL

Occlusal Philosophies

Gerodontics

Root Caries Management

What is failure in Restorative Dentistry?

Jaw Relations

Precision Attachments

Dental Implantology

Beyond the Apex

Practical Intra-oral Radiography

Control of Infection

Clinical Photography

Treatment of Displaced Permanent Anterior Teeth

Occupational Hazards

Management of the Medically Compromised Patient

## GLOSSARY OF TERMS

The terms used in this document (i.e. must, should, may and could) were selected to indicate the relative weight that the DentSEdC / JTCEDSP attaches to each statement. The definitions of these words used in this document are as follows:

1. **Must:** Indicates an imperative need and/or duty; an essential or indispensable item; mandatory.
2. **Should:** Indicates a method to achieve the standards.
3. **May or Could:** Indicates freedom or liberty to follow a suggested alternative.
4. **Levels of Knowledge:**
  - In-depth: A thorough knowledge of concepts and theories for the purpose of critical analysis and the synthesis of more complete understanding.
  - Understanding: Adequate knowledge with the ability to apply.
  - Familiarity: A simplified knowledge for the purpose of orientation and recognition of general principles.
5. **Levels of Skills:**
  - Proficient: The level of skill beyond competency. It is that level of skill acquired through advanced training or the level of skill attained when a particular activity is accomplished with repeated quality and a more efficient utilization of time.
  - Competent: The level of skill displaying special ability or knowledge derived from training and experience.
  - Exposed: The level of skill attained by observation of or participation in a particular activity.

**STANDARDS FOR  
DOCTOR IN  
SPECIAL CARE DENTISTRY**

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### 1. THE DEVELOPMENT OF THE STANDARDS

The development of the standards for specialty training in Special Care Dentistry was initiated by the Dental Specialty Education Committee (DentSEdC) after recent guidance from the Joint Technical Committee for Evaluation of Dental Specialty Programme (JTCEDSP). This document has been developed by a working party from the DentSEdC in Special Needs/Care Dentistry, chaired by Dr Siti Zaleha Hamzah, with members comprising Dr Yanti Johari, Dr Norjehan Yahaya, Dr Dasera Raj Vedha Raj, Dr Maryani Mohamed Rohani, Dr Mas Suryalis Ahmad and Dr Farah Natashah Mohd.

#### Definition of Special Care Dentistry (SCD)

Special Care Dentistry is defined as the field of dentistry which is concerned with the oral health management of individuals with compromised physical, intellectual, medical, psychiatric conditions, or a combination of these factors where delivery of oral health care necessitates a holistic approach that is specialist led in meeting their complex requirements. It includes the delivery of oral health care, focusing on individuals with special needs aged **16 years and above**.

The Dental Specialists Evaluation Committee (DSEC) recognises that the terms Special Care Dentistry (SCD) and Special Needs Dentistry (SND) are interchangeable, therefore the use of the term SCD is equivalent to SND and vice-versa.

### 2. PURPOSE OF THE STANDARDS

The standards are designed to serve as a basis for quality assurance and as the national reference for SCD postgraduate programme. It will be used by the evaluation panel to evaluate and recommend the accreditation of the SCD specialty programme offered in Malaysia.

### 3. REVIEWING AND UPDATING THE STANDARDS

Formal review, updating and validation of the content will be undertaken by the DentSEdC in SCD every 5 years.

### 4. AIMS OF SPECIALIST TRAINING IN SCD

The training is expected to produce a specialist in SCD who would be able to provide comprehensive oral care to fulfil the complex needs of individuals requiring special care from various categories of disabilities and medical conditions. The focus of the curriculum should be given as a holistic approach of oral care delivery across multiple disciplines rather than a specific dental procedure. In addition, the training should expose trainees to allow the combination of care at the primary and secondary care settings in order to ensure the continuity of care in the best interests of patients and family members. Ultimately, it will lead the successful trainees to meet the requirements of the Malaysian Dental Council (MDC) (Dental Division of Specialist Register) and be recognized as a specialist in SCD.

### 5. NOMENCLATURE OF PROGRAMME & MQF LEVEL

The 3 years' doctorate SCD specialty training programme will lead to the award of the Doctorate degree, Doctor in Special Care Dentistry (DrSCDent). This programme is equivalent to Level 8 in the Malaysian Qualifications Framework (MQF).

## 6. ENTRY REQUIREMENTS

An applicant for admission to the 3-year specialty program will have the following:

- i. Bachelor of Dental Surgery or equivalent qualification; and
- ii. Master's degree in dental sciences or equivalent qualification as required by HEP. This degree must have a total Student Learning Time (SLT) ranging from 1600 – 2000 hours. A minimum of 800 – 1000 hours of this degree must include among others a preclinical training component which contribute towards the specialty training.
- iii. Registered with the MDC and holds current Annual Practising Certificate (APC) or registered with the dental regulatory body in another country and eligible to be granted a Temporary Practising Certificate (TPC) by MDC;
- iv. A minimum of two (2) years clinical practice after basic degree, excluding the Master's training; and
- v. Health and other requirements as required by HEP.

## 7. SPECIALTY TRAINING PERIOD

The training period will be three (3) years full time. The SLT for the programme shall consist of 6400 – 8000 hours. The SLT should constitute 60-70% of clinical training.

No.	Course	Minimum SLT (hours)
1.	Coursework (including laboratory, clinical and fieldwork)	4480
2.	Research	1920
	TOTAL	6400

## 8. SCOPE OF SPECIAL CARE DENTISTRY

The scope of Special Care Dentistry encompasses a comprehensive, holistic approach to the care of patients who are categorized as having compromised physical, intellectual, medical, psychiatric conditions, or a combination of these factors that directly or indirectly affect their oral health. It includes the delivery of oral health care, focusing on individuals with special needs aged **16 years and above**. These include:

1. The management of oral health care (assessment, diagnosis, treatment or management options and their consequences) in:
  - i. individuals with intellectual/ developmental impairments
  - ii. individuals with physical disabilities/ impairments
  - iii. medically compromised individuals
  - iv. geriatric patients (60 years old and above) with co-morbidity conditions
  - v. oncology patients with co-morbidity conditions
  - vi. individuals with psychiatric/ psychological issues
2. Provision of dental procedures which include:
  - i. Treatment and maintenance of the key dentition to facilitate long-term care and improve the quality of life
  - ii. Modification of routine restorative dentistry to prevent tooth loss
  - iii. Routine periodontal treatment
  - iv. Preventive periodontal therapy
  - v. Routine endodontic care as necessary
  - vi. Removable prosthodontics

- vii. Routine dental extractions
- viii. Minor oral surgery (e.g surgical extraction of impacted teeth)
- ix. Treatment of simple dento-alveolar trauma
- x. Management of oral manifestations of systemic disease and medical therapy
- xi. Management of oral adverse side effects of polypharmacy
- xii. Management of oral pathology conditions and soft tissues anomalies

3. Behavioural Guidance and Strategies:

- i. Conscious sedation
- ii. General Anaesthesia
- iii. Communication strategies
- iv. Clinical holdings

## **9. INTER-PROFESSIONAL RELATIONSHIP WITH OTHER MEMBERS OF HEALTH CARE TEAM**

The programme should include multidisciplinary involvement of other dental, medical specialties and other healthcare professionals/providers. Close cooperation with other stakeholders such as government agencies and non- governmental organisations should be encouraged.

## **10. PROGRAMME LEARNING OUTCOMES**

At the end of the programme, graduates must be able to;

- i. synthesize knowledge in the field of SCD;
- ii. adapt evidence based clinical procedures for proficient patient management in the field of SCD;
- iii. provide expert advice to society in the relevant field;
- iv. conduct research independently;
- v. adhere to legal, ethical and professional codes of practice;
- vi. display leadership qualities through communicating and working effectively with peers and stakeholders;
- vii. generate solutions to problems using scientific and critical thinking skills;
- viii. exhibit attributes of independent lifelong learners; and
- ix. display skills in clinical governance.

## **11. CONTENT OF LEARNING AND DOMAINS OF COMPETENCIES**

The training programme must be designed to build on the knowledge and skills of the undergraduate programme. This should be oriented to the accepted standards of SCD practice as set forth in the specific standards contained in this document.

The programme must have clearly stated goals and objectives appropriate to advanced specialty education, addressing education, patient care, research and service. Planning for, evaluation of and improvement of educational quality for the programme must be broad-based, systematic and continuous.

The domains of competences are as follows;

### **DOMAIN 1: KNOWLEDGE**

PLO1: Synthesise knowledge in the field of SCD.

The trainee must be able to:

- i. integrate relevant knowledge in biology, anatomy, physiology of normal and abnormal intra- and extra-oral structures, including prevention and control of pain (C5);
- ii. differentiate normal development and potential abnormalities in general and craniofacial growth, growth of the dento-alveolar complex and tooth eruption (C4);
- iii. relate the association between general health and oral health when managing individuals requiring special care (C4);
- iv. determine the relationship between common impairments (intellectual/development, physical, sensory and emotional), disabilities and health conditions (medically compromising conditions, psychiatric conditions including phobia) and its impacts to oral health and functions (C5);
- v. relate the impact of disability and/or complex medical problems on an individual oral health care planning by taking into account the individual's social, physical and cognitive circumstances (C6);
- vi. to decide appropriate dental treatment based on oral and dental manifestations of specific conditions such as malocclusion in cerebral palsy, periodontal disease in Down's Syndrome, and oral care for individuals on palliative care (C6);
- vii. evaluate the structure, function and principles of managing dental occlusion, function and dysfunction (C6);
- viii. evaluate the effects of fluorides used systematically and topically as it relates to individuals with special needs (C6);
- ix. evaluate the needs of using various techniques and applications of pharmacological and non-pharmacological pain control (C5);
- x. consider the use of behavioural management strategies, local analgesia, conscious sedation and general anaesthesia for people with special needs receiving dental care (C6);
- xi. decide the appropriate staging and management as well as the materials used in operative intervention (C6);
- xii. evaluate the role of saliva in maintaining good oral health and mechanism involves in salivary secretion (C6);
- xiii. consider the protective effects of saliva in the management of xerostomia (C6);
- xiv. integrate the knowledge on anatomical and physiological features of the masticatory system including mechanism and pathology of swallowing, speech, taste and olfaction (C6);
- xv. relate the psychiatric and somatic complaints to the oral manifestations of psychiatric diseases (C6);
- xvi. integrate the knowledge of aetiology of stress, anxiety and phobia and the measurement of anxiety with the management of dental anxiety and phobia (C5);
- xvii. choose current best evidence for effectiveness of various treatment modalities (C6);
- xviii. evaluate prognostic and risk factors for various modalities (C6);
- xix. justify the use of appropriate pharmaceutical agents where necessary (C5);
- xx. justify the significance of patient's previous dental experience, past and current medical and dental history towards attitudes to dentistry and oral health (C5);
- xxi. relate the social model of disability to the delivery of care in SCD (C6);
- xxii. formulate treatment plan based on current evidence of best practice (C6);
- xxiii. determine the multidisciplinary nature of clinical cases which may require varied treatment modalities (C6);
- xxiv. appraise conventional and contemporary imaging techniques (C6);
- xxv. appraise the different outcome measures of treatment and their assessment (C6);
- xxvi. consider risks and limitations associated with non-surgical and surgical procedures (C6);



## DOMAIN 2: PSYCHOMOTOR SKILLS

PLO2: Adapt evidence based clinical procedures for proficient patient management in SCD.

The trainee must be able to:

- i. obtain a thorough history to identify the aetiological factors for the patients' or carer's concerns (P5);
- ii. display the ability to identify the person who requires special oral health care through a comprehensive understanding of disability issues and/or the complexities of medical problems (P5);
- iii. execute a thorough examination of the patient's orofacial condition, prostheses and restorative needs of the remaining tooth structure (P5);
- iv. perform appropriate investigations (e.g. radiographic, pulp sensibility tests, haematological and microbiological tests) (P5);
- v. display the ability in recognizing and maintaining key teeth to facilitate long-term care (P5);
- vi. perform appropriate restorative techniques for the management of broken down, fractured and missing teeth (P5);
- vii. diagnose, prevent and provide appropriate restorative treatment for non-cariou tooth surface loss such as abrasion, erosion and attrition (P5);
- viii. diagnose and manage non-surgical treatment of temporomandibular dysfunction (P5);
- ix. diagnose and manage periodontal diseases in individuals with impairments and disability (P5);
- x. construct appropriate and effective preventive individualized periodontal programmes (P5);
- xi. adapt techniques for prevention appropriate for individuals requiring special care such as communication with individuals with autism spectrum disorder, intellectual impairment and cognitive impairment (P5);
- xii. perform routine endodontic treatment when and if necessary (P5);
- xiii. diagnose, formulate treatment plan and provide removable prosthodontic appliances including techniques appropriate for individuals with special needs such as copy dentures techniques (P5);
- xiv. display the skills in providing evidence of how removable and fixed prosthodontic treatment can affect the quality of life (P5);
- xv. perform dental treatment for individuals with common oral medical conditions, undergoing chemotherapy, radiotherapy, immunotherapy and organ transplant (P5);
- xvi. diagnose oral manifestations of systemic diseases (P5);
- xvii. diagnose and perform treatment of oral side effects of prescribed medications (P5);
- xviii. interpret haematological test such as full blood count and haematinics, clotting studies, urea and electrolytes, liver function tests and thyroid function tests (P5);
- xix. perform routine exodontias and simple surgical extractions for retained roots/fractured teeth and impacted wisdom teeth (P5);
- xx. perform incisional and excisional biopsy of gingival and mucosal lesion (P5);
- xxi. diagnose dental emergencies (P5);
- xxii. initiate treatment of medical emergencies which may occur during the provision of dental treatment in the dental surgery and in the domiciliary setting (P7);
- xxiii. arrange communication with other healthcare professionals in the emergency management of patients under SCD care (P7);
- xxiv. display ability to use emergency drugs correctly in appropriate circumstances (P5);
- xxv. derive the likely prognosis and outcomes of the various treatment options and relating this to the prognosis without treatment (P5);
- xxvi. formulate a rational treatment plan appropriately (P5);
- xxvii. advise patients on the possible and probable outcomes of the treatment options, as well as the need for future supportive care, prevention and maintenance (P5);

- xxviii. delineate strategies and plans according to the skills of other clinicians involved in the care of the patient (P5);
- xxix. integrate methods and technologies to prevent infection during treatment procedures, between patients and staff (P5);
- xxx. display skills to manage multidisciplinary cases (P5);
- xxxi. perform treatment of moderate to high complexity of patient management using a range of techniques (P5);
- xxxii. display skills to communicate using the concept of behavioural sciences with patients having varying degree of learning disabilities or cognitive impairment in order to understand their oral health problems and needs (P5);
- xxxiii. assess all treatment outcomes (P5);
- xxxiv. display proficiency in the different techniques of pharmacological (conscious sedation) and non-pharmacological behaviour guidance (P5);
- xxxv. Organizing and performing the appropriate treatment services in the relevant care setting for the individual (e.g domiciliary service) (P5);
- xxxvi. alter treatment plan in the face of unfavourable findings or setbacks, including the decision to abort treatment (P6);
- xxxvii. display efficiency and confidence in providing dental treatment under general anaesthesia when necessary (P5);
- xxxviii. demonstrate positive attitude towards people with disabilities (P4);
- xxxix. construct case reports with photographs if possible to illustrate the course of treatment (P5);
  - xl. demonstrate the ability to obtain informed consent (P4);
  - xli. adapt to the concepts of safe clinical holding and transfer of patient (P6).

## **DOMAIN 2: PSYCHOMOTOR SKILLS**

PLO4: Conduct research independently.

The trainee must be able to:

- i. compose written reports/articles, including preparing and altering manuscripts, where appropriate (P7);
- ii. perform research activities (P5);
- iii. display integrity in the design, conduct and criticism of research (P5);
- iv. display presentation skill in communicating research work to professional colleagues or at specialists' meetings (P5).

## **DOMAIN 3: SOCIAL RESPONSIBILITY**

PLO3: Provide expert advice to society in the field of SCD.

The trainee must be able to:

- i. display a caring and patient-centred approach to treatment planning (A5);
- ii. display confidence, insight and empathy in formulating and presenting strategies and plans to patients and colleagues (A5);
- iii. serve all patients with dignity and respect (A5);
- iv. recognize the impact of the patient's oral and general health status and the proposed advice on their quality of life (A3);
- v. recognize the need for supportive care, prevention and maintenance (A3);
- vi. verify the needs of developing networking with wider circle of social and health care professionals in relation to the individual's care needs (cross-sector and inter-agency working, care and advocacy) (A5);
- vii. adhere to the limitations of knowledge and practical experience in the assessment and management of interdisciplinary cases (A4).

#### **DOMAIN 4: ETHICAL & PROFESSIONALISM**

PLO5: Adhere to legal, ethical and professional codes of practice.

The trainee must be able to:

- i. display appropriate attitude and understanding of ethical and societal issues and the place of their specialty in the overall healthcare spectrum (A5);
- ii. display appropriate understanding of legislation relevant to the practice of SCD (A5);
- iii. adhere to the standards of practice in dentistry as determined by the Malaysian Dental Council (A4);
- iv. adhere to the legislation and ethics relevant to dental practise and SCD (e.g Akta Orang Kurang Upaya 2008, Mental Health Act 615, Akta Orang Papa 183, Akta Pusat Jagaan, Dasar Warga Tua Negara, Pelan Tindakan Warga Tua Negara) (A5);
- v. display the attitudes necessary for the achievement and delivery of the highest standards of specialist care, in relation to the oral health needs of populations and the needs of patients under treatment (A5);
- vi. display respect for patient autonomy (A5);
- vii. practise ethical principles in the preparation of clinical and research reports (A5);
- viii. practise medico-legal principles in relation to patients' records (A5).

#### **DOMAIN 5: LEADERSHIP, COMMUNICATION & TEAMWORK**

PLO6: Display leadership qualities through communicating and working effectively with peers and stakeholders.

The trainee must be able to:

- i. build a rapport to work effectively as part of a team and manage members appropriately (A5);
- ii. adapt methods of administration/negotiation in order to achieve an appropriate outcome (P6);
- iii. practice a non-discriminatory approach to patients, carers, colleagues and other members of the workplace team (A5);
- iv. display appropriate both verbal and non-verbal communication /presentation skills (P5);
- v. display empathy, sensitivity and awareness in communicating with patients and colleagues (P5, A5).

#### **DOMAIN 6: PROBLEM SOLVING & CRITICAL THINKING**

PLO7: Generate solutions to problems using scientific and critical thinking skills

The trainee must be able to:

- i. consider a variety of information sources to obtain scientific papers and other evidences such as guidelines (C6, A4);
- ii. display professional judgement to implement clinical solutions in response to problems by developing an evidence-based treatment plan and taking a holistic approach (P5);
- iii. evaluate critically the scope and limitations of the various techniques, balancing the risks and cost benefits of treatment demonstrating self-direction and autonomy (C6, A5);
- iv. appraise systematically current evidence and appreciate how research activity can inform practice (C6);
- v. perform and sustain a critical argument in writing and through oral presentations (P5).

## **DOMAIN 7: LIFELONG LEARNERS**

PLO8: Exhibit attributes of independent lifelong learners

The trainee must be able to:

- i. appraise and evaluate clinical practice and procedures periodically to maintain competencies (C6);
- ii. practice the process of revalidation and the assessment of individual clinical performance (A5);
- iii. display skills of self-reflection and self-appraisal used to identify continuing professional development needs e.g. becoming a member of a professional society (A5).

## **DOMAIN 8: MANAGEMENT SKILL**

PLO9: Display skills in clinical governance

The trainee must be able to:

- i. organise clinical practice and research based on good governance (C5);
- ii. comprehend the role of the Malaysian Dental Council (MDC) and Dental Specialist Evaluation Committee (DSEC) in the process of professional self-regulation (C2);
- iii. organise and undertake a clinical audit project including implementation of outcomes and re-audit (P4);
- iv. display proficiency in general patient management (P5);
- v. organize and manage the working environment and schedule (P4).

## **12. MODELS OF LEARNING IN SPECIAL CARE DENTISTRY**

It is essential that evidence-based dentistry is practised in educating the future specialists who are competent in SCD. It requires a range of skills including knowledge, attitudes and behaviours which will need to be developed systematically through a variety of learning experiences and environment. It is mandatory for the trainees to demonstrate a sound understanding on the educational theories and fundamental principles in SCD to enhance their critical thinking and ensuring effective teaching and life-long learning. Clinical experience may be provided through clinical teaching supervision, clinical demonstrations, practical exercises and workshops as well as field visit activities such as the provision of domiciliary dental care. Although the trainees have to be supervised by an experienced teacher at the initial stage of the learning process, the increasing independence is expected as the training progresses. In ensuring a complete training, it is expected that the training is linked with relevant hospital departments and other community settings as well.

The training and learning methodology can be carried out through but not limited to the followings:

- Guided theoretical learning during formal and scheduled periods. This should be geared towards developing an understanding of the subject by critical appraisal and synthesis of the classical and contemporary literature through individual and group activities, involving lecture, discussion and debate and independent study;
- Clinical skills development through attendance to multidisciplinary clinics and medical clinical posting under supervision of trainers with specific expertise in the relevant fields. Pre-management case discussions may be used to facilitate development of independent decision-making in diagnosis, treatment planning, planning of treatment and treatment execution. Post-treatment case conferences may be used to facilitate group reflection and integration with theoretical knowledge. Maintenance of log-book, active participations in case-based discussion should be emphasised to improve their skills, knowledge and behaviours.

- Practical exercises through systematic simulation exercises, with development of a presentation portfolio, reflection and discussion of outcomes through peer presentation and trainer feed-back;
- Research exposure through participation in a research project (clinical, experimental or literature research) which is reported formally in a thesis, or as a manuscript prepared for submission or as published paper(s).

### **13. SUPERVISION STRUCTURE**

Specialist training will take place in programmes approved by the Ministry of Education. Higher Education Provider (HEP) in which there is training in this discipline will have a Programme Director who co-ordinates training together with all designated teaching staff.

In the early stages of the training, trainees should be closely assessed to determine their competence base. The level of supervision initially should be close to ensure patient safety and allow the gauging of ability and potential for independent progression. As supervised tracking shows development of competency, the level of supervision may be tapered down in proportionate measure, ultimately leading to independent practice within the training period. The trainees should be exposed to a variety of philosophies within the discipline through multiple clinical supervisors.

Flexibility is encouraged for the provision of training in a variety of approved settings such as other teaching institutions, community clinics and private practice, particularly during the later stages of the programme.

### **14. FEEDBACK ON LEARNING**

Assessment of competence will be through multiple assessment methods through multiple assessors. Assessment methods may include clinical examination, direct observation of procedural skills in daily clinical session, case-based discussion, logbook records, multi-source feedback and reflective summaries. Peer review is also essential to provide insight and self-reflection which can be part of the assessment of students where feasible. Feedback must be given based on all aspects of student's performance including academic component, clinical achievement, professionalism, communication skills and team work effort in delivering care for people with special needs. Satisfactory progress in the assessment process and success in an exit assessment by examination is required before award of degree.

A record of all appraisals will be kept in a logbook, which will be used as part of continuous assessment. Keeping the logbook and portfolio of cases completed and up to date is a trainee's responsibility.

The log book may include the following:

- i. Details of consultation clinics
- ii. Details of patients and procedures
- iii. Details of teaching experience
- iv. Journal/study groups
- v. Professional courses
- vi. Audit

### **15. ASSESSMENT**

Progression of trainees can be monitored through assessment system in order to determine the agreed learning outcomes and course requirements have been achieved or vice versa. A model of good assessment system must be meaningful, transparent, timely appropriate and enables the students to develop as competent professionals at an expected defined level. The

intended learning outcomes should be mapped clearly to the method of assessments which can be formative and/or summative.

### **Theory and Clinical Assessment**

The purpose of theory and clinical assessment is to ensure that trainees have achieved the appropriate skills specified in the learning outcomes.

Clinical assessment of trainees will take two forms:

#### i. Continuous Assessment

The assessment of the trainees will be based on work and performance that they are doing on a daily basis which will be integrated into their daily work to meet the principle of workplace-based assessment. Work-place based assessment is the principal form of continuous assessment to evaluate the progress and competency of the trainees throughout the SCD course programme.

A range of different assessors are required when necessary and the assessment should apply to the appropriate stage of training for particular circumstances and environment which takes place. The work-place based assessment may include but not limited to:

1. Case Based Discussions (CBDs)
2. Clinical Evaluations (CEX)
3. Clinical Competency Test
4. Direct Observation of Clinical Skills (DOPS) when people with disability can be included in the assessment and feedback
5. Multi-Source Feedback (MSF) from supervisors, support staff, peer and patients which follows current best practice of assessment
6. Journal Club presentations and Clinical Audit
7. Progress tests
8. Performance of daily clinical work

These assessment methods may either be formative or summative.

#### ii. Final Assessment

Formal completion of training will be marked by satisfactory summative assessment.

### **Research Assessment**

A supervisor must be appointed for each trainee to guide him/her in the research activities. Both the supervisor and the Programme Director must monitor the trainee's assessment to ensure satisfactory progress. This must be monitored through:

- iv. Regular consultation (formal and informal)
- v. Research progress (using appropriate mechanisms)
- vi. Presentation / colloquium / seminar / workshop

#### iii. For formative assessment:

- Monitoring of research progress periodically (for example, through a progress report, or a proposal defence). This will assess the knowledge, critical thinking, practical, technical, professional, scientific and problem-solving skills of the trainee.
- Research Presentation / Colloquium / Seminar / Workshop. This will enhance the trainee's communication skills, teamwork, leadership, organisational skills, lifelong learning and professionalism.

#### iv. For summative assessment:

- Thesis and
- Viva voce.

## **Examiners**

At least one (1) external examiner must be appointed for each clinical and research component.

## **Criteria for graduation**

The trainee must pass the clinical and research component independently.

## **16. MINIMAL CLINICAL EXPERIENCE**

The students must have had experience managing at least three cases in each of these categories with a total of 30 patients:

- patients with intellectual/ developmental impairments.
- patients with physical disabilities with co-morbidity conditions.
- medically compromised patients with co-morbidity conditions.
- geriatric patients (60 years old and above) with co-morbidity conditions.
- oncology patients with co-morbidity conditions.
- patients with psychiatric/ psychological issues.
- cases requiring multidisciplinary approach of three or more disciplines (medical or dental).

The range of clinical experience is recorded by maintaining a cumulative record of the number of treatment procedures undertaken within specified categories. The above listings are not considered to be totally prescriptive, if further detail to an entry is considered appropriate this can be added.

The trainee must be monitored periodically to record how the trainee progresses throughout the training period. Proof of readiness to practice independently as a specialist must be documented.

## **17. HUMAN RESOURCE**

The Programme Director and at least two (2) of the teaching staff must be recognised special care dentists. Other teaching staff must comprise of a minimum of two (2) recognised specialists in the related field. There should be at least 60% full-time academic staff.

The number of teaching staff must be sufficient to ensure conduct of the following;

- i. All guided teaching activities, including case conferences, seminars and others,
- ii. Review of patient evaluation, treatment planning, management, complications and outcomes of cases,
- iii. Supervision of all clinical activities,
- iv. Research activities,
- v. Assessment activities.

Supervision must be structured and supervisor(s) must be present for teaching and direct supervision of all patient care. The suggested optimal ratios for academic staff to trainee are;

- For clinical session - 1:6
- For research - 1:4

## **18. CLINICAL FACILITIES**

The HEP must provide facilities and resources to fulfil the needs of the training programme and to develop and sustain it on a continuing basis. These include;

- i. Physical facilities to permit trainee to operate under circumstances prevailing in the practice of SCD;
- ii. Clinical facilities specifically identified for the programme in SCD. The facility must be fully equipped with dedicated equipment and materials to allow the high standard of

- dental practice;
- iii. General facilities which accommodate access for individuals with disabilities.



## REFERENCES

Specialty Training Curriculum For Specialist Care Dentistry. November 2012. Specialist Advisory Committee for Special Care Dentistry The Faculty of Dental Surgery The Royal College of Surgeons of England.

Special Care Dentistry Postgraduate Curriculum Guidance. November 2014. International Association of Disability and Oral Health.

Programme Standards and Criteria for Dental Postgraduate. September 2017. Joint Technical Committee for Evaluation of Dental Specialty Programmes (JTCEDSP).

Mesyuarat Jawatankuasa Pro-Tem Dental Speciality Board. 9-11 Oktober 2016.

**SUGGESTED DETAILS OF COURSE CONTENT**

**(Adopted from Special Care Dentistry Postgraduate Curriculum Guidance by International Association of Disability and Oral Health)**

**Module 1: Professional, Legal and and Ethical Context of Special Care Dentistry**

- a. Cultural and social context of people with disability with chronic health conditions and those in marginalized groups
- b. Legal and political issues for the major disability groups and those in marginalized groups
- c. Local professional and ethical framework in which they work
- d. Assessment of individual's capacity to consent and understand the roles of the family members and caregivers in assisted decision making
- e. How to respect for patient autonomy and apply appropriate rationale for the use of physical and pharmacological intervention

**Module 2: Impairment, Disability and Oral Health**

- a. Epidemiology, terminology concepts and classifications of human function, disability and health
- b. Common impairments, disabilities and health conditions in relation to their impact on oral health
- c. Common impairments, disabilities and health conditions in relation to their impact on oral function
- d. The characteristic oral manifestations of specific patient groups
- e. The relationship between oral health and general health for requiring Special Care Dentistry
- f. Determinants of oral health related quality of life for people requiring Special Care Dentistry

**Module 3: Medical Sciences Related to Special Care Dentistry**

- a. Medical principles behind acute and chronic health conditions, congenital and acquired conditions, syndromes and genetic disorders relevant to Special Care Dentistry
- b. Pharmacology, principal, interactions and adverse systemic and oral side effects of commonly used medications and therapeutic regimen for people requiring Special Care Dentistry
- c. Management of medical emergencies in the clinical setting according to local protocols and guidelines

**Module 4: Psychology Related to Special Care Dentistry**

- a. The models of health behaviour and belief and psychology as it relates to the person and health
- b. The emotional experience involved in living with disability, chronic condition and coping with situations such as transition of age or loss
- c. Effective communication strategies in the healthcare setting to develop meaningful interaction with people according to their specific needs
- d. Verbal and non-verbal communication relating to pain, anxiety and phobia in patients requiring Special Care Dentistry

- e. Pharmacological and non-pharmacological methods that can be used to manage pain, anxiety and phobia in patients requiring Special Care Dentistry

#### Module 5: Dental Public Health and Oral health Promotion

- a. The social determinants of health in relation to health inequalities in people requiring Special Care Dentistry
- b. Social, environmental and attitudinal barriers and facilitators to oral healthcare services for people requiring Special Care Dentistry
- c. Mechanism for financing health care and their likely impact on access to oral healthcare for people requiring Special Care Dentistry
- d. Oral health promotion initiatives in relation to people requiring Special Care Dentistry
- e. Institutional and community targeted oral health promotion for people requiring Special Care Dentistry
- f. The role of professional advocacy in promoting policies, services and systems that respect diversity, equality and human rights

#### Module 6: Oral Healthcare Planning and Teamwork

- a. Designing and organizing comprehensive treatment plans in the appropriate setting according to individuals characteristics, risks, guidelines and protocols
- b. Application of the evidence base to develop oral health care plans to stabilize and maintain oral health in people requiring Special Care Dentistry
- c. Utilization of communication strategies to encourage patient autonomy and participation in partnership with families and caregivers where appropriate
- d. Coordination of an inter-disciplinary team, including allied oral healthcare, professionals in the delivery of optimal clinical care for people requiring Special Care Dentistry
- e. Working with caregivers and residential care homes to prevent oral diseases
- f. Skills of inter-professional communication with medical teams to gather information and integrate oral risk assessment into key stages of medical care pathways
- g. Conferment and collaboration with different specialties in a professional manner and referrals to other specialties regarding treatment options outside of individual scope of practice

#### Module 7: Clinical Special Care Dentistry

- a. Skills to assess, diagnose and provide clinical care for individual patients requiring Special Care Dentistry in a variety of settings
- b. The use of appropriate language and methods of communication as required by people with cognitive, sensory and/or other communication impairments in obtaining consent
- c. Management of disorders of oral function in individual patients requiring Special Care Dentistry
- d. Pain management and behavioural facilitation techniques for individual patients requiring Special Care Dentistry
- e. Risk assessment, treatment planning and provision of dental care for patients under sedation and general anaesthesia
- f. Safe transfer techniques and appropriate positioning using aids where necessary for individual patients with physical disabilities

- g. Safe clinical holding techniques to individual risk, local guidelines and protocols

Module 8: Research and Governance

- a. Reviewing relevant literature in order to practice evidence-based dentistry
- b. Undertake research design related to Special Care Dentistry including ethical approval
- c. Analyze and report research findings appropriately and write a report suitable for publication
- d. Presenting research findings or relevant subjects with competence and skills

## GLOSSARY OF TERMS

The terms used in this document (i.e. must, should, may and could) were selected to indicate the relative weight that the DentSEdC / JTCEDSP attaches to each statement. The definitions of these words used in this document are as follows:

1. **Must:** Indicates an imperative need and/or duty; an essential or indispensable item; mandatory.
2. **Should:** Indicates a method to achieve the standards.
3. **May or Could:** Indicates freedom or liberty to follow a suggested alternative.

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