PERIODONTOLOGY
Residency Training Programme leading to the degree of Master of Dental Surgery (MDS)
I Programme Overview

1 Teaching Staff
2 Introduction
3 Objectives of Course
4 Outline of Programme
5 Course Contents
6 Assessment
7 Course Schedule
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2 INTRODUCTION

The Periodontology Residency training programme is a 3-year programme leading to the Master of Dental Surgery in Periodontology.

The Programme is administered by the Division of Graduate Dental Studies, Faculty of Dentistry. The Clinical component of the programme will be conducted at the Faculty of Dentistry, National University of Singapore and the National Dental Centre. The didactic component will be conducted at the Faculty of Dentistry. The Resident will spend approximately 2 days per week at the National Dental Centre. Teaching will be undertaken by staff in the Faculty of Dentistry, National Dental Centre and Private Practitioners specializing in the area of Periodontology and Implant Dentistry.

The course will consist of a didactic, clinical and research component. Each resident is expected to participate in seminars, case presentations, literature review and required assignments in Core oral science courses, Periodontology and Implant Dentistry courses. Residents are expected to treat and document at least 40 cases presenting with a range of complexities of periodontal problems, some of which involve multi-disciplinary care including patients requiring implants. Residents are required to carry out an original research in the field of Periodontology under the supervision of a staff member. This is to be supported by a thesis to be submitted at the end of the course and the defense of the thesis in an oral examination, in partial fulfillment of the MDS in Periodontology.

Besides the core course requirements, each resident may take elective courses as part of the General education requirement to broaden the scope of the resident’s intellectual pursuit. As part of the training, residents will also be involved in teaching the undergraduates during the second and third year of the course.

Assessment of the resident’s competence will be based on continuous assessment and a final examination.
3 OBJECTIVES OF COURSE

The primary objective of the MDS course in Periodontology is to train a clinically proficient, scientifically orientated, analytical, empathetic and ethical periodontist committed to the improvement of periodontal health in the community.

The learning outcomes expected from the Postgraduate on completion of the course are:

1. To achieve mastery of knowledge in the diverse disciplines involved in providing care for patients with periodontal disease

2. To understand the interrelationship between periodontal health and other oral/systemic problems and to be able to work efficiently as a team in improving the quality of life of patients presenting with periodontal disease

3. To critically evaluate scientific literature, discovering and disseminating knowledge

4. To have an in-depth knowledge of basic science applicable to Periodontology

5. To implicate the evidence available from the literature in routine treatment planning

6. To be cognizant of the basic concepts of research methodology and be able to conduct good quality periodontal research independently

7. To be proficient in delivering high quality periodontal therapy as an integral component of overall oral health care through the surgical or the non-surgical approach based on sound clinical judgment and scientific principles

8. To be clinically competent in the treatment planning, placement and maintenance of implants within the concept of comprehensive treatment plan

9. To be able to communicate with patients effectively to improve the oral health status and adherence with health care recommendations
4 OUTLINE OF PROGRAMME & PRE-REQUISITES

The proposed programme is based on a 40-47 week term per year with 40 hours a week. There will be a total of 5360 scheduled hours over the period of 3 years. The didactic component takes up about 25% of the scheduled time; 50% of the allocated time will be spent in clinically related work; at least 15% of the time will be assigned for research; the remaining 10% of the time will be scheduled for teaching and electives.

Clinical Requirements
On completion of the course, each resident is expected to have completed at least 30 cases, 15 of which should have maintenance care of at least 1 year. This would include a range of clinical presentations at different levels of complexity, some of which are multi-disciplinary in nature. All cases will be documented in a clinical log book. Each resident should be exposed to multi-disciplinary management of Perio-Prosthodontic cases including the placement of implants, Perio-Orthodontic cases, Perio-Endo cases, Perio-oral Maxillofacial cases, Perio-Oral medicine cases, management of physically/ intellectually disabled and the medically compromised.

By the end of the course, each resident should be proficient in diagnosis and treatment planning, non-surgical and surgical management of patients presenting with varying complexity of periodontal disease. In addition to non-surgical periodontal therapy, each resident is expected to perform a range of 50-80 periodontal surgical procedures with varying complexity which should include crown lengthening, periodontal flap surgery, gingivectomy, gingival grafts and guided tissue regenerative procedures. Each resident is expected to have placed a minimum of 15 oral implants at the end of the course. The resident should be able to exercise discriminate judgment in the appropriate use of chemotherapeutic agents and local drug delivery as part of the management strategy in periodontal therapy. The resident should be able to apply defined quality standards to his/her clinical performance and to implicate quality management into the treatment plan.

Entrance Requirements
Holder of a degree in Dental Surgery with two years experience in full-time clinical practice after graduation; the period of internship is considered “full-time clinical practice”. (For purpose of pursuing residency training programmes for Master of Dental Surgery (MDS) examination, holders of degrees registrable by Dental Boards in India, Indonesia and Philippines and other qualifications approved by the Board of Graduate School of Dental Studies are acceptable and can be admitted to the programme). A TOEFL score of 550-600 or IELTS score of 7 & above are needed.
5 COURSE CONTENTS

Didactic Course

I  Core Oral science course

The aim is to provide comprehensive working knowledge of various areas of the biological sciences that interrelate to Periodontology. The topics include

1  Biostatistics & Epidemiology
2  Research Methodology
3  Bone and connective tissue biology
4  Functional Head and neck anatomy
5  Oral Pathology and Oral Medicine
6  Oral Immunology & Microbiology
7  Dental Radiology
8  Dental Pharmacology, pain and sedation
9  Occlusion, oral facial pain & disorders
10  Emergency care and CPR
11  Behavioural Management
12  Dental Photography
13  Evidence Based dentistry
14  Dental Ethics
15  Basic Teaching methodology

II  Periodontology Course

The course aims to provide a comprehensive working knowledge on the art and science of Periodontology and Implant dentistry. He/she should be able to critically evaluate the literature with emphasis on the evidence-based approach. The didactic course comprise of the following

1  Aetiology of periodontal disease / Microbiology
2  Pathogenesis & Immunology of Periodontal disease
3  Epidemiology of Periodontal disease
4  Diagnosis of periodontal disease – conventional and advanced techniques
   Treatment Planning
5  Behavioural aspects of Oral hygiene education & motivation
6  Biological and scientific basis of non-surgical periodontal therapy
7  Biological and scientific basis of different types of periodontal surgical procedures (access flaps, crown lengthening)
8  Aesthetic & Plastic Periodontal surgery
9  Guided Tissue regeneration (including ridge augmentation)
Implant Dentistry

The didactic course will be conducted in the form of seminars, lectures, group discussion, Problem solving, review of literature and case presentation. The topics covered include:

1 Biological basis for tissue integration
   Concepts of osseointegration
   Choice of materials
   Concepts of soft tissue integration

2 Examination, Diagnosis, Treatment planning for dental implants

3 Surgical Procedures in Implant surgery
   Stage I surgery (fixture installation)
   Stage 2 surgery (fixture uncovering)

4 Post-operative Management
   Immediate post-operative care
   Provisional prostheses
   Management of surgical complications

5 Maintenance care
   Aetiology and pathogenesis of peri-implant infections
   Diagnosis, prevention and management of peri-implant infections
   Guided Bone regeneration - Bone grafting, membranes
   Sinus Lift surgery
   Soft Tissue grafts
   Vestibuloplasties
   Management of soft tissue deficiencies
Immediate Implant placement

Single tooth implant placement

Prosthodontics aspects
  a. Occlusion
  b. Aesthetics

Miscellaneous

Clinical Course
The clinical course aims to train the individual to be competent in the clinical skills in periodontal therapy and implant dentistry as an integral component of comprehensive oral health care. The clinical training involves:

1. Periodontal diagnosis & Treatment Planning
2. Non-Surgical periodontal therapy (oral hygiene education and motivation, scaling, root planing, local drug delivery, anti-microbial therapy)
3. Surgical periodontal therapy (conventional access periodontal flap, osseous surgery, mucogingival surgery, GTR procedures, bone grafting procedures)
4. Clinical oral implant dentistry (implant surgery, peri-implant disease, implant prosthesis)
5. Clinical oral medicine (relating to the periodontium)
6. Interdisciplinary relationship
7. TMD & occlusal therapy
8. Periodontal management of the medically compromised
9. Use of microscopes in diagnosis and therapy

Research
Each resident is required to carry out an original research project in a periodontally related field. This may be laboratory, animal or clinical research. Depending on the nature of the research project, the resident may be required to attend special courses/attachment in relation to the project especially to develop adequate methodology.

The Resident is required to:

i) develop a research protocol and formulate hypotheses following an adequate literature search
ii) obtain permission for the performance of the research project with either human or human boards along the line of good clinical / research practice guidelines
iii) keep adequate logs and reports pertaining to the research
iv) assure use of appropriate statistical analyses in the handling of the data; the resident may if judged necessary consult with a statistician in this aspect

v) interpret and perform analysis of the data according to international standards and within the framework of the whole research project

All residents must attend local and regional research meetings and present a paper on their research at least once during the 3-year programme

Elective Courses
This additional component of the course is to give the individual a global aspect of higher education and research and to explore his interest beyond the boundaries of Periodontology. The resident is allowed to take electives in other areas of interest (e.g., Molecular Biology, Microbiology, Psychology, Pharmacology, Bioengineering, clinical disciplines in Prosthodontics, Orthodontics, Oral Maxillofacial surgery, Oral medicine, Endodontics) which may be related to the individual's research or clinical interest.
6 ASSESSMENT

The individual's performance will be evaluated using different approaches based on continuous assessment and formal examination.

Written Assignments
End of term paper
Case presentations
Literature reviews
Research Thesis
Clinical logbook
Competency tests

Presentation of 5 completed cases displaying a range of clinical experience (a minimum of one implant case, one case involving management of a medically compromised patient, 2 cases of moderately advanced periodontal disease).

Each Resident is expected to achieve a good pass for all the continuous assessment. The individual should demonstrate professionalism in the clinical management of patients. A student may be asked to retake or terminate the course in the event of unsatisfactory performance. A Resident may also be reprimanded or expelled in the event of professional misconduct.

A Resident will be required to successfully complete clinical competency assessment in scaling & root planing, periodontal surgery and implant dentistry before he/she could independently carry out these procedures with minimal clinical supervision. These competencies may be taken at different times during the Residency programme.

FINAL MDS EXAMINATION

The Final MDS examination will be conducted in May/June of Year 3. Residents will only be permitted to sit for the examination after having met the requirements set by the Committee. The final examination comprises of a written paper; a research thesis & oral examination of the Research thesis; oral examination & presentation of the 5 fully documented completed cases.

AWARD OF MDS (PERIODONTOLOGY)

The degree of Master of Dental Surgery in Periodontology will be awarded to the candidate on passing the requirements of the final examination and successful defence of thesis.
## 7 COURSE SCHEDULE

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<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
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| **Didactic** | Core Oral Science Course  
Basic & advanced  
Periodontology  
Implant dentistry  
Multi-disciplinary topics  
Case presentations  
Literature reviews | Teaching methodology course  
Literature reviews  
Seminars  
Case Presentations & discussion | Literature reviews  
Seminars  
Journal club  
Case presentations & discussion |
| **Clinical/Practical** | Basic Periodontal therapy  
Periodontal surgical techniques  
Implant dentistry Technique  
Periodontics clinics | Periodontics clinics  
Implant dentistry clinics | Periodontics clinics  
Implant dentistry clinics |
| **Research** | Research Methodology  
Basic Biostatistics  
Preparation & presentation of research protocol | Implementation of research project | Completion of research project and theses |
| **Assessment** | Term test  
Competency tests (timing flexible)  
Assignments | Term test  
Competency tests (timing flexible)  
Assignments | Assignments  
Final Exam |
| **Miscellaneous** | Elective Course Teaching | Elective course Teaching | |