الهيئة السعودية للتخصصات الصحية
Saudi Commission for Health Specialties

Periodontics


بسم الله الرحمن الرحيم

CONTRIBUTORS

Periodontics Program Curriculum Development Committee Members:

- Dr. Khalid Nazmi Said
- Dr. Abdullah Awadh Alamri
- Prof. Adel Alagl

Program Advisory Committee Members:

Curriculum Specialists:

- Associate Prof. Zubair Amin
- Dr. Sami AlShammari
- Dr Ali Alassiri

REVIEWED & APPROVED

Periodontics Scientific Committee has approved the curriculum of the program on:

- Dr. Montaser Al-Qutub, Chairman
- Dr. Khalid Nazmi Said
- Prof. Adel Alagl
- Dr. Abdullah Awadh Alamri
- Dr. Hisham Al-Mashat
- Dr. Amal Alsilmi
- Dr Othman Wali
- Dr. Yasser Abdullah Rhbeini
- Dr. Maha Ahmed Bahammam
- Dr. Arwa AlSayed
- Dr. Afaf Ahmed Tawati
- Dr. Jazia Abdullah Alblowi

Periodontics Assessment Scientific Committee Chairperson:

- Dr. Arwa AlSayed

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Correspondence:
Postal Code: 11614
Riyadh, Saudi Arabia
Consolidated Communication Center: 920019393
International Contact: +966-114179900
Fax: +966114800800, Extension: 1322
E-mail: curricula@scfhs.org.sa
Website: www.scfhs.org.sa

DISCLAIMER

The primary goal of this document is to enrich the training experience of postgraduate trainees by outlining the learning objectives to become competent and proficient future periodontists.

This curriculum may contain sections outlining some training regulations. However, such rules need to comply with the most updated "General Bylaws" and "Executive Policies" of the Saudi Commission for Health Specialties (SCFHS), which can be accessed online through the official SCFHS website (https://www.scfhs.org.sa/MESPS/TrainingProgs/RegulationBoard/Pages/default.aspx).

As this curriculum is subjected to continuous development, please refer to the electronic version posted online for the most updated version.

ACKNOWLEDGMENT

As the Curriculum Scientific Group, we would like to genuinely thank the Periodontics Scientific Council for their efforts and excellent work in the previous curriculum. Their remarkable achievement inspired us from the first day to go beyond what we had imagined and planned in a very short period.
We owe special thanks to our colleagues and residents for their inputs and feedback that contributed greatly to the development of this curriculum.
Finally, we would also like to thank the curriculum specialists in the Saudi Commission for Health Specialties for their guidance and assistance.

FOREWARD

Curriculum development in medical or dental education is a scholarly process that integrates a specific content area with learning theory and methodology in order to evaluate its impact (1).

Saudi medical and dental consultants are often recruited by the Saudi Commission for Health Specialties (SCFHS) to reform the current curricula across all specialties and outline their unique roles in care services and educational facilities. However, although consultants are usually content experts, they may not be familiar with the curriculum development process and might face difficulties in accessing the required resources. Therefore, a systematic approach is required for the development of a curriculum to justify the effort involved. Hence, the six-step approach to curriculum development established by Kern et al. is now being adopted (2) (Figure 1).

	Title	Task involved in the step
1	Problem identification	Identification and critical analysis of the healthcare problems that will be addressed in the curriculum. This requires substantial research to analyze what is currently being done by periodontics consultants and educators, i.e., the current approach, and what should ideally be done by prosthodontic consultants and educators to address the healthcare problem related to prosthodontic specialty, i.e., the ideal approach.
2	Needs assessment of targeted learners	The general needs assessment is applied to targeted learners.
3	Goals and objectives	Overall goals and aims for the curriculum are written. Specific measurable knowledge, skills, perspective, and process objectives are written for the curriculum (CanMEDS-based objectives).
4	Educational strategies	A plan is prepared to maximize the impact of the curriculum, including the content and educational methods congruent with the objectives.
5	Implementation	A plan for implementation, including timelines and resources required, is created. A group of faculty members is selected to ensure consistency.
6	Assessment and Evaluation	Learner and program evaluation plans are created. A plan is devised for disseminating the curriculum.

Figure 1: Six-step approach to curriculum development for medical education

Problem identification

- Shortage of periodontists.
- High prevalence of periodontal diseases in Saudi Arabia.
- High demand for dental implants.

Needs assessment of targeted learners

After identifying the general healthcare problems (related to periodontics) in step 1, it was important to assess the needs of the targeted group of learners (SCFHS-accredited periodontics supervisors, SCFHS residents, and members of the SCFHS-accredited training centers).

Analyzing the current situation and formulating ideal approaches are as essential as the other steps that depend on them. It will lay the foundation for a good rationale which in turn will help us as a curriculum development team to obtain the required support (3).

The information required for reforming the periodontics program curriculum was obtained by reviewing the available information, collecting new information, and incorporating the opinion of experts (from the Periodontics Scientific Council and others).

Available information:

- Local SCFHS guidelines for periodontics in clinical practice and international guidelines published by the American Dental Association (ADA) and American Academy of Periodontology (AAP).
- Literature on periodontics published in Saudi Arabia
- Local and international educational strategies for periodontics.
- Reports of professional organizations and governmental agencies (e.g., SCFHS), considering that it is crucial to adapt their accreditation standards when designing a curriculum.
- Public health statistics, that is, either national statistics obtained from the annual statistical reports, for example, reports by the Ministry of Health (MOH), or international statistics from reports published by the World Health Organization (WHO).

Opinions of consultants and experts

- Formally, through scientific council meetings.
- Informally, through consultations with experts in the dental education field.

Collection of new information

- Survey and feedback of SCFHS periodontics residents.
- Observation of tasks performed by periodontists.
- Review of critical incidents (including resident stress related to the unexpected or sudden implementation of a new regulation).
- Study of ideal performance cases or role model periodontics.

Goals and objectives

Once the needs of targeted learners have been identified, goals and objectives are easily formulated (overall and specific). The CanMEDS-based objectives are implemented in this curriculum and include cognitive (knowledge), affective (behavior), and psychomotor (skills) objectives. Please refer to the “Outcomes and Competencies” section on page 1.

Educational strategies

Once the goals and objectives were identified, the curriculum content and the educational, learning, and teaching strategies were reviewed to ensure that they meet the educational objectives. Please refer to the “Teaching and Learning” section.

Implementation

There is strong political support from the SCFHS and the Periodontics Scientific
Council to implement this reformed curriculum. However, some anticipated barriers have been identified and will be addressed in a timely manner. The revised curriculum will be introduced to a test audience before its final implementation.

Assessment and evaluation

Multiple formative assessments are designed for residents to ensure their continuous positive progression, and multiple summative assessments are included to provide a decisive grade reflecting the performance of residents.

Evaluation of the curriculum (program-level) and instructors (individual-level) to improve the performance of both the curriculum and instructors. Please refer to the “Assessments” section on (page 100).

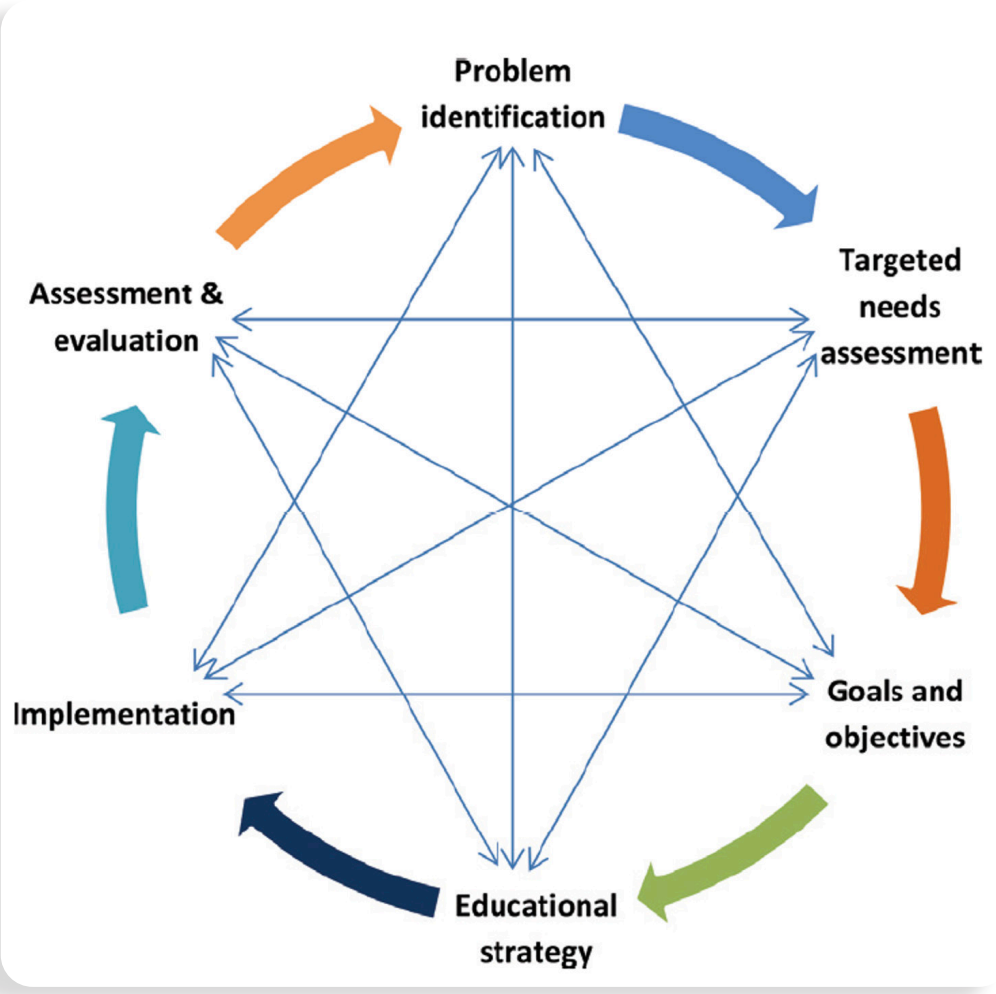

Figure 2: Six-step approach to curriculum development

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CHAPTER 1: INTRODUCTION

Periodontics: Periodontics is a specialty of dentistry which encompasses the prevention, diagnosis, and treatment of diseases of the supporting and surrounding tissues of the teeth or their substitutes and the maintenance of the health, function, and esthetics of these structures and tissues.

1. Context of Practice

Periodontics is the branch and specialty of dentistry concerned with the diagnosis, prevention, and treatment of diseases of the supporting and surrounding tissues of the teeth or their substitutes and the maintenance of the health, function, and esthetics of these structures and tissues.

1. Current challenges

1.1. Shortage of periodontists

Saudi Arabia has a population of less than 150 Saudi periodontists and consultants, serving a population of more than 32 million individuals. This number is grossly inadequate considering the current demand of periodontists in Saudi Arabia. In addition, Saudi periodontists constitute less than 2.5% of the total dentists in Saudi Arabia.

The table below summarizes the statistical distribution of periodontists in Saudi Arabia in December 2018 (4).

Total Number of licensed periodontists	387
Saudi periodontist	122
Non-Saudi periodontist	265
General dentist	11924
Saudi general dentist	2378
Non-Saudi general dentist	9546

Table 1: The percentage of licensed dentists in Saudi Arabia

1.2 High prevalence of periodontal diseases requiring treatment

- Periodontal diseases are very common in humans. The WHO estimation indicates that 5–20% of middle-aged adults are affected by periodontal diseases which result in tooth loss. Saudi Arabia is not exempted from this devastating effect of periodontal diseases. The latest project conducted by WHO CAP in the 1990s reported that about 9% of the Saudi Arabian population had deepened periodontal pockets during the preliminary stages of the study and sought treatment (Hani, 2012).
- A retrospective study conducted on 2739 patients in Abha, Saudi Arabia reported that 63.2% of the patients had gingivitis and 36.8% of the patients had various forms of periodontitis(6).

1.3 High prevalence of periodontal diseases among diabetic patients. Diabetes is considered to be one of the most important risk factors in causing periodontal diseases.

1.4. Rise in demand of dental implants:

Dental implants are becoming more popular than ever because of their advantages over other treatment modalities for replacing missing teeth. They already hold a substantial 18% share of the global dental device market and have one of the highest growth rates among all dental device submarkets. According to Carl Misch, the use of dental implants increased ten times from 1983 to 2002. In 2005, 550 million USD were spent on dental implants worldwide. In 2010, this number increased to more than 10 billion USD. This demand continues to increase exponentially since only 2–3% of the global edentulous population has received dental implant treatment so far.

2.Periodontics residency programs in Saudi Arabia

The Saudi Board Periodontics training program was founded in 2008. The number of candidates accepted per year is illustrated in the table below.

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
7	7	8	3	2	5	8	5	14	14	12	14	18

Table2: Number of accepted candidates in Periodontics residency programs in Saudi Arabia

From 2012–2019, 60 periodontists have graduated from the program.

2012	2013	2014	2015	2016	2017	2018	2019
6	7	9	4	3	6	8	17

Table3: Number of graduates from Saudi Board in Periodontics

In academic year 2019–2020, 54 periodontic residents were distributed in 16 training centers at all residency levels.

Training centers	Residency level (R1 and R2: junior level, R3 and R4: senior level)				Total
	R1	R2	R3	R4	
Central region training centers	8	5	9	9	31
Western region training centers	7	3	6	7	23

Table4: Distribution of residents in different training center

2. is new in this edition?

1. Competency-based vs. time-and-process-based curriculum

In traditional dental residency programs, the successful completion of a dental curriculum is recognized by the time spent on rotations, as opposed to the abilities acquired. Additionally, program evaluation focuses on the process of training, for example, whether a curriculum is being followed or whether there are any clinical requirements enlisted for the program. The majority of dental residents successfully complete their training programs by meeting time and process requirements. It is assumed that when these requirements are met, the residents are able to use the acquired knowledge for actual delivery of patient care, without an assessment of whether the residents are able to apply that knowledge appropriately for healthcare of a patient. In this curriculum, we shifted from a time-and-process-based framework to a competency-based framework and implemented the CanMEDS model to this reformed curriculum. Training completion is based on the successful demonstration of the application of specific knowledge, skills, and perspectives that are required for the practice of periodontics.

2. Better supervisory framework

Prior to this reformed curriculum, there was no clear graded supervision guideline. All residents were supervised regardless of their residency year, the procedure they were performing, or the competency they were trying to achieve. In this curriculum, a new supervisory guideline is introduced and integrated

into the competency-based objectives of the program. It is applied to the type of clinical procedures conducted based on the residency level.

3. Addition of research activity

There is a growing trend towards integrating scientific research training into Saudi board postgraduate training programs. The Saudi Commission for Health Specialties (SCFHS) highlights the importance of this trend. Adequate knowledge, skills, and perspectives are essential for carrying out research, and the scientific literature shows that medical doctors lack these competencies (7). Please refer to "Research" on page 79.

3. Abbreviations (complete)

HIV	Human immunodeficiency virus
CanMEDS	Canadian Medical Education Directives for Specialists
SDL	self-directed learning
SCFHS	Saudi Commission For Health Specialties
CBD	competency by design
OSCE	objective structured clinical examination
SOE	structured oral examination
WSA	weekly scientific activities
MCQ	multiple-choice questions
DOPS	direct observation of procedural skills
TMJ	temporomandibular joint
ITER	in-training evaluation report
JC	journal club
FITER	final in-training evaluation report
CbD	case-based discussion
CEP	core education program
CTG	connective tissue graft
FGG	free gingival graft
GTR	guided tissue regeneration
GBR	guided bone regeneration
MRONJ	medication related osteonecrosis of the jaw
EBD	evidence-based dentistry
SIRS	systemic inflammatory response syndrome
DIVC	disseminated intravascular coagulation
CH	credit hours
DFDBA	demineralized freeze-dried bone allograft
HAI	hospital acquired infections
HCW	healthcare workers
MRSA	methicillin-resistant Staphylococcus aureus
CLABSI	central line-associated bloodstream infections
VRE	vancomycin resistant Enterococcus
GCF	greatest common factor

CHAPTER 2: SUPERVISION GUIDELINE

The integration of the "supervision guideline" shall provide all residents with an educational program that is clinically and academically progressive. It will provide an organized educational program with guidance and supervision of postgraduate residents, facilitating their ethical, professional, and personal development while ensuring safe and appropriate care for patients. The privilege of progressive authority and responsibility, conditional independence, and a supervisory role in patient care delegated to each resident must be monitored by the program director and supervisors. The supervision assignments should have a sufficient duration to assess the knowledge, behavior, and skills of each resident in order to help in delegation of appropriate level of patient care authority and responsibility to them.

1. Privileges and graded responsibilities

A description of the level of responsibility (graded responsibility) accorded to each resident by residency year is developed. In addition, these descriptions include identification of mechanisms by which supervisors and program directors make decisions regarding each resident's progressive involvement and independence in specific patient care activities.

Important remarks:

The program directors must evaluate each resident's abilities based on specific criteria established in the reformed curriculum.

-Supervising periodontists will delegate patient care activities to residents based on the need of the patient and the demonstrated abilities of the resident.

-Senior residents should serve a supervisory role towards junior residents and dental interns and appropriate patients should be provided to them in order to check their progress in the training program.

-Under special circumstances, all residents, regardless of the residency year, would be expected to communicate verbally with the appropriate supervisor. Examples:

- Code Blue Team activation
- Consultation for urgent situations
- Patient or family dissatisfaction
- On patient request
- Transfer of patients to a higher level of care
- The program directors must ensure that the supervision guideline is distributed to and followed by residents and the supervising periodontists.
- Compliance with the supervision guidelines will be monitored by the program directors and the Periodontics Scientific Council.

2. Supervision level

Approval for performing certain procedures with or without direct supervision will be given to residents at certain residency year levels based upon specific written criteria set forth and defined in this reformed curriculum. Please refer to "Periodontics procedures and level of supervision". However, the supervising periodontist of the resident will ultimately be responsible for all procedures performed on patients. To ensure appropriate guidance of the residents, the following classification of supervision was used:

1. Observation (O)

The resident can only observe without physical intervention. Generally, this applies to junior dental residents in some advanced periodontal procedures.

2. Direct supervision (D)

The supervisor is physically present with the resident and patient. Generally, this applies to junior dental residents R1 and R2 and for high-technique sensitive procedures at senior levels.

3. Indirect supervision (I)

The supervisor is not physically present within the confines of the site of patient care, but is immediately available via phone, or other means of immediate electronic communication. Generally, it applies to the senior residents R3 and R4.

3. Responsibilities

1. General

- All patient care must be supervised by qualified supervisors.
- Clinical schedules must be available at all clinical service locations so that all healthcare professionals can easily identify the assigned residents and their supervisors.

2. Supervisors

- Daily review of the documentation of patient records by the resident.
- Be attentive to compliance with training center requirements when it comes to notes on patient procedures.
- Each supervisor is fully accountable for the legislation and the decision made for the delegated task to the resident in the best interest of the patient.
- Provide residents with constructive feedback as appropriate.

3. Residents

- Each resident is responsible for knowing the process of supervision, limits of their privilege boundaries, level of competency, and the circumstances under which they are permitted to act with conditional independence.

CHAPTER 3: OUTCOMES AND COMPETENCIES

1. Mission of the program

To train periodontics specialists armed with best knowledge, skills, perspectives, and professionalism upon graduation to best serve the needs of the population of Saudi Arabia at the highest standards of healthcare.

2. Goals of the program

At the end of the training program, a successful graduate is expected to be an expert and a competent periodontist with a complete understanding of the core knowledge of periodontics, and the associated skills and perspectives. The program graduate should be able to:

- Provide effective patient-centered, evidence-based care to patients.
- Perform a full range of clinical competencies and procedures that are considered an integral part of the periodontics discipline.
- Lead collaborative multidisciplinary oral healthcare treatment plans and public health initiatives.
- Embrace lifelong learning, including continuous education, research, and practice of academic teaching.
- Engage in specialty-related regulations, activities, and needs.
- Exceed highest standards of ethical conduct and professional bylaws.
- Treat a diverse group of patients professionally and courteously regardless of their gender, age, culture, beliefs, and ethnicity.
- Be capable of leading a successful career in periodontics in the private sector.
- Manage the oral health preventive and interceptive needs of local communities and engage in community service.

3. CanMEDS-based learning outcomes, milestones, and continuum of learning

In this section, outcomes and competencies are classified based on the CanMEDS framework and the level of supervision for each residency year.

The curriculum framework in medical and dental education began to shift from a time-and-process-based framework to a competency-based model. International acceptance of this paradigm shift is reflected by the subsequent release of the CanMEDS framework.

The CanMEDS framework emphasizes not only on dental skills and knowledge but also on multiple additional non-dental roles that aim to serve the needs of the society competently. Therefore, in this reformed curriculum, we adopt the CanMEDS framework to establish a core curriculum for the periodontic residency training program. This is a competency-based framework, which is a derivative from "Canadian Medical Education Directives for Specialists". The CanMEDS diagram graphically illustrates the centrality of the role of a "medical expert" and shows its interconnectivity with the other roles. However, for the purpose of the specialty, the term "dental expert" has been used instead.

In this curriculum, the CanMEDS-based objectives are integrated with the "supervision guideline" to provide clear instructions and directions to supervisors for teaching and assessing the residents. Additionally, it will help the residents in organizing their efforts for accomplishing the intent of the instructions based on their residency level.

The competencies below have to be assessed at multiple progress levels and complexities with proper assessment forms made available online by the SCFHS Assessment Department. In some cases, a single form (e. g., 360-degrees assessment) can be used to assess more than one competency.

1. Dental Expert

As dental experts, periodontists integrate all of the CanMEDS roles, applying dental knowledge, clinical skills, and professional perspectives for providing patient-centered care.

O: Observation - D: Direct supervision - I: Indirect supervision.

First key competency
1. Practice dentistry within their defined scope of practice and expertise

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
1.1	Demonstrate a commitment to high-quality care of their patients				
1.1.1	Demonstrate compassion for patients as a health advocate	D	D	I	I
1.1.2	Demonstrate commitment and accountability for patients under their care	D	D	I	I
1.1.3	Ensure a role-model a commitment to high-quality patient care	O	O	D	D
1.1.4	Practice delivering bad news (example loss of dentition, failed implant)	O	D	I	I

1.2	Integrate the CanMEDS intrinsic roles into their practice of dentistry				
1.2.1	Describe the CanMEDS roles and explain how they relate to Periodontics	D	D	I	I
1.2.2	Integrate the CanMEDS Leader Roles into their practice of dentistry	D	D	I	I
1.2.3	Teach and assess the application of the CanMEDS Professional Competency framework to dental practice	O	O	D	D

1.3	Apply knowledge of the clinical and biomedical sciences relevant to periodontics				
1.3.1	Apply knowledge of basic and clinical sciences to identify, diagnose, and plan treatment for common clinical problems in the specialty	D	D	I	I
1.3.2	Apply an evidence-based, interdisciplinary depth of knowledge in clinical and basic sciences to manage a variety of periodontal and implant conditions	D	D	I	I

1.4	Perform appropriately timed clinical assessments with recommendations that are presented in an organized manner				
1.4.1	Perform a patient assessment and provide an interpretation of the clinical situation to the supervising periodontist	D	D	I	I
1.4.2	Recognize urgent problems that may need the involvement of more experienced colleagues and seek their assistance immediately	D	D	I	I
1.4 .3	Perform appropriately timed clinical assessments with recommendations that are well organized and properly documented	D	D	I	I
1.4.4	Teach colleagues how to perform consultations	O	O	D	D
1.4.5	Refer and suggest appropriate consultations about patients to colleagues in other disciplines of dentistry, medicine, and pharmacy	D	D	I	I

1.5	Carry out professional duties in the face of multiple, competing demands				
1.5.1	On the basis of patient-centered priorities, seek assistance of other professional colleagues to prioritize multiple competing tasks that need to be addressed	D	D	I	I
1.5.2	Carry out professional duties with clear balance of competing demands, based on urgency, best interest of the patient, and treatment expectations of patients	D	D	I	I

1.6	Recognize and respond to the complexity, uncertainty, and ambiguity inherent in the practice of periodontics				
1.6.1	Plan complex treatment sequences that require interdisciplinary care in situations that are complex or new for other dentists, pharmacists, and physicians.	D	D	D	D
1.6.2	Recognize and respond to the complexity, uncertainty, and ambiguity inherent in the practice of periodontics for cases with severe disease or high risk of complications	D	D	D	D

Second key competency
2. Perform a patient-centered clinical assessment and establish a treatment plan

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
2.1	Prioritize issues to be addressed in a patient consultation				
2.1.1	Identify the concerns and goals of the patient for the consultation	D	D	I	I
2.1.2	Prioritize the issues which need to be addressed during future visits or during visits to other dental specialists	D	D	I	I
2.2	Elicit a history, perform a clinical examination, select appropriate investigations, and interpret their results for the purpose of diagnosis and management, disease prevention, and health promotion				
2.2.1	Elicit history, perform clinical examination, and develop a treatment plan relevant to the patient's case of most common diseases and procedures	D	D	I	I
2.2.2	Conduct a clinical examination and come up with a treatment plan in challenging or unusual diagnoses	O	O	D	D
2.2.3	Request proper investigations judiciously and consistent with patient needs, then interpret their findings and incorporate them in the treatment plan.	D	D	I	I
2.3	Establish goals of care in collaboration with patients and their families, which may include slowing disease progression, treating symptoms, curing the disease, improving function, and extraction of teeth				
2.3.1	Initiate discussions with the patient about the treatment plans and the goals of care	D	D	I	I
2.3.2	Address the impact of the patient's oral condition on the quality of life including comfort, esthetics, and normal life functions	D	D	I	I
2.3.3	Discuss concerns about goals of care which seem unachievable constructively and respectfully with the patient	D	D	I	I
2.3.4	Discuss the impact of oral hygiene, personal habits, and systemic health on treatment outcomes clearly and professionally	D	D	I	I
2.4	Establish a patient-centered treatment plan				
2.4.1	Develop an initial treatment plan for common periodontal diseases	D	D	I	I
2.4.2	Develop and implement treatment plans that consider all health problems of the patient in collaboration with the context of the patient and other dental specialties (when appropriate)	D	D	I	I
2.43	Develop a plan to deal with clinical uncertainty in collaboration with the patient (treatment plan is initial and subject to change)	O	O	I	I
2.4.4	Establish management plans in patient encounters when there are significant disagreements regarding the achievable aspects of treatment, including request of second opinions.	O	O	I	I
2.4.5	Resolve conflict or dispute over treatment plan or outcome of treatment with patient or colleagues in a professional manner	O	D	D	I

Third key competency
3. Plan and perform procedures for the purpose of assessment and/or management

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
3.1	Determine the most appropriate periodontal procedures				
3.1.1	Describe the indications, contraindications, risks, and alternatives for a given procedure	D	D	I	I
3.1.2	Integrate all sources of information to develop a procedural plan that is safe, patient-centered, and considers the risks and benefits of all approaches	D	D	I	I
3.1.3	Determine the most appropriate periodontal procedure for the purpose of assessment and/or management	O	O	I	I
3.1.4	Develop a novel (new and innovative) procedure while respecting ethical standards of patient care and planning with supervising faculty	O	O	D	D
3.1.5	Show health-economic jurisprudence by making clinical decisions based on evidence of long-term success and prognosis	O	D	I	I
3.2	Obtain and document informed consent explaining the risks and benefits of, and the rationale for, a proposed procedure				
3.2.1	Describe the ethical principles and legal process of obtaining and documenting informed consent	D	D	I	I
3.2.2	Obtain informed consent for commonly performed procedures and therapies conducted under supervision and for photography (when needed).	D	D	I	I
3.2.3	Use shared decision-making in the consent process, taking risk and uncertainty into consideration	D	D	I	I
3.3	Prioritize a procedure or therapy by taking clinical urgency and available resources into account				
3.3.1	Recognize and discuss the importance of the sequence and timing of a periodontal procedure	D	D	I	I
3.3.2	Put treatment plans including non-surgical and surgical procedures in a sequence (multi-phasic), taking into account prognosis, urgency, and resource allocation	D	D	I	I
3.3.3	Organize and schedule surgical procedures in complex situations, demonstrating a collaborative approach when competing for limited resources	D	D	I	I
3.3.4	Demonstrate leadership of the surgical team in surgical procedures before, during, and after complex procedures, including decisions on clinical setup	D	D	I	I
3.3.5	Demonstrate practice management skills by resource allocation, team management and team efficiency	O	D	I	I

3.4	Perform procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances (EACH procedure in CLINICAL PROCEDURE LIST page ----- requires a competency assessment with minimal number of clinical exposures listed in appendix A)				
3.4.1	Set up and position the patient, and the tools required for a procedure	I	I	I	I
3.4.2	Competently perform discipline-specific procedures (Please refer to the procedure list in page 76-77___)	D/I	D/I	I	I
3.4.3	Document procedures accurately in the hospital-clinic system and obtain proper consent	D	D	I	I
3.4.4	Perform procedures in a skillful and safe manner while adapting to unanticipated findings or changing clinical circumstances	D	D	I	I
3.4.5	Perform specialized procedures that require high skill and dexterity	O	O	D	D
3.4.6	Explain the procedure to the instructor, patient, family, and other members of the team.	O	O	D	D
3.4.5	Check vital signs of the patient before, during, and after procedure including blood pressure, heart rate, and blood glucose level	D	D	I	I
3.4.6	Properly operate and teach team members of proper use of machines and devices required during the procedure	O	D	I	I
3.4.7	Manage emergency situations related to the patient and troubleshoot, report, and contact proper help in case of clinic or machine malfunction in a professional manner	O	D	I	I

Fourth key competency
4. Establish plans for ongoing treatment and timely consultation, when appropriate

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
4.1	Implement a patient-centered care plan that supports ongoing care, follow-up on investigations, response to treatment, and further consultation				
4.1.1	Describe the importance of follow-up and recalls in patient care	D	I	I	I
4.1.2	Coordinate investigation, treatment, and follow-up plans when multiple dental specialties and healthcare professionals are involved (e.g., in a dental laboratory)	D	D	I	I
4.1.3	Ensure follow-up on cases in the dental laboratory	D	D	I	I
4.1.4	Ensure follow-up on a response to a restorative or prosthodontic referred procedure	D	D	I	I
4.1.5	Establish plans for ongoing care, taking into consideration the patient's clinical state, circumstances, preferences, and actions, as well as available resources, best practices, and research evidence	D	D	I	I
4.1.6	Determine the necessity and appropriate timing of consultation	D	D	I	I
4.1.7	Develop a novel system of follow-up that is flexible and adaptable to patients, families, and community resources	O	O	D	D
3.4.6	Properly operate and teach team members of proper use of machines and devices required during the procedure	O	D	I	I
3.4.7	Manage emergency situations related to the patient and troubleshoot, report, and contact proper help in case of clinic or machine malfunction in a professional manner	O	D	I	I

Fifth key competency
5. Actively contribute as an individual and as a member of a team providing care, to the continuous improvement of health-care quality and patient safety

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
5.1	Recognize and respond to harm from healthcare delivery, including patient safety incidents				
5.1.1	Define the types of patient and healthcare worker safety incidents	I	I	I	I
5.1.2	Recognize the occurrence of a patient or healthcare worker safety incident	D	D	I	I
5.1.3	Report patient safety incidents to appropriate institutional representatives	D	D	I	I
5.1.4	Recognize near-misses in real time and respond to correct them, preventing them from reaching the patient	D	D	I	I
5.1.5	Accept responsibility for errors and suggest ways to improve safety in future	O	O	D	D
5.2	Adopt strategies that promote safety of patients and healthcare workers and address human and system factors				
5.2.1	Describe the individual factors that can affect human performance, including sleep deprivation and stress	I	I	I	I
	Recognize the occurrence of a patient or healthcare worker safety incident	D	D	I	I
5.2.2	Adopt strategies that promote patient safety and address human and system factors	D	D	I	I
5.2.3	Adopt a culture of justice and responsibility among team members rather than a punitive culture in the practice of healthcare	O	D	D	I

2. Communicator

As communicators, periodontists form relationships with patients and their families that facilitate the gathering and sharing of essential information for effective healthcare.

First key competency

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
1.1	Communicate using a patient-centered approach that encourages patient trust and autonomy and is characterized by empathy, respect, and compassion				
1.1.1	Outline and prove that effective physician-patient communication enhances outcomes	D	I	I	I
1.1.2	Communicate using a patient-centered approach that facilitates patient trust and is characterized by empathy, respect, and compassion	D	D	I	I
1.1.3	Teach and assess the patient-centered approach to communication	O	O	D	D
1.2	Optimize the physical environment for patient comfort, dignity, privacy, and safety				
1.2.1	Optimize the physical environment for patient comfort, dignity, privacy, engagement, and safety	D	D	I	I
1.3	Recognize when the values, biases, or perspectives of patients, dentists, or other healthcare professionals may have an impact on the quality of care of the patient				
1.3.1	Recognize and describe the impact of patient and dentist values, biases, and perspectives on clinical procedures	D	D	I	I
1.4	Respond to a patient's non-verbal behaviors to enhance communication				
1.4.1	Use appropriate non-verbal communication to demonstrate attentiveness, interest, and responsiveness to the patient	D	D	I	I
1.4.2	Respond to patients' non-verbal communication and use appropriate non-verbal behavior to enhance communication with patient	D	D	I	I
1.4.3	Demonstrate advanced non-verbal communication skills in difficult cases	O	O	D	D
1.5	Manage disagreements and emotionally charged conversations				
1.5.1	Describe dentist, patient, and contextual factors that lead to strong emotions	I	I	I	I
1.5.2	Manage disagreements and emotionally charged conversations	D	D	I	I
1.5.3	Demonstrate conflict-resolving skills	O	D	I	I
1.6	Adapt to the unique needs and preferences of each patient and to his or her clinical condition and circumstances				
1.6.1	Assess and appropriately address the patient's preferred involvement in decisions about care	D	D	I	I
1.6.2	Tailor approaches of decision-making according to patient capacity and preferences	D	D	I	I

1. Establish professional and therapeutic relationships with patients and their families

Second key competency

2. Elicit and synthesize accurate and relevant information by incorporating the perspectives of patients and their families

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
2.2	Provide a clear structure for managing the flow of an entire patient consultation				
2.2.1	Conduct a focused and efficient patient interview, managing the flow of the encounter while being attentive to the patient's cues and responses	D	D	I	I
2.2.2	Manage the flow of challenging patient consultations, including those with angry, distressed, or excessively talkative individuals	D	D	I	I

Third key competency

2.3	Seek and synthesize relevant information from other sources, including the patient's family, with the patient's consent				
2.3.1	Describe potential sources of information that may assist in a given patient care regimen	D	D	I	I
2.3.2	Seek and synthesize relevant information from other sources, including the patient's family, with the patient's consent	D	D	I	I

3. Share healthcare information and plans with patients and their families

3.1	Disclose incidents harmful for safety to the patients and their families accurately and appropriately				
3.1.1	Disclose incidents harmful for patient safety accurately & appropriately	D	D	I	I
3.1.2	Apologize appropriately for an incident harmful for patient safety	D	D	I	I
3.1.3	Plan and document follow up for an incident harmful for patient safety	O	O	D	D
3.1.4	Take responsibility for possible errors and report them to the supervisor	D	D	D	I

Fourth Key Competency

4. Engage patients and their families in developing plans that reflect the healthcare needs and goals of the patient

4.1	Facilitate discussions with patients in a way that is respectful, non-judgmental, and culturally safe				
4.1.1	Communicate with cultural awareness and sensitivity, and facilitate discussions with the patient in a way that is respectful and non-judgmental	I	I	I	I

4.2	Assist patients in identifying, accessing, and making use of information and communication technologies for supporting their care and managing their health				
4.2.1	Describe the various technologies and information sources available to enhance the patient's understanding and management of their healthcare	I	I	I	I
4.2.2	Assist the patient in identifying, accessing, and making use of information and communication technologies for supporting their care and managing their health	D	D	I	I

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
4.3	Use communication skills and strategies that help patients and their families make informed decisions regarding their health				
4.3.1	Use communication skills and strategies that help the patient and their families make informed decisions (based on scientific facts) regarding their health	D	D	I	I

Fifth key competency

5. Document and share written and electronic information about the medical consultation to optimize clinical decision-making, patient safety, confidentiality, and privacy

5.1	Document clinical encounters in an accurate, complete, timely, and accessible manner in compliance with regulatory and legal requirements				
5.1.1	Document clinical encounters in an accurate, complete, timely, and accessible manner in compliance with legal and privacy requirements	D	D	I	I
5.1.2	Identify and correct vague or ambiguous documentation	O	O	D	D

5.2	Communicate effectively using a written health record or electronic medical record				
5.2.1	Communicate effectively using a written health record, electronic medical record, or other digital technology	D	D	I	I

5.3	Share information with patients and others in a manner that respects patient privacy and confidentiality and enhances understanding				
5.3.1	Describe the principles and legal requirements for privacy and confidentiality of written and electronic communication	D	D	I	I
5.3.2	Assess preferences of the patient with respect to methods of information sharing	D	D	I	I
5.3.3	Adapt written and electronic communication to the specificity of the discipline and to the expectations of the patients	D	D	I	I

3. Collaborator

As collaborators, periodontists work effectively with other dental specialty departments to provide safe, high-quality, and patient-centered care.

First key competency

1. Establish and maintain a positive relationship with physicians and other colleagues in healthcare professions to support relationship-centered collaborative care

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
1.1	Communicate using a patient-centered approach that encourages patient trust and autonomy and is characterized by empathy, respect, and compassion				
1.1.1	Identify opportunities for collaboration among healthcare professionals along the continuum of care	D	D	I	I
1.1.2	Respect established rules of their team	D	D	I	I
1.1.3	Receive and appropriately respond to input from other dental specialties and departments	D	D	I	I
1.1.4	Establish and maintain healthy relationships with dentists and other colleagues to support patient-centered collaborative care	D	D	I	I
1.1.5	Analyze interactions among healthcare professionals to provide feedback for optimizing team performance for the benefit of patients	O	O	D	D
1.2	Negotiate overlapping and shared responsibilities with physicians and other colleagues in the healthcare profession in episodic and ongoing care				
1.2.1	Describe the importance of diversity in professional roles and their integration in high-quality and safe patient care	D	D	I	I
1.2.2	Describe the role and scope of practice of other healthcare professionals related to their discipline	D	D	I	I
1.2.3	Consult with other dental specialties and departments when needed	D	D	I	I
1.3	Engage in respectful shared decision-making with dentists, physicians, and other colleagues in the healthcare professions				
1.3.1	Discuss with the patient any plan for involving other dental specialties and departments	D	D	I	I
1.3.2	Integrate the patient's perspective and context into the collaborative care plan	D	D	I	I
1.3.3	Provide timely and necessary written information to colleagues to enable effective relationship-centered care	D	D	I	I
1.3.4	Engage in respectful shared decision-making with physicians and other healthcare professionals	D	D	I	I
1.3.5	Use referral and consultation as opportunities to improve quality of care and patient safety by sharing expertise	D	D	I	I
1.3.6	Use technology to enhance collaboration in healthcare	O	O	D	D

Second key competency

2. Work with dentists and other colleagues in the healthcare profession to promote understanding, manage differences, and resolve conflicts

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
2.1	Show respect towards collaborator				
2.1.1	Respond to requests and feedback in a respectful and timely manner	D	D	I	I
2.1.2	Actively listen to and engage in interactions with collaborators	D	D	I	I
2.1.3	Show respect towards collaborators and respect the diversity of expertise and perspectives among other dental specialties and departments	D	D	I	I

2.1	Show respect towards collaborator				
2.1.1	Respond to requests and feedback in a respectful and timely manner	D	D	I	I
2.1.2	Actively listen to and engage in interactions with collaborators	D	D	I	I
2.1.3	Show respect towards collaborators and respect the diversity of expertise and perspectives among other dental specialties and departments	D	D	I	I

Third key competency

3. Hand over patient care to another healthcare professional for facilitating completion of treatment

3.1	Determine when patient care should be transferred to another physician or healthcare professional				
3.1.1	Describe the cases which should be transferred to another healthcare professional	D	D	I	I
3.1.2	Determine when care should be transferred to another dental specialty or healthcare professional	D	D	I	I
3.2	Demonstrate safe handover (referral) of care, using both verbal and written communication				
3.2.1	Describe specific information required for clear and safe handover during transitions in care	D	D	I	I
3.2.2	If indicated, communicate with the receiving dental specialty or healthcare professionals during transitions in care for clarifying issues that need to be addressed after transfer	D	D	I	I
3.2.3	Analyze gaps in communication between healthcare professionals during transitions in care	D	D	I	I

4. Leader

As leaders, periodontists engage with others to contribute to a vision of high-quality health care system and take responsibility for the delivery of excellent patient care through activities involving clinicians, administrators, scholars, or teachers.

First key competency

1. Contribute to the improvement of healthcare delivery in teams, organizations, and Systems

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
1.1	Apply the science of quality improvement for improving systems of patient care				
1.1.1	Describe quality improvement methodologies	D	D	I	I
1.1.2	Apply the science of quality improvement for improving systems of patient care	D	D	D	D
1.2	Contribute to a culture that promotes patient safety and analyzes safety incidents				
1.2.1	Engage patients and their families in the continuous process of improvement of patient safety	D	D	I	I
1.2.2	Analyze harmful patient safety incidents and near-misses to enhance systems of care	O	O	D	D

Second key competency

2. Engage in the stewardship of healthcare resources

2.1	Allocate healthcare resources for optimal patient care				
2.1.1	Describe the costs of treatment and dental laboratory procedures relevant to periodontics and implant dentistry	D	D	I	I
2.1.2	Consider costs when choosing a Periodontics treatment plan	O	O	D	D
2.1.3	Use clinical judgment to minimize wasteful practices and maximize optimal patient care	O	O	D	D
2.2	Apply evidence and management processes to achieve appropriate care at minimal costs				
2.2.1	Discuss strategies to overcome the personal, patient, and organizational factors that lead to waste of healthcare resources	D	D	I	I
2.2.2	Apply evidence and guidelines with respect to resource utilization in common clinical scenarios	D	D	I	I

Third key competency

3. Demonstrate leadership in professional practice

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
3.1	Demonstrate leadership skills to enhance healthcare				
3.1.1	Describe leadership styles as they relate to healthcare	D	D	I	I
3.1.2	Demonstrate leadership skills by self-awareness, self-reflection, and self-management	D	D	I	I
3.2	Facilitate change in healthcare systems to enhance services and outcomes				
3.2.1	Develop changes in healthcare systems that help to enhance services and outcomes	D	D	I	I
3.2.2	Develop a strategy for implementing change in healthcare systems with patients, physicians, and other healthcare professionals	O	O	D	D

Fourth key competency

4. Manage their practice and career

4.1	Set priorities and manage time to integrate practice and personal life				
4.1.1	Demonstrate time management skills	D	D	I	I
4.1.2	Set priorities and manage time to integrate practice and personal life	D	D	I	I
4.2.3	Mentor others	O	O	D	D
4.2	Manage career planning, finances, and human health resources in a practice				
4.2.1	Maintain a portfolio (currently a logbook) to reflect professional development	D	D	I	I
4.2.2	Review opportunities that allow preparation for practice, including choices available for further training	D	D	I	I
4.2.3	Examine personal interests and seek career mentorship and counseling	D	D	I	I
4.2.4	Manage career and practice	D	D	I	I
4.3	Implement processes to ensure personal practice improvement				
4.3.1	Manage a personal schedule using tools and technologies	D	D	I	I
4.3.2	Improve personal practice by evaluating a problem, setting priorities, executing a plan, and analyzing the results	D	D	I	I
4.3.3	Ensure practice management credit hours (CH) during the residency (minimum of 10 CH during residency)	D	D	D	I

5. Health Advocate

As health advocates, periodontists contribute their expertise and abilities through their work with colleagues, communities, and patient populations to improve health. They work to determine and understand needs, speak on behalf of others when required, and support the mobilization of resources to influence change.

First key competency

1. Respond to an individual patient's health needs by advocating with the patient within and beyond the clinical environment

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
1.1	Work with patients to address determinants of health that affect them and their access to the required health services or resources				
1.1.1	Analyze the needs for health services related to prosthodontics (such as prevalence of missing teeth and measures to prevent them)	D	D	I	I
1.1.2	Demonstrate an approach to work with patients to advocate for health services or resources	D	D	I	I
1.2	Work with patients to increase opportunities to adopt healthy behaviors				
1.2.1	Identify resources or agencies that address the health needs of patients	D	D	I	I
1.2.2	Create health promotion and education resources	O	O	D	D

Second key competency

2. Respond to the needs of the communities or populations by advocating with them for system-level change in a socially accountable manner

2.1	Work with a community to identify the determinants of health that affect them				
2.1.1	Identify and engage communities or populations facing health inequities	D	D	I	I
2.2	Contribute to improve health in the community or population served by them				
2.2.1	Partner with others to identify the health needs of a community or population served by them (e.g. provide removable prostheses to patients in elderly houses)	D	D	I	I

6. Scholar

As scholars, periodontists demonstrate a lifelong commitment to excellence in practice through continuous learning and by teaching others, evaluating evidence, and contributing to scholarship.

First key competency

1. Engage in the continuous enhancement of their professional activities through ongoing learning

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
1.1	Develop, implement, monitor, and revise a personal learning plan to enhance professional practice				
1.1.1	Create a learning plan in collaboration with a designated supervisor for identifying learning needs related to their discipline and career goals	D	D	I	I
1.1.2	Use technology to develop, record, monitor, revise, and report learning in prosthodontics	D	D	I	I
1.1.3	Develop, implement, monitor, and revise a personal learning plan to enhance professional practice	D	D	I	I
1.2	Identify opportunities for learning and improvement by regular reflection and assessment of their performance using various internal and external data sources				
1.2.1	Define reflective learning as it relates to prosthodontics	D	D	I	I
1.2.2	Use exam results and feedback from teachers and peers to enhance self-assessment and improve learning	D	D	I	I
1.3	Engage in collaborative learning to continuously improve personal practice and contribute to collective improvements in practice				
1.3.1	Contribute to collaborative group learning	D	D	I	I
1.3.2	Identify the learning needs of a healthcare team	D	D	I	I
1.3.3	Lead learning activities of a team	O	O	D	D

Second key competency

2. Teach students, residents, public, and other healthcare professionals

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
2.1	Recognize the influence of role-modeling and the impact of the formal, informal, and hidden curriculum on learners				
2.1.1	Use strategies for deliberate, positive role-modeling	D	D	I	I
2.2	Promote a safe learning environment				
2.2.1	Ensure a safe learning environment for all members of the team	D	D	I	I
2.3	Ensure patient safety is maintained when learners are involved				
2.3.1	While teaching, ensure patient safety and identify unsafe clinical situations involving learners (junior residents or dental interns) and manage them appropriately	D	D	I	I
2.4	Plan and deliver a learning activity				
2.4.1	Demonstrate basic skills in teaching others, including peers	D	D	I	I
2.4.2	Use relevant learning theories to enhance the learning of others	D	D	I	I

2.5	Provide feedback to enhance learning and performance				
2.5.1	Provide written or verbal feedback to other learners, faculty, and other members of the team	D	D	I	I
2.5.2	Role-model regular self-assessment and feedback-seeking behavior	O	O	D	D
2.5.3	Help learners and teachers manage the emotional impact of giving and receiving feedback	O	O	D	D

2.6	Assess and evaluate learners, teachers, and programs in an educationally appropriate manner				
2.6.1	Assess teachers in an honest, fair, and constructive manner	I	I	I	I
2.6.2	Evaluate programs in an honest, fair, and constructive manner	I	I	I	I
2.6.3	Appropriately assess junior learners	D	D	I	I
2.6.4	Develop a new assessment tool or process	O	O	D	D

Third key competency

3. Integrate best available evidence into practice

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
3.3	Critically evaluate the integrity, reliability, and applicability of health-related research and literature				
2.3.1	Identify appropriate sources for answers to encountered clinical questions	D	D	I	I
3.1	Recognize uncertainties in practice and knowledge gaps in clinical and other professional encounters and generate focused questions that can address them				
3.1.1	Generate focused questions that address uncertainties in practice and knowledge gaps	D	D	I	I
3.2	Identify, select, and navigate pre-appraised resources				
3.2.1	Select appropriate sources of knowledge as they relate to addressing focused questions	O	O	D	D
3.2.2	Identify, select, and navigate pre-appraised resources	O	O	D	D
3.4	Integrate evidence for decision-making in their practice				
3.4.1	Use evidence during decision-making, as appropriate	D	D	I	I
3.4.2	Discuss the barriers and facilitators of applying evidence into practice	D	D	I	I
3.4.3	Describe how various sources of information, including studies, expert opinions, and practice audits contribute to the evidence base of prosthodontic practice	D	D	I	I
3.4.4	Identify new evidence appropriate to the scope of their professional practice through quality-appraised evidence-based services	O	O	D	D

Fourth key competency

4. Contribute to the creation and dissemination of knowledge and practices applicable to health

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
4.1	Demonstrate an understanding of the scientific principles of research and scholarly inquiries and determine the role of research evidence in healthcare				
4.1.1	Identify new evidence appropriate to the scope of their professional practice	D	D	I	I
4.1.2	Contribute to scholarly investigations or the dissemination of research findings in periodontics, implant dentistry and other oral healthcare specialties	D	D	I	I
4.1.3	Integrate research supported evidence into clinical practice	O	D	I	I
4.2	Identify ethical principles for research				
4.2.1	Describe the ethical principles applicable to research and scholarly inquiries in healthcare	D	D	I	I
4.2.2	Identify ethical principles for research and incorporate them into obtaining informed consent, considering harm and benefits, and considering vulnerable populations	D	D	I	I
4.3	Contribute to the work of a research program				
4.3.1	Contribute to the work of a research project	D	D	I	I
4.3.2	Create and lead research teams	O	O	D	D
4.3	Summarize and communicate the findings of relevant research to professional and lay audiences, including patients				
4.4.1	Summarize and communicate the findings of applicable research and scholarship to peers	I	I	I	I
4.4.2	Formally present findings of research and scholarly inquiries, including presentations in print and digital media at meetings	O	O	D	D

7. Professional:

As professionals, periodontists are committed to the health and well-being of individual patients and society through ethical practice, high personal standards of behavior, accountability to the profession and society, healthcare provider-led regulation, and maintenance of personal health.

First key competency

1. Demonstrate a commitment to patients by applying best practices and adhering to high ethical standards

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4

1.1	Exhibit appropriate professional behavior and maintain relationships in all aspects of practice				
1.1.1	Exhibit honesty and integrity with patients, peers, dentists, nurses, assistants, dental laboratory technicians and other dental department staff	D	I	I	I
1.1.2	Demonstrate care and compassion	D	I	I	I
1.1.3	Recognize and respect boundaries	D	I	I	I
1.1.4	Demonstrate sensitivity to issues concerning diversity with respect to peers, colleagues, and patients	I	I	I	I
1.1.5	Consistently maintain confidentiality in the clinical setting while recognizing the special limitations on confidentiality	I	I	I	I
1.1.6	Demonstrate punctuality	D	D	I	I
1.1.7	Complete assigned responsibilities	D	D	I	I
1.1.8	Manage complex issues while preserving confidentiality	D	D	I	I
1.1.9	Intervene when behavior towards colleagues and learners undermine a respectful environment	O	O	D	D
1.2	Demonstrate a commitment to excellence in all aspects of practice				
1.2.1	Reflect on experiences in the clinical setting to identify personal deficiencies and modify behavior accordingly	D	D	I	I
1.2.2	Demonstrate a commitment to excellence in all aspects of practice	D	D	I	I
1.4	Exhibit professional behaviors in the use of technology				
1.4.1	Explain the potential abuses of photographing patients (social media)	D	D	I	I
1.4.2	Intervene in case of professional breach involving technology	D	D	I	I
1.3	Recognize and respond to ethical issues encountered in practice				
1.3.1	Describe principles and theories of core ethical concepts	I	I	I	I
1.3.2	Manage ethical issues encountered in the clinical and academic setting	D	D	I	I

Second Key Competency

2. Demonstrate a commitment to society by recognizing and responding to societal expectations in healthcare

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
2.1	Demonstrate accountability to patients, society, and the profession by responding to societal expectations of prosthodontists				
2.1.1	Manage tensions between societal and prosthodontists' expectations	D	D	I	I
2.1.2	Show a commitment to the promotion of the public welfare in healthcare	D	D	I	I
2.2	Demonstrate a commitment to patient safety and quality improvement				
2.2.1	Demonstrate a commitment to patient safety and quality improvement through adherence to institutional policies and procedures	D	D	I	I

Third key competency

3. Demonstrate a commitment to the profession by adhering to the standards and participating in dentist-led regulations

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
3.1	Fulfill and adhere to the professional and ethical codes, standards of practice, and laws governing practice				
3.1.1	Describe how to respond to, cope with, and constructively learn from a complaint or legal action	D	D	D	D
3.2	Recognize and respond to unprofessional and unethical behaviors by dentists and other colleagues in the healthcare professions				
3.2.1	Respond to peer-group lapses in professional conduct	D	D	I	I

Fourth key competency

4. Demonstrate a commitment to physician health and well-being to foster optimal patient care

Item	Learning Outcomes	Resident level			
	Residents are able to:	R1	R2	R3	R4
4.1	Exhibit self-awareness and manage influences on personal well-being and professional performance				
4.1.1	Use strategies to improve self-awareness and enhance performance	D	D	I	I
4.1.2	Manage the impact of physical and environmental factors on performance	D	D	I	I

Study Plan:

Important note:

4. Academic Activities

4.1 General Principles

4.2 Universal Topics

4.3 Core Specialty Topics

4.3.1 Knowledge

4.3.2 Skills

4.3.3 Attitude

4.3.4 courses and workshops

In order to achieve the DENTAL EXPERT competencies, the resident must perform the following periodontal procedures under supervision at levels as listed below. Please refer to the supervising guide. The Scientific Council of Periodontics must decide the minimal number of clinical procedures to be performed by each resident to get promoted from one level to another and to appear for end-year examinations and other assessment measures.

1. General principles

Teaching and learning are structured with more responsibility for self-directed learning (SDL) and clinical reasoning. Didactic, research, and clinical-based learning are integrated into the program. Based on the directives of the SCFHS, the following curriculum is implemented:

- Every week, at least 4 to 6 hours of formal teaching time is reserved. Formal teaching time is planned in advance with an assigned tutor, time slots, and a venue.
- The Core Education Program (CEP) includes the following three formal teaching and learning activities:

- Universal topics (20–30%)
- Core specialty topics (5–60%)
- Trainee selected topics (10–20%)

- Every month, at least 1 hour should be assigned to a meeting with mentors, review of logbook, patient progress, mini-CEX, etc.
- Residents are required to attend and participate in the academic, research, and clinical activities of the training centers.

i. Scientific activities

- Periodontal core literature seminars

The purpose of this course is to provide detailed information and discuss classic literature related to various topics. Reading lists will be provided to the residents. The residents will be expected to present summaries and a critical evaluation of relevant articles or texts for group discussion. Further details of the organization of these seminars and tutorials will be provided at the start of the program.

All articles reviewed in this course will be considered for placement into the literature review course, and question papers will be set out of these articles at the end of the year.

Topics Covered in Core Literature:

- Core Literature Topics I: The Periodontal Structures and Clinical Classification
- Core Literature Topics II: Prognosis of Periodontal Diseases and Systemic Health
- Core Classic Literature Topics III: Non-Surgical Treatment of Periodontal Diseases
- Core Literature Topics IV: Surgical Periodontal Therapy- I
- Core Literature Topics V: Surgical Periodontal Therapy-II. Regeneration and Interdisciplinary Care
- Core Literature Topics VI: Implant Dentistry

Core Literature Topics I: The Periodontal Structures and Clinical Classification		
Session	**Topic**	
I. Pathophysiology of periodontal diseases		
1	The periodontal sulcus and the periodontal pocket formation	
2	Pathogenesis of gingivitis and periodontitis	
3	Formation of infrabony defects and furcation lesions	
4	Clinical and radiographic signs of periodontal health and disease	
5	Factors affecting disease progression- genetics, molecular, and local factors	
II. Periodontal diseases classification and clinical significance		
6	Classification guidelines of periodontal diseases including types, severity, and extent	
7	Gingivitis and gingival diseases and conditions. Includes: Desquamative gingivitis, erosive gingival lesions, and effect of certain medications and systemic conditions on the gingiva	
8	Periodontitis and peri-implant diseases classification I	
9	Periodontitis and peri-implant diseases Classification II (with case-based exercises)	
11	Periodontitis linked to genetic abnormalities and periodontitis in children	
12	Acute gingival & periodontal conditions: Periodontal abscess Periodontal cysts Necrotizing periodontal diseases HIV-associated periodontal lesions	
13	Mucogingival health and disease I: • Clinical impact of keratinized and attached mucosa • Gingival recession • Aberrant frenum attachment • Mucosa around dental implants • Other mucogingival anomalies	
14	Mucogingival health and disease II: • Clinical impact of keratinized and attached mucosa • Gingival recession • Aberrant frenum attachment • Mucosa around dental implants • Other mucogingival anomalies	

III. Examination, diagnosis, & progression of periodontitis	
15	A. General consideration: probe designs B. Periodontal probing depth, attachment loss, and bleeding on probing
16	Validity and significance of diagnostic indicators: mobility, furcation lesions, root anomalies, and GCF markers
17	2-D and 3-D radiologic diagnostics in periodontics
18	Advanced Topics: Technologically advanced diagnostic tools: mobility assessment devices, automated probes, blood markers, microbial DNA/PCR, and new technological updates

Core Literature Topics II: Prognosis of Periodontal Diseases and Systemic Health		
Session	**Topic**	
I. Pathophysiology of periodontal diseases		
1	Periodontal indices/epidemiology and progression studies of periodontal diseases	
2	Prognosis of dentition affected with periodontal disease	
3	Case Conference I: Clinical diagnosis and prognosis of periodontal diseases and anomalies	
V. The systemic link: Periodontal medicine		
4	Periodontal medicine: diabetes mellitus and the periodontium	
7	Periodontal health in women: considerations for pregnancy, oral contraceptive, and postmenopausal status	
6	Periodontal manifestations of smoking, nicotine, smokeless tobacco, and chewable substances	
7	Management of patients undergoing chemotherapy, radiotherapy, and prescribed immunosuppressants and anticoagulants, and the rationale and protocols for premedication with antibiotics, steroids, and other medications.	
8	Periodontal medicine: interaction between periodontal and peri-implant health and other medical conditions and medications.	
VI. Management of periodontal diseases and anomalies		
9	• Treatment planning for management of periodontal diseases and anomalies	
10	• Case Conference I: Treatment planning for management of periodontal diseases and anomalies	
11	• Case Conference II: Treatment planning for management of periodontal diseases and anomalies	
12	Personalized management of biofilm: office and home plaque control techniques: • Oral hygiene education and motivation • Smoking cessation; motivation towards better health • Brushing technique and oral hygiene education accustomed to patient needs and conditions • Periodontally recommended oral rinses and toothpastes • Supragingival irrigation and water-pumps • Interdental cleaning: floss, tape, and brushes	

13	Prescription protocols of chlorhexidine and other chemotherapeutic oral preparations in periodontal health customized to patient needs	
14	Dentine hypersensitivity: etiology, diagnosis and management	
15	Elective topic (decided by the training center)	

Core Classic Literature Topics III- Non-Surgical Treatment of Periodontal Diseases		
Session	**Topic**	
VII. Non-surgical periodontal care		
1	Overview of objectives and realistic expectations of non-surgical periodontal therapy for gingivitis and periodontitis. Factors affecting the effectiveness and success of mechanical therapy	
2	Expected histologic and clinical healing outcomes of periodontal tissues after non-surgical therapy: new attachment/ reattachment/repair/clinical parameter changes	
V. The systemic link: Periodontal medicine		
3	Mechanical therapy: manual scaling, root planning, and polishing	
4	Mechanical therapy: ultrasonic scalers, their types, and effectiveness	
5	Chemical root surface treatments, local/topical antimicrobials (includes subgingival irrigation, lasers, and photodynamic therapy)	
5	Evidence-based use of systemic antimicrobial agents in management of periodontal diseases	
6	Advanced concepts on periodontal disease control: host modulation therapy and precision medicine in management of periodontitis	
7	• Re-evaluation of mechanical therapy and rationale for surgical periodontal therapy.	
8	• Evidence-based dentistry: outcomes of non-surgical therapy: long term studies.	
IX. Introduction to surgical therapy		
9	Periodontal surgical instruments and burs: selection criteria and four-handed dentistry setup	
10	Surgical therapy: types of surgical incisions and flaps used in periodontics and implant dentistry	
11	Postoperative healing management: includes dressings and sutures: selection criteria and rationale	
12	Hands-on practice session on surgical competency techniques	
13	Laser surgery in periodontics: evidence-based concepts	
14	Piezo-surgical techniques in periodontics	
15	Center elective: (suggested: Hands-on on laser and piezosurgery)	

Core Literature Topics IV: Surgical Periodontal Therapy- I		
Session	**Topic**	
X. Surgical therapy rationale and techniques		
1	Soft tissue plastic surgery: gingivectomy/gingivoplasty/wedge designs/coronally advanced flaps	
2	Mucogingival procedure: Frenectomy- rationale and techniques (classic and laser)	
3	Root coverage techniques: pedicle flaps, coronally positioned flap, and free gingival graft	
4	Autogenous connective tissue graft: techniques and sources	
5	Soft tissue allografts and xenografts	
6	Histologic and clinical healing after mucogingival surgery	
7	Osseous resective techniques (I) to manage periodontitis	
8	• Osseous resective techniques (II) to manage periodontitis	
9	• Crown lengthening surgery: biologic and restorative rationale and techniques	
10	Wound healing after resective surgery	
XI. Periodontal maintenance & longitudinal studies		
11	Periodontal maintenance & longitudinal studies (I)	
12	Periodontal maintenance & longitudinal studies (II)	
13	Occlusal therapy: splinting, occlusal adjustment, and occlusal devices	
14	Elective topic (decided by the training center)	
15	Elective topic (decided by the training center)	

XII. Regenerative Therapy		
Session	**Topic**	
XII. Regenerative Therapy		
1	Introduction to regenerative therapy: classification of bone defects around teeth and in alveolar ridge. Rationale and clinical indications of regenerative therapy	
2	Regenerative periodontal therapy: bone graft indications Regenerative techniques: intraoral autogenous grafts: granular, chips, and block Regenerative techniques: extraoral autogenous grafts including iliac crest	
3	Allografts use in regenerative therapy: including demineralized freeze-dried bone allograft (DFDBA)	
4	Other types of grafts: alloplasts and xenografts	
5	Guided tissue regeneration (GTR) and guided bone regeneration (GBR): concept and non-absorbable membranes in GTR and GBR	
6	Biodegradable membranes in GTR and GBR	
7	Surgical management of furcation lesions (regenerative vs. non-regenerative)	
8	Alveolar ridge types, socket healing after extraction, and ridge preservation and augmentation	

XIII. Interdisciplinary concepts		
9	Interdisciplinary consideration: endodontic-periodontal relations: endodontic-periodontic lesions and periodontal-endodontic lesions, influence of endodontic status on success of different modalities of periodontal therapy and implant dentistry	
10	Interdisciplinary consideration: periodontally enhanced orthodontics including corticotomy, piezocision, teeth impactions, aberrant frenum positions, orthodontics in periodontitis patients, space creation for dental implants, and mucogingival effect of orthodontic therapy	
11	Interdisciplinary consideration: esthetic concepts in restorative and implant dentistry, biologic width, esthetic smile design, and design of esthetic treatment plans including digital smile design, use of CAD-CAM technology, and 3D printing.	
12	Interdisciplinary consideration: periodontal-prosthetic collaboration: managing the crown : root ratio, prosthetic prognosis vs. periodontal prognosis, effect of prosthetic designs on periodontal status, and effect of prosthetic materials on the periodontium	
XIV. Advanced topics in periodontics		
13	Elective topic: (suggested hands on: computer-guided surgical planning for periodontics and implant dentistry (includes CAD-CAM, software applications, and digital smile design)	
14	Elective topic (to be decided by the training center)	
15	Elective topic (to be decided by the training center)	

Core Literature Topics VI: Implant Dentistry		
Session	**Topic**	
XV. Implant dentistry		
1	Implant dentistry basics: • Definitions of osseointegration and functional ankylosis. • Histology of osseo-integrated implants. • Classification of implant placement timings and types of placement	
2	Biomaterials and biomechanics: titanium alloys, micro and macro designs of dental implant fixtures, and implant-abutment connections	
3	Implant dentistry, diagnosis, treatment planning: surgical site anatomy and diagnostic tools	
4	Digital workflow of dental implants and CAD-CAM technology in implant dentistry	
5	Surgical techniques for placement of dental implant fixtures: technique selection, indications, and contraindications	
6	Surgical technique: advanced techniques for placement of dental implant fixtures (includes immediate placement and immediate loading)	
7	Advanced techniques in hard tissue augmentation and GBR	
8	Soft tissue significance and management around dental implants	
9	Sinus augmentation techniques, success, and complications	
10	Restorative and biomechanical guidelines and types of provisional and permanent loading of dental implants (focus on immediate provisionalization)	

11	Microbiology of healthy and diseased implants	
12	Evidence-based success of dental implants: • Long-term survival and success studies. • Influence of medical conditions, smoking, and medications on success of dental implant therapy. • Contraindications of dental implants.	
13	Maintenance protocols of implant fixtures and restorations and management of surgical complications and failures of dental implants	
14	Management of peri-implant diseases including peri-implantitis	
15	Elective topic (to be decided by the training center) Suggested: Hands-on provisional loading of dental implants	
16	Elective topic (to be decided by the training center)	

Periodontal Journal Club (JC)

This is a literature seminar designed to acquaint residents with the current periodontal literature. All of the major journals devoted to periodontal and dental implants were reviewed selectively. Selected articles were also reviewed from other major journals. The purpose of this seminar is to provide experience in reading, abstracting, and evaluating the most recently published ideas and concepts in the field of periodontology and dental implantology.

Assessment of the progress of the residents through Case Presentation Seminar.

During the second year, residents will be required to present the various phases of treatment of their patients for discussion within the group. This will provide residents with the opportunity to see and discuss a wide range of problems. Emphasis will be placed on diagnosis and treatment planning.

a. Rationale

Residents' presentation of clinical cases will serve as the basis for discussion of diagnosis and treatment philosophies and for evaluation of residents' clinical performance.

b. Materials

Residents are required to present cases which demonstrate a broad spectrum of treatment procedures with justification and thorough documentation. The diversity and complexity of the procedures must be documented along with the exceptional skills and expertise required in periodontal treatment. Each resident should demonstrate a clear and precise understanding of the rationale for treatment course, differential diagnosis, alternative approaches to treatment, and the biological basis for modern periodontal practice. Consultations, as needed to support the presentations, are prerequisites for cases presented.

c. Calendar of activities

The schedule of seminars and assignments will be distributed before the course commences.

d. Evaluation

The following categories will be evaluated:

- Diagnostic approach
- Clinical approach
- Rationale of therapy
- Background literature

Supervisors will observe and evaluate the case presented, the quality of the resident's response, familiarity, experience, confidence, authority, and manner of presentation.

Text Book Review Course

The objective of this course is to review the current techniques and philosophies of periodontal practice, as presented in current textbooks. The textbooks recommended are the latest editions of:

- Clinical Periodontology and Implant Dentistry (latest edition by Jan Lindhe, Niklaus P. Lang, and Thorkild Karring).
- Carranza's Clinical Periodontology (latest edition by Michael G. Newman, Henry Takei, Perry R. Klokkevold, DDS, MS, and Fermin A. Carranza).
- Periodontics: Medicine, Surgery, and Implants (latest edition by Louis F. Rose, Brian Mealey and Robert Genco).
- Atlas of Cosmetic and Reconstructive Periodontal Surgery (latest edition by E. Cohen).

The book review is expected to meet the following criteria:

a. Allow the candidate to learn from books at the graduate level rather than from undergraduate study.

b. Discuss topics rather than chapters to explain the topic with different concepts, approaches, and opinions.

c. Conduct a comparison between periodontal methods and techniques originating from different schools of thoughts.

In addition, evaluation will depend on the resident's effort and participation in oral and written presentations.

Periodontics Interdisciplinary Seminars

(1st option: R4 Saudi Board in Periodontics residents are required to prepare a review on a topic and a presentation of a clinical case that requires an interdisciplinary approach with senior residents from other specialties.

2nd option: Literature review seminars moderated by faculties from each discipline)

Seminars focusing on the interrelation of periodontics with other specialties, such as endodontics, orthodontics, pediatric dentistry, and prosthodontics.

Periodontic–Endodontic Interdisciplinary Seminars

A seminar held in conjunction with endodontics on the clinical, cellular, and molecular aspects of inflammation as it relates to acute inflammation of endodontic origin, chronic destructive periodontal disease, and healing and repair of periodontal wounds.

Periodontic/Pediatric Dental Interdisciplinary Seminars

Seminars on periodontal diseases in pediatric and adolescent dental patients. The literature of common interest in both specialties is reviewed in conjunction and discussed with residents of pediatric dentistry.

Periodontic/Prosthodontic/Restorative Interdisciplinary Seminars

Seminars on the periodontal problems related with prosthodontics. The literature of common interest in both specialties is reviewed and discussed with residents of prosthodontics.

Periodontic/Orthodontic Interdisciplinary Seminars

Seminars on the periodontal problems related with orthodontics. Literature of common interest in both specialties is reviewed and discussed with residents in orthodontics.

2. Universal topics

The universal topics are developed centrally for all specialties as the SCFHS e-learning module. The presentation format of

these topics is more didactic and has a self-assessment at the end of the module. The Saudi Commission recommends prioritizing the selection of universal courses based on:

- High value
- Interdisciplinary and integrated approach
- Expertise that might be beyond the availability of the local clinical training sites

Rationale

These are high value, interdisciplinary topics of utmost importance to the trainee. The reason for delivering the topics centrally is to ensure that every trainee receives high quality teaching and develops essential core knowledge. These topics are common to all specialties.

The topics selected here should meet one or more of the following criteria:

- Impactful: Topics that are common or life-threatening.
- Interdisciplinary: Topics that are difficult to teach through a single discipline.
- Orphan: Topics that are poorly represented in the undergraduate curriculum.
- Practical: Topics that trainees encounter in hospital practice.

Development and delivery method

These topics will be developed and delivered centrally by the Saudi Commission through an e-learning platform. A set of preliminary learning outcomes for each topic will be developed.

These topics will be didactic in nature with a focus on practical aspects of care. Their content will be heavier than that of workshops and other planned face-to-face interactive sessions.

The suggested duration for each topic is 1 hour and 30 minutes.

Assessment

The topics will be delivered in a modular fashion. At the end of each learning unit, there will be an online formative assessment. After completion of all topics, there will be a combined summative assessment in the form of context-rich MCQs. All trainees must attain minimum competency in the summative assessment. Alternatively, these topics can be assessed in a summative manner along with specialty examination.

According to the directive of the Saudi Council for health Specialties SCFHS, **14 topics were selected** out of the 36 topics. In this curriculum, the highlighted and underlined ones are the selected topics:

Mod	Topic	Subtopic
1	Introduction	1. Prescribing safe drugs 2. Hospital-acquired infections 3. Sepsis; Systemic inflammatory response syndrome (SIRS); Disseminated intravascular coagulopathy (DIC) 4. Antibiotic stewardship 5. Blood transfusion
2	Cancer	6. Principles of management of cancer 7. Side effects of chemotherapy and radiation therapy

Mod	Topic	Subtopic
3	Diabetes & metabolic disorders	11. Recognition and management of diabetic emergencies 12. Management of diabetic complications 13. Comorbidities of obesity 14. Abnormal ECG
4	Medical & surgical emergencies	15. Management of acute chest pain 16. Management of acute breathlessness 17. Management of altered sensorium 18. Management of hypotension and hypertension 19. Management of upper GI bleeding 20. Management of lower GI bleeding
5	Acute care	21. Preoperative assessment 22. Postoperative care 23. Acute pain management 24. Chronic pain management 25. Management of fluid in hospitalized patient 26. Management of electrolyte imbalance
6	Frail elderly	27. Assessment of frail elderly 28. Mini-mental state examination 29. Prescribing drugs in the elderly 30. Care of elderly
Mod	**Topic**	**Subtopic**
7	Ethics &Healthcare	31. Occupational hazards of HCW 32. Evidence-based approach to smoking cessation 33. Patient advocacy 34. Ethical issues: transplantation/organ harvesting; withdrawal of care 35. Ethical issues: treatment refusal; patient autonomy 36. Role of doctors in death and dying

Universal topics, learning outcomes, and competencies of selected courses are listed below:

Course and outcomes At the end of each learning unit, resident should be able to	Resident level			
	R1	R2	R3	R4
	CanMEDS role covered			

1. Prescribe safe drugs	
• Recognize the importance of prescribing safe drugs in healthcare • Describe the various adverse drug reactions with examples of commonly prescribed drugs that can cause such reactions • Apply principles of drug-drug interactions, drug-disease interactions, and drug-food interactions in common situations • Apply principles of prescribing drugs in special circumstances such as renal failure and liver failure • Apply principles of prescribing drugs in the elderly, pediatric patients, and during pregnancy and lactation • Promote evidence-based, cost effective prescription of drugs • Discuss ethical and legal framework governing safe-drug prescription in Saudi Arabia	• Dental Expert • Leader Health • Advocate • Professional

2. Hospital acquired infection (HAI)	
• Discuss the epidemiology of HAI with special reference to HAI in Saudi Arabia • Recognize HAI as one of the major emerging threats in healthcare • Identify the common sources and setups of HAI • Describe the risk factors of common HAIs such as ventilator associated pneumonia, methicillin-resistant Staphylococcus aureus (MRSA) infection, central line-associated bloodstream infections (CLABSI), vancomycin resistant Enterococcus (VRE) infection. • Identify the role of healthcare workers in the prevention of HAI • Determine appropriate pharmacological (e.g., selected antibiotic) and non-pharmacological (e.g., removal of indwelling catheter) measures in the treatment of HAI • Propose a plan to prevent HAI in the workplace	• Dental Expert • Health Advocate

3. Antibiotic stewardship	
• Recognize antibiotic resistance as one of the most pressing public health threats globally • Describe the mechanism of antibiotic resistance • Determine the appropriate and inappropriate use of antibiotics • Develop a plan for safe and proper antibiotic use including appropriate indications, duration, types of antibiotic, and discontinuation • Appraise the local guidelines in the prevention of antibiotic resistance	

4. Side effects of chemotherapy and radiation therapy	
• Describe the important side effects (e.g., frequent or life- or organ-threatening) of common chemotherapy drugs • Explain the principles of monitoring side effects in a patient undergoing chemotherapy • Describe the measures (pharmacological and non-pharmacological) available to ameliorate side effects of commonly prescribed chemotherapy drugs • Describe the important (e.g., common and life-threatening) side effects of radiation therapy • Describe measures (pharmacological and non-pharmacological) available to ameliorate side effects of radiotherapy	• Dental expert

5. Recognition and management of diabetic emergencies	
• Describe pathogenesis of common diabetic emergencies including their complications • Identify risk factors and groups of patients vulnerable to such emergencies • Recognize a patient presenting with diabetic emergencies • Institute immediate management • Refer the patient to appropriate next level of care • Counsel patient and families to prevent such emergencies	• Dental Expert • Collaborator • Health Advocate

6. Management of hypotension and hypertension	
• Triage and categorize patients • Identify patients who need prompt medical and surgical attention • Generate preliminary diagnosis based on history and physical examination • Order and interpret urgent investigations • Provide appropriate immediate management to patients • Refer the patients to next level of care, if needed	• Dental Expert • Collaborator

7. Preoperative assessment	
• a) Describe the basic principles of preoperative assessment • b) Perform preoperative assessment in uncomplicated patients with special emphasis on i. General health assessment ii. Cardiorespiratory assessment iii. Medications and medical device assessment iv. Drug allergy • c) Categorize patients according to risks	• Dental Expert • Health Advocate • Communicator

8. Postoperative care	
• Devise a postoperative care plan including monitoring of vitals, pain management, fluid management, medications, and laboratory investigation • Hand-over the patients properly to appropriate facilities • Describe the process of postoperative recovery in a patient • Identify common postoperative complications • Monitor patients for possible postoperative complications • Institute immediate management for postoperative complications	• Dental Expert • Communicator

9. Acute pain management	
• Review the physiological basis of pain perception • Proactively identify patients who might be in acute pain • Assess a patient with acute pain • Apply various pharmacological and non-pharmacological modalities available for acute pain management adequately and ethically • Provide adequate pain relief for uncomplicated patients with acute pain • Collaborate with clinical pharmacist for safe prescription of pain medications for patients along with other medical precautions. • Comply with national regulations for prescription of controlled substances	• Dental Expert • Collaborator • Communicator

10. Prescribe drugs in the elderly	
• Discuss the principles of prescribing drugs in the elderly • Identify risk of oral problems in geriatric patients • Recognize polypharmacy, prescribing cascade, inappropriate dosages, inappropriate drugs, and deliberate drug exclusion as major causes of morbidity in the elderly • Describe the physiological and functional declines in the elderly that contribute to increased drug related adverse events • Discuss drug-drug interactions and drug-disease interactions among the elderly • Familiarity with Beers criteria • Develop a rational prescribing habit for the elderly • Counsel elderly patients and families on safe medication use	• Dental Expert • Collaborator • Communicator

11. Occupational hazards of healthcare workers (HCW)	
• Recognize common sources and risk factors of occupational hazards among the HCW • Describe common occupational hazards in the workplace • Develop familiarity with legal and regulatory frameworks governing occupational hazards among the HCW • Develop a proactive attitude to promote workplace safety • Protect oneself and colleagues against potential occupational hazards in the workplace	• Dental Expert • Collaborator • Leader • Professional

12. Patient advocacy	
• Define patient advocacy • Recognize patient advocacy as a core value governing medical practice • Describe the role of patient advocates in patient care • Develop a positive attitude towards patient advocacy • Be an advocate for the patient in conflicting situations • Be familiar with local and national patient advocacy groups	• Dental Expert • Health Advocate • Communicator

13. Ethical issues: treatment refusal and patient autonomy	
• Predict situations where a patient or family is likely to decline prescribed treatment • Describe the concept of 'rational adult' in the context of patient autonomy and treatment refusal • Analyze key ethical, moral, and regulatory dilemmas in treatment refusal • Recognize the importance of patient autonomy in the decision-making process • Counsel patients and families declining medical treatment in the light of best interest of patients	• Dental Expert • Professional • Communicator

14. Evidence-based approach to smoking cessation	
• Recognize impact of smoking on oral and general health • Identify the different types of nicotine products used including smokeless and chewable substances, electronic and other sources of nicotine, tobacco products and their regional distribution. • Identify signs of oral malignant and premalignant lesions associated with these products. • Discuss ethical and legal framework governing substance abuse reporting in Saudi Arabia. • Explain risks of smoking on periodontal and implant treatment outcomes to patients. • Counsel patients on smoking cessation. • Identify techniques and materials used to help patients who want to quit smoking. • Design smoking cessation plans for patients	• Dental Expert • Leader Health • Advocate • Professional

3. Core specialty topics

1. Knowledge

1. Demonstrate a clear understanding of the nature and etiology of periodontal diseases.
2. Conduct and accurately record the findings of a comprehensive periodontal examination.
3. Assess the patient for the presence of etiologic and risk factors contributing to periodontal diseases.
4. Diagnose periodontal diseases.
5. Develop an individual, comprehensive, and sequential treatment plan for patients with advanced periodontitis using diagnostic and prognostic information which also incorporates patient's goals, values, and concerns.
6. Treat and/or manage patients with gingival diseases and periodontitis, including patient education, management of interrelated systemic health, and effective subgingival scaling and root planing.
7. Evaluate the outcomes of periodontal therapies provided to the patients.
8. Provide and assess the success of periodontal maintenance for patients with periodontitis.
9. Demonstrate decision-making skills in therapeutic and referral options for treatment of patients with moderate to severe chronic periodontitis.

10. Evaluate the clinical conditions in patients who require advanced treatment (moderate to severe chronic periodontitis, aggressive forms of periodontitis, mucogingival conditions, periodontal disease associated with systemic disease, or periodontitis that is refractory to treatment) by effective communication and coordination of therapy with restorative and referring dentists, when appropriate.

Detailed clinical competencies in periodontics program:

1) Comprehensive extraoral and intraoral examination and analysis
2) Periodontal charting
3) Periodontal diagnosis
4) Occlusal analysis
5) Prognosis
6) Comprehensive treatment planning of complex periodontal cases

a. Periodontitis of all severity types, grades, and modifying factors
b. Periodontitis in medically sick patients
c. Peri-implant diseases
d. Periodontal medicine
e. Periodontal diseases in relation to other dental problems
f. Management of periodontal health for patients on antineoplastic and immunosuppressive therapy
g. Mucogingival problems

7) Comprehensive treatment planning of multidisciplinary cases (including cases related to periodontics, restorative dentistry, and orthodontics) including:

a. Analogue wax-up
b. Digital and analogue smile design
c. CBCT and radiographic analysis
d. Implant surgical planning guide
i. Analogue
ii. Digital CAD-CAM

8) Level of supervision and privileges of residents at different competency (knowledge) levels during the residency years.

No	Domain	periodontics topics-including clinical practice	Resident level			
			R1	R2	R3	R4
1	**General Competencies: Dental expert** Communicator Collaborator Professional Advocate Leader	Diagnostic photographs	I	I	I	I
2		Radiographs- intraoral and panoramic	I	I	I	I
3		Anesthesia- local and regional block	I	I	I	I
4		Preliminary impressions	I	I	I	I
5		Diagnosis	D	D	I	I
6		Mock work-up	D	D	I	I
7		Simple treatment plan	D	D	I	I
8		Comprehensive treatment plan	D	D	D	I
9		Periodontal charting	D	I	I	I
10		Periodontal diagnosis	D	I	I	I

11		Occlusal analysis	D	D	I	I
12		Prognosis assignment	D	I	I	I
13		Comprehensive treatment planning of complex periodontal cases	D	I	I	I
14		a. Periodontitis of all severity types, grades, and modifying factors	D	D	I	I
15		b. Periodontitis in medically sick patients	D	D	I	I
16		c. Peri-implant diseases	D	D	I	I
17		d. Periodontal medicine	D	I	I	I
18		e. Periodontal diseases in relation to other dental problems	D	I	I	I
19		f. Management of periodontal health for patients on antineoplastic and immunosuppressive therapy.	D	D	I	I
20		g. Mucogingival problems	D	D	I	I
21		Comprehensive treatment planning of multidisciplinary cases (including cases of periodontics, restorative dentistry, and orthodontics) :	D	D	I	I
22		a. wax-up	D	I	I	I
23		b. Digital and analogue smile design	D	I	I	I
24		c. CBCT and radiographic analysis	D	I	I	I
25		d. Implant surgical planning guide	D	I	I	I
26		i. Analogue	D	I	I	I
27		ii. Digital CAD-CAM	D	D	I	I
28		Clinical safety protocols: universal precautions	D	I	I	I
29		Clinical safety protocols: radiological safety	D	I	I	I
30		Clinical safety protocols and advocacy: patient consent	D	I	I	I
31		Clinical safety protocols: four-handed dentistry	D	I	I	I
32		Leadership of team: surgical clinical setup	0	D	D	I
33		Communication with patient: delivery of bad news	0	D	I	I
34		Collaboration skills: consultation and referral	D	D	II	
35	**Non-surgical periodontal competencies I** Dental Expert Professional	Scaling and root planing: mechanical and ultrasonic	D	I	I	I
36		Polishing	D	I	I	I
37		Occlusal management: adjustment, splinting, and occlusal guard	D	D	I	I
38		Use of medications in periodontics: chemical, anti-microbial, and host modulation	D	D	I	I

No	Domain	periodontics topics-including clinical practice	Resident level			
			R1	R2	R3	R4
39	**Non-surgical periodontal competencies II:** Dental Expert Communicator Collaborator Professional Advocate	Oral hygiene education for patients with complex needs	D	I	I	I
40		Manage nutritional and malnutrition impact on oral tissues	D	I	I	I
41		Management of dentin hypersensitivity	D	I	I	I
42		Re-evaluation of non-surgical therapy outcomes	D	I	I	I
43		Maintenance of patients treated for periodontal diseases	D	I	I	I
44		Management of peri-implantitis cases (non-surgical)	-	D	I	I

Minimal competency requirements in clinical knowledge, skills, and perspectives:

No	Domain	Dental-periodontics topics	Resident level			
			R1	R2	R3	R4
1	**General Competencies:** **Dental expert** Communicator Collaborator Professional Advocate Leader	Diagnostic photographs	4	3	2	1
2		Radiographs- intraoral and panoramic	4I	3	2	1
3		Anesthesia- local and regional block	4	3	2	1
4		Preliminary impressions	4	3	2	1
5		Diagnosis	4	3	2	1
6		Mock work-up	1	1	2	2
7		Simple treatment plan	4	3	2	2
8		Comprehensive treatment plan	2	2	4	4
9		Periodontal charting	4	3	2	2
10		Periodontal diagnosis	4	4	2	2
11		Occlusal analysis	2	2	1	1
12		Prognosis assignment	2	2	3	3
13-20		**Comprehensive treatment planning of complex periodontal cases**				
		a. Stage I and II periodontitis	4	2	2	2
		b. Stage III and IV periodontitis	-	4	4	4
		c. Peri-implant diseases	-	-	1	2
		d. Periodontal medicine	-	1	2	2
		e. Periodontal diseases in relation to other systemic problems and medications	1	2	3	2
		f. Management of periodontal health for patients on antineoplastic and immunosuppressive therapy.	1	2	2	2
		g. Mucogingival problems	1	3	4	4
20-27		Comprehensive treatment planning of multidisciplinary cases (includes periodontics, restorative dentistry, orthodontics, and digital workflow) including:	1	2	3	3
		a. Analogue study model and wax-up	-	1	2	1
		b. Digital and analogue smile design	-	1	2	3
		c. CBCT and radiographic analysis	1	3	5	5
		d. Implant surgical guide	-	2	5	6
		i. Analogue	-	1	2	2
		ii. Digital CAD-CAM	-	1	3	4
28		Clinical safety protocols: universal precautions	3	3	2	2
29		Clinical safety protocols: radiological safety	3	3	2	2
30		Clinical safety protocols & advocacy: patient consent	5	5	5	5

31		Clinical safety protocols: four-handed dentistry	3	3	3	3
32		Leadership of team: surgical clinical setup	1	3	4	5
33		Communication with patient: delivery of bad news	1	2	3	3
34		Collaboration skills: consultation and referral	3	3	4	5
35-38	**Non-surgical periodontal competencies I** Dental Expert Professional	Scaling and root planing: mechanical and ultrasonic	6	5	4	2
		Polishing	4	3	2	1
		Occlusal management: adjustment, splinting, and occlusal guard	2	2	3	3
		Use of medications in periodontics: chemical, anti-microbial, and host modulation	3	5	5	5

CHAPTER 4: RESEARCH

1. Mission

To prepare periodontists to provide the highest quality of oral healthcare to the community, and to advance knowledge and its application through research according to national and international standards.

2. General objectives

1. This research course is designed to provide residents with the knowledge and skills necessary to conduct a high standard research project following a methodology based on ethics and scientific evidence.

3. Introduction:

Residents are required to complete a research project as an integral part of the periodontics training program. Each resident should select a mentor and a research idea in the second year of training. Upon initial approval of the research project, residents should officially submit their research proposal at the end of the second year. Residents will then be asked to present their research question and/or research idea at the beginning of the third year to the SCFHS regional committee and their respective periodontics supervisors at the weekly scientific activity.

On the commencement of the third residency year, residents must conduct the research project with two sessions per week that are dedicated to the research project. At the beginning of the second semester (third year), residents will be required to perform a second presentation, similar to the first one with the addition of the results and discussion sections. Generally, residents are expected to submit their research project by the end of the third year. However, based on the nature and scope of the research, the submission could be deferred to the fourth year. Residents are encouraged to publish their research project and present it to national and international events. The presentation should clearly cover the following points:

1. Research question
2. Introduction
3. Literature review
4. Hypothesis and aim
5. Material and methods
6. Results
7. Discussion
8. Conclusion

Residency year	Semester	Clinical sessions	Research sessions	Remarks
R1	First	6-8	0	
	Second	6-8	0	
R2	First	6-8	0	
	Second	6-8	0	• Selection of mentor • Selection of research project
R3	First	4-6	2	• 1st research project presentation (Proposal) • Conduct research
	Second	4-6	2	• 2nd research project presentation (Final) • Submission of research project

R4	First	6-8	0-2	• Delayed submission of research project (based on the nature and scope)
	Second	6-8	0	

4. Specific CanMEDS roles of research:

1. Dental Expert	
1.1	Integrate the CanMEDS intrinsic roles into their research project
1.2	Critically review the scientific literature of the research project
1.3	Understand the basic principles of research design, methodology, and biostatistics
1.4	Demonstrate in-depth knowledge of the research project
2. Communicator	
2.1	Demonstrate communication skills by presenting the research project through PowerPoint presentations or posters.
2.2	Demonstrate skills in defending his/her research idea/concept
2.3	Demonstrate appropriate communication skills when the research deals with human sub-jects
3. Collaborator	
3.1	Collaborate with the research team
3.2	Identify, consult, and collaborate with appropriate experts to conduct the research
4. Scholar	
4.1	Develop contextual research questions
4.2	Design a research project to answer the questions
4.3	Review the scientific literature relevant to the research project
4.4	Use the appropriate materials and methods to conduct a research project
4.5	Assess and analyze results to recommend further researches and investigations
5. Health advocate	
5.1	Contribute in improving the oral health of patients and communities by conducting scientific researches
5.2	Recognize the implications and consequences of a variety of common prosthodontic-related oral health prob-lems that require patient education for prevention.
6. Leader	
6.1	Select a mentor and a research project
6.2	Independently design the research and use available resources
6.3	Demonstrate effective time management in conducting and submitting the research project
6.4	Demonstrate leadership qualities in leading a research project
7. Professional	
7.1	Maintain high ethical and professional standards when conducting a research project such as avoiding intol-erable habits such as plagiarism
7.2	Publish accurate research results
7.3	Disclose potential personal or financial conflict of interest
7.4	Use the appropriate materials and methods to conduct a research project
7.5	Assess and analyze results to recommend further researches and investigations

Additionally, the residents are encouraged to read and understand the new SCFHS publication (Introduction to Clinical Research for Residents).
http://www.scfhs.org.sa/Media/OtherPublications/Documents/Introduction%20to%20Clinical%20Research%20for%20Residents%20(16.9.14)%20Hani%20Tamim%20(FC1).pdf

2. Skills:

Below is a summary of the clinical skills that the resident will acquire by completion of the study plan.

1) Non-surgical periodontal treatment: Procedures and outcome assessment

a. Scaling and root planing: mechanical and machine based
b. Polishing
c. Occlusal management: adjustment, splinting, and occlusal guard
d. Use of medications in periodontics: chemical, anti-microbial, and host modulation
e. Oral hygiene education for patients with complex needs
f. Manage nutritional and malnutrition impact on oral tissues
g. Management of dentin hypersensitivity
h. Re-evaluation of non-surgical therapy outcomes
i. Maintenance of patients treated for periodontal diseases

2) Surgical competencies: Documented competencies that include rationale, planning, techniques, patient education, consent, outcome, and management of complications.

a. Full thickness flap
b. Partial thickness flap
c. Apical repositioned flap
d. Coronally positioned flap
e. Tunnel techniques for soft tissue and bone grafts
f. Osseous resective surgery
g. Gingivoplasty and gingivectomy
h. Suturing techniques, materials, and indications.
i. Mucogingival procedures to augment soft tissues around teeth and dental implants
- i. Free gingival graft (FGG)
- ii. Connective tissue graft (CTG)
- iii. Allograft/xenograft

j. Esthetic crown lengthening and periodontal management of esthetic cases
k. Periodontally enhanced orthodontic procedures
l. Frenectomy and frenoplasty techniques and rationale
m. Soft tissue lasers
n. Hard tissue lasers
o. Piezosurgery
p. Miniscrews for orthodontic purposes
q. Regenerative periodontal therapy including:
i. Guided Tissue Regeneration “GTR”- membranes and materials
ii. Bone graft to manage periodontal defects
r. Guided Bone Regeneration “GBR” and grafting for dental implant purposes
s. Harvest and placement/use of autogenous grafts
t. Fixation and coverage of block grafts (autogenous/allograft/synthetic)
u. Management of postoperative surgical complications of periodontal and implant procedures
v. Sinus elevation procedures
w. Soft tissue grafts to augment soft tissues around implants
x. Different dental implant placement protocols (examples):
- i. Immediate
- ii. Early
- iii. Delayed
- iv. Simultaneous with bone graft/GBR

v. Immediate and provisional loading of dental implants
vi. Short and narrow implants
y. Computer-guided surgical planning for periodontal and implant procedures
z. Dental implant explantation techniques
aa. Management of peri-implant problems (surgical and non-surgical)

3. Level of supervision and privileges of residents related to the surgical skills and competencies during the four years

No	Domain	Part 1: General periodontal surgical procedures	Resident level			
			R1	R2	R3	R4
45	**Surgical competencies:** Dental expert Communicator Collaborator Professional Advocate Leader	Full thickness flap	I	I	I	I
46		Partial thickness flap	I	I	I	I
47		Apical repositioned flap	I	I	I	I
48		Coronally positioned flap	I	I	I	I
49		Laterally rotated pedicle	D	D	I	I
50		Tunnel techniques for soft tissue grafts	D	D	I	I
51		Osseous resective surgery	D	D	I	I
52		Gingivoplasty	D	D	D	I
53		Gingivectomy	D	I	I	I
54		Mucogingival procedures to augment soft tissues around teeth and implants	D	I	I	I
55		i. Free gingival graft	D	D	I	I
56		ii. Connective tissue graft	D	D	I	I
57		iii. Allograft/xenograft	D	D	I	I
58		Osseous crown lengthening	D	D	I	I
59		Esthetic crown lengthening	D	D	I	I
60		Periodontally enhanced orthodontic proce-dures	D	D	I	I
61		Frenectomy/frenoplasty	D	D	I	I
62		Soft tissue laser	D	D	I	I
63		Hard tissue laser	D	D	I	I
64		Use of piezosurgery in surgical procedures	D	D	I	I
65		Use of miniscrews for orthodontic purposes	D	D	I	I
66		GTR	D	D	I	I
67		Bone graft to manage periodontal defects	D	D	I	I
68		GBR	D	D	I	I
69		Harvest of autogenous grafts	D	D	I	I
70		Placement of block grafts (autoge-nous/allograft/ synthetic)	D	D	I	I
71		Management of surgical complications of periodontal and implants procedures	D	D	D	I
72		Sinus elevation procedures	D	D	D	I

73		Soft tissue grafts to augment soft tissues around implants.	D	D	I	I
74		Suturing: rationale for selection of proper materials, needles, and techniques	D	D	I	I
75		Suture-techniques and materials: simple interrupted techniques	D	D	I	I
76		Suture-techniques and materials: mattress suture, horizontal and vertical	D	D	I	I
77		Suture-techniques and materials: sling	D	D	I	I
78		Suture-techniques and materials: continu-ous suture technique	D	D	I	I
79		Other advanced suture-techniques	D	D	I	I

No	Domain	Part 2: Implant-periodontics procedures	Resident level			
			R1	R2	R3	R4
	Periodontal-implant surgical: Dental expert Communicator Collaborator Professional Advocate Leader	Dental implant placements (types 1-4)	D	D	I	I
80		i. Immediate	D	D	D	I
81		ii. Early	D	D	I	I
82		iii. Delayed	D	D	I	I
83		iv. Simultaneous with bone graft/GBR	D	D	I	I
84		v. Immediate and provisional loading of den-tal im-plants	D	D	I	I
85		vi. Use of short and narrow implants	D	D	I	I
86		Computer-guided surgical planning	D	D	I	I
87		Surgical management of peri-implant tissue loss or peri-implantitis	O	D	D	I
88		Implant explantation techniques	O	D	D	I

Minimal requirements of clinical skill competencies:

In order to assure the board that the resident has requested to be evaluated for competency, the following minimal clinical exposures must be completed before a competency pass is granted to the applicant.

No	Domain	Dental-periodontic procedure	Resident level			
			ByR1	By R2	By R3	By R4
1	General Competencies: Dental expert Communicator Collaborator Professional Advocate Leader	Diagnostic photographs	4	3	2	1
2		Radiographs- intra-oral and panoramic	4l	3	2	1
3		Anesthesia- local and regional block	4	3	2	1
4		Preliminary impressions	4	3	2	1
5		Diagnosis	4	3	2	1
6		Mock work-up	1	1	2	2
7		Simple treatment plan	4	3	2	2
8		Comprehensive treatment plan	2	2	4	4
9		Periodontal charting	4	3	2	2
10		Periodontal diagnosis	4	4	2	2

11		Occlusal analysis	2	2	1	1
12		Prognosis assignment	2	2	3	3
13-20		**Comprehensive treatment planning of complex periodontal cases**				
		a. Stage I and II periodontitis	4	2	2	2
		b. Stage III and IV periodontitis	-	4	4	4
		c. Peri-implant diseases	-	-	1	2
		d. Periodontal medicine	-	1	2	2
		e. Periodontal diseases in relation to other systemic problems and medications	1	2	3	2
		f. Management of periodontal health for patients on antineoplastic and immunosuppressive therapy.	1	2	2	2
		g. Mucogingival problems	1	3	4	4
20-27		Comprehensive treatment planning of multidisciplinary cases (includes periodontics, restorative dentistry, orthodontics, and digital workflow) including:	1	2	3	3
		a. Analogue study model and wax-up	-	1	2	1
		b. Digital and analogue smile design	-	1	2	3
		c. CBCT and radiographic analysis	1	3	5	5
		d. Implant surgical guide	-	2	5	6
		i. Analogue	-	1	2	2
		ii. Digital CAD-CAM	-	1	3	4
28		Clinical safety protocols: universal precautions	3	3	2	2
29		Clinical safety protocols: radiological safety	3	3	2	2
30		Clinical safety protocols & advocacy: patient consent	5	5	5	5
31		Clinical safety protocols: four-handed den-tistry	3	3	3	
32		Leadership of team: surgical clinical setup	1	3	4	5
33		Communication with patient: delivery of bad news	1	2	3	3
34		Collaboration skills: consultation and referral	3	3	4	5
35-38	Non-surgical periodontal competencies I: Dental expert Professional	Scaling and root planing: mechanical and				
		ultrasonic	6	5	4	2
		Polishing	4	3	2	1
		Occlusal management: adjustment, splint-ing, and occlusal guard	2	2	3	3
			3	5	5	5

No	Domain	periodontics topics-including clinical practice	Resident level			
			ByR1	ByR2	ByR3	ByR4
39	Non-surgical periodontal competencies II: Dental Expert Communicator Collaborator Professional Advocate	Oral hygiene education for patients with complex needs	4	3	3	3
40		Manage nutritional and malnutrition impact on oral tissues	2	2	1	1
41		Management of dentin hypersensitivity	3	2	1	1
42		Re-evaluation of non-surgical therapy out-comes	3	3	2	1
43		Maintenance of patients treated for perio-dontal diseases	3	3	3	3
44		Management of peri-implantitis cases (non-surgical)	D	D	I	I
	Domain	**Periodontal surgical procedures**				
45	Surgical competencies: Dental Expert Communicator Collaborator Professional Advocate	Full thickness flap	1	3	4	4
46		Partial thickness flap	-	2	3	4
47		Apical repositioned flap	1	3	3	4
48		Coronally advanced flap	-	2	2	3
49		Laterally rotated pedicle	-	-	1	1
50		Tunnel techniques for grafts	-	1	2	2
51		Osseous resective surgery	1	3	4	5
52		Gingivoplasty	1	2	2	3
53		Gingivectomy	1	2	3	3
54		Mucogingival procedures to augment soft tissue around teeth and implants	-	2	6	8
55		i. Free gingival graft	-	1	2	2
56		ii. Connective tissue graft	-	1	2	3
57		iii. Allograft/xenograft	-	-	2	3
58		Osseous crown lengthening (non-esthetic)	2	3	3	2
59		Esthetic crown lengthening	-	1	2	3
60		Periodontally enhanced orthodontics proce-dures	-	1	1	1
61		Frenectomy/frenoplasty	1	2	2	2
62		Soft tissue laser	-	1	2	2
63		Hard tissue laser	-	-	1	1
64		Use of piezosurgery in surgical procedures	-	-	2	2
65		Use of miniscrews for orthodontic purposes	-	-	1	1
66		GTR	-	1	2	3
67		Management of periodontal defects with bone grafts	-	1	2	3
68		GBR	-	1	2	3
69		Harvest of autogenous grafts	-	-	-	1
70		Placement of block grafts (autoge-nous/allograft/ synthetic)	-	-	-	1
71		Management of surgical complications of periodontal and implants procedures	-	-	2	3
72		Sinus elevation procedures	-	-	2	3
73		Soft tissue grafts to augment soft tissues around implants.	-	-	2	3
74		Suturing: rationale for selection of proper materials, needles, and techniques	2	3	3	3

75		Suture-techniques and materials: simple interrupted techniques	2	1	3	3
76		Suture-techniques and materials: mattress sutures, horizontal and vertical	1	2	3	3
77		Suture-techniques and materials: sling	1	2	2	2
78		Suture-techniques and materials: continu-ous suture technique	1	2	2	2
79		Other advanced suture-techniques	-	-	2	3

No	Domain	Part 2: Implant-periodontics procedures	Resident level			
			ByR1	ByR2	ByR3	ByR4
	Periodontal-implant surgical: Dental expert Communicator Collaborator Professional Advocate Leader	Dental implant placements (types 1-4)	D	D	I	I
80		i. Immediate	D	D	D	I
81		ii. Early	D	D	I	I
82		iii. Delayed	D	D	I	I
83		iv. Simultaneous with bone graft/GBR	D	D	I	I
84		v. Immediate and provisional loading of den-tal im-plants	D	D	I	I
85		vi. Use of short and narrow implants	D	D	I	I
86		Computer-guided surgical planning	D	D	I	I
87		Surgical management of peri-implant tissue loss or peri-implantitis	O	D	D	I
88		Implant explantation techniques	O	D	D	I

3. Attitude

The program will help the residents develop and nurture professional perspectives towards their patients, colleagues, co-workers, and seniors. The program will train the residents to be aware of all major moral scenarios within the scope of the practice. The 360-degree assessment tools within the program shall measure the effectiveness of this training. The SCFHS guidelines, available training, and assessment techniques will be adopted as needed.

II. Learning principles relevant to the selected educational methods

1. Principles of adult learning

In 1990, Knowles derived a set of principles of adult learning that are now crucial in designing of a course for adults (8). In this curriculum, principles of adult learning were carefully considered and applied. Below are some examples:

- Residents are actively involved in choosing the topics to be presented and discussed according to their needs.
- They are motivated to learn.
- They are self-directed and goal-oriented.
- They have prior knowledge and experiences to share and discuss, and this helps our residents in the long-term retention of newly acquired knowledge.
- Learning activities are conducted in a respectful and motivated environment.

2. Learning theories

Several learning theories have been practiced in the curriculum:

- Cognitive learning theory (9) .
- Behavioral learning theory (10).
- Social learning theory: role model (11).

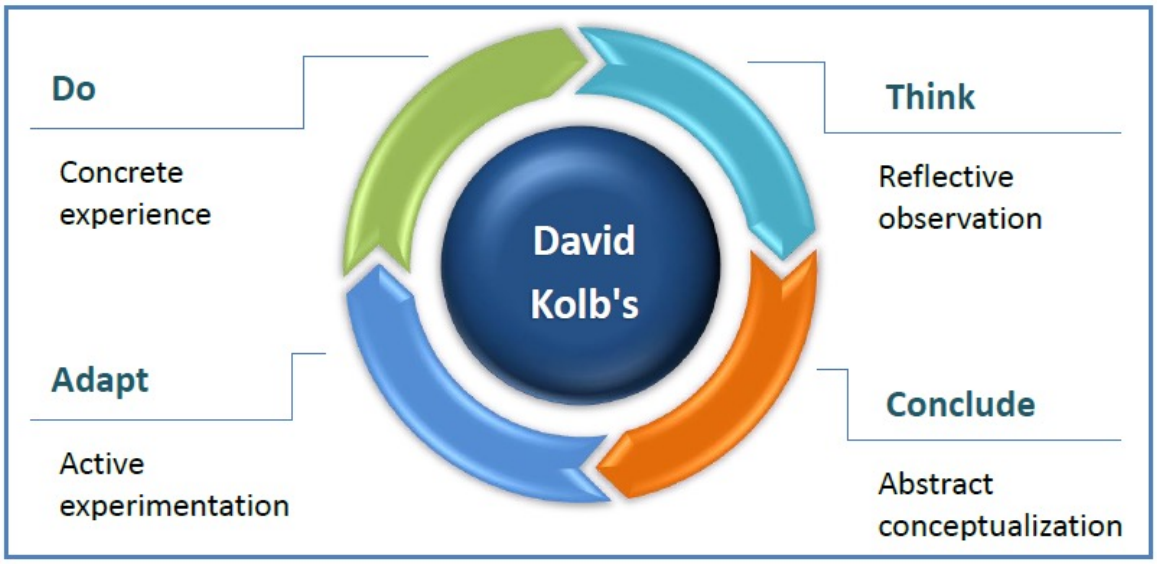

Figure 12: David Kolb's learning styles model

3. Self-determination theory

Learning capacity of students is affected by their motivation (12), hence, behavioral reinforcement with both negative and positive responses are applied in our curriculum:

- Positive reinforcement: light snacks and meals served during literature reviews
- Negative reinforcement: reducing some specific clinical case requirements from the curriculum of the best performing residents

4. Experiential learning and learning styles

David Kolb (13) believes that learning occurs when a learner reflects on an experience. He described four stages of learning through the process of acquiring experiences (Figure 12).

- Think: Reflective observations
- Conclude: Abstract conceptualization
- Adapt: Active experimentation
- Do: Concrete experience

5. Communities of practice

Learning activity usually takes place in a team, especially when the team members support each other. Thus, knowledge and skills will be rapidly disseminated through the group.

6. Deep/superficial learning

The purpose of learning is that the residents should achieve an understanding of the subject (deep learning) rather than gathering superficial knowledge. The periodontics curriculum promotes patient-centered teaching and mainly focuses on active rather than passive learning to promote deep learning (12).

4. Courses and workshops

1. Basic courses

Rationale and description

A number of didactic courses in basic oral and dental sciences are offered to the residents at each level of the program. These courses are intended to broaden the knowledge foundation of the residents on various basic science topics that are relevant to periodontal and implant dentistry. This foundation is required to ensure that the residents are competent in periodontal and implant dentistry.

The course is delivered to the residents in four weeks at the beginning of the residency (academic) year.

Delivery method

- Lectures
- Seminars

Course	Resident level			
	R1	R2	R3	R4
	CanMEDS role covered			
1. Local Anesthesia and anxiety management				
• Recognize the mechanism of action of anesthetics • Classify clinically available local anesthetics • Select the most suitable local anesthetic for different case presentations on the basis of medical history and preoperative level of anxiety • Recognize the possible adverse effects of local anesthetics • Identify the effects on different types of local anesthetics on systemic diseases or conditions • Identify traditional methods of confirming anesthesia • Recognize and appropriately manage anxious or fearful dental patients	• Dental expert • Communicator • Professional			

2. Craniofacial anatomy, embryology, and histology of periodontal structures	
• List the structures and blood supply of the head and neck. • List the cranial nerves and describe their function. • Explain the structure of the tongue, oropharynx, teeth, and TMJ. • Describe the masticatory muscles. • Describe the embryonic origin of periodontal structures. • Describe the histological composition of periodontal structures. • Link the physiologic/clinical relevance of function to histology. • Describe the molecular biology of periodontal structures.	• Dental expert
3. Oral microbiology and immunology of periodontal diseases	
• Explain the composition of the oral flora and factors influencing its structure. • Define the biofilm and its role in gingivitis and periodontitis. • List bacterial, viral, and fungal periodontal putative pathogens. • Describe immunology in normal and diseased periodontium. • Describe host-microbial interactions in periodontal health and disease. • Biomarkers, cytokines, and bacterial markers of health and disease of the periodontium. • Greatest common factor (GCF) in health and disease.	• Dental expert
4. Oral pathology and oral medicine in periodontics	
• Revise the principles of oral pathology and oral medicine (OM). • Recognize and describe the deviations from normal and establish a working diagnosis based on a differential diagnosis of overlapping conditions between OM and periodontics. • Discuss management of mucosal lesions, mucogingival alterations, vesiculobullous lesions, ulcerative disorders, and xerostomia. • Review syndromes that have periodontal and gingival implications. • Discuss medication related osteonecrosis of the jaw (MRONJ) and its risk in periodontal and implant surgery. • Identify and manage complications of human immunodeficiency virus (HIV) infection in the oral cavity.	• Dental expert
5. Management of medical emergencies and medical clearance of sick patients	
• Acquire essential knowledge and skills needed to manage the most common medical emergencies during periodontal care. • Identify medical conditions that require medical clearance before periodontal care is delivered. • Identify medical conditions that require periodontal clearance to proceed with medical therapy.	• Dental expert • Communicator • Professional
6. Advanced radiology for periodontics and implant dentistry	
• Use 2-D imaging efficiently. • Request and analyze 3-D images. • Use 3-D radiographic images for treatment planning. • Design digital surgical guides. • 3-D modeling and 3-D printing from radiographs.	• Dental expert
7. CAD-CAM technology and advanced digital (CLINICAL) imaging in periodontics and implant dentistry	
• Use intraoral and model scanners • Use digital smile design • Use digital images for treatment planning • 3-D modeling and 3-D printing for surgical guides	• Dental expert

8. Research module: a. Research design, methodology and scientific writing b. Appraisal of literature and evidence-based dentistry (EBD)	
• List scientific theories, models, research systems, and problems • Design studies (experimental research) • Learn ethics and regulations of research on humans and animals, including IRB approval process, research reporting and publication ethics • Utilize data collection and analysis software (example SPSS). • Choose appropriate statistical tests for research in healthcare. • Practice preparation of scientific manuscripts for proposals and publications. Writing of manuscripts, writing research proposals, grant applications, and review of such applications • Reference management (example EndNote) • Transform research into application through EBD • Explain the importance and procedure involved in using concepts of EBD • Critique scientific publications objectively	• Dental expert • Scholar

9. Practice management course	
• Explain bylaws of the practice of dentistry in the kingdom • Explain specialty license requirements of SCFHS • Establish a teamwork approach to practice • Identify resource allocation principles • Identify requirements of specialist licenses in Saudi Arabia • Identify requirements to license private practice in Saudi Arabia • Identify best purchase practices for equipment and materials	• Professional • Communicator • Collaborator • Leader

10. TMJ and occlusion in natural dentition and implants	
• Discuss concepts of centric relation and centric occlusion • Discuss concepts for conventional fixed dental prostheses (FDP) (tooth-retained) - Anterior disclusion (anterior or canine guidance) - Group function • Discuss concepts for implant-supported artificial occlusion - Implant-supported fixed prosthesis - Implant-supported removable prosthesis (overdentures) • Explain indications of splinting (tooth and implant supported prosthesis) • Explain the role of articulators in fixed and removable rehabilitation cases • Discuss the functions of the TMJ • Define disorders of the TMJ • Explain causes of TMJ dysfunction • List signs and symptoms of TMJ dysfunction • Diagnose TMJ dysfunction • Describe the management of TMJ dysfunction • Construct appropriate occlusal appliances for the diagnosis and treatment of TMJ dysfunction	• Dental expert • Communicator

2. Specialty courses

ii. Preclinical courses (basic specialty topics and practical training)

Introduction and rationale

This course is one of the basic preparatory components of the Periodontics Board curriculum. The main focus is on developing the residents' skills and knowledge of the basic principles. The residents need to be proficient in these aspects for delivering proper care to patients in the field of periodontics. The basic knowledge and psychomotor skills acquired during this course will also provide the residents with an increased ability and confidence to acquire additional advanced knowledge and technical skills in the different disciplines of periodontology.

Educational strategy and teaching methods

The preclinical course is based on teaching strategies that encourage interactive and student-centered approaches, teamwork, and self-directed learning. The hands-on training sessions will involve the application of principles of psychomotor teaching to ensure development of the three phases of psychomotor skills: cognitive, development, and automated. Various instructional techniques will be used, including:

- Interactive lectures
- Resident activities (presentations, assignments)
- Group discussions
- Demonstrations using different aids

Assessment

- Evaluation of resident activities (cognitive)
- Weekly quizzes (cognitive)
- Continuous assessment of assigned projects (psychomotor skills)
- Evaluation of the course will be done by:

-An end of course evaluation form

-Discussions with residents and faculty for their comments on the course.

Topics	Learning Objectives	Methods of Delivery	Level
1. Dental photography and imaging	Provides residents with sufficient knowledge and hands-on experience to select and use correct photographic equipment for photographing patients (facial and intraoral), casts, instruments, x-rays, charts and objects.	• Lectures and presentations • Hands on • Residents need to bring their cameras with them to the course	R1
2. Periodontal surgical instrumentation course	• To train the residents on the use of surgical and non-surgical instruments on periodontal models. • To introduce the residents to the surgical instruments used in periodontal surgeries and train them on organization of the instruments during clinical sessions. • To introduce the surgical techniques of different periodontal surgeries on animal models. The residents are expected to practice these various surgical techniques on the head of sheep. Also, the residents will practice different suturing techniques including simple interrupted, continuous, mattress, and sling types.	• Lectures and presentations • Hands on • Residents need to bring their cameras with them to the course	R1

3. Pre-clinical dental implant course	• Explain guidelines and treatment planning for dental implants • Identify implant biomechanical principles, designs, and materials • Explain radiographic and surgical guides (templates) • List types of dental implants • Explain the surgical phases of dental implants • Practice the surgical implant placement techniques on the head of sheep and models, as well as the different suturing techniques following implant surgery.	• Lectures and presentations • Hands on	R1
4. Periodontal therapy introductory course	• Analyze the periodontal and related literature providing classifications, prognosis, rationale, technique, and sequela for the clinical practice of periodontics. Non-surgical and surgical periodontal therapy will be addressed. • Review instruments used in non-surgical therapy.	• Lectures and presentations • Hands on	R1

iii. Weekly scientific activities (WSA)

Periodontal core literature seminars

The purpose of this course is to provide detailed information and discussion of classic literature related to various topics. Reading lists will be provided to the residents. The residents will be expected to present summaries and a critical evaluation of relevant articles or texts for group discussion. Further details of the organization of these seminars and tutorials will be provided at the start of the program.

All articles reviewed in this course will be considered for placement into the literature review course, and questions will be given out of these articles at the end of the year.

Periodontal Journal Club

This is a literature seminar designed to acquaint residents with the current periodontal literature. All of the major journals devoted to periodontal and dental implants were reviewed selectively. Selected articles were also reviewed from other major journals. The purpose of this seminar is to provide experience in reading, abstracting, and evaluating the most recently published ideas and concepts in the field of periodontology and dental implantology. Assessment of the progress of the residents in these topics is formative and summative.

Topics covered in core literature:

Core Literature Topics I: The Periodontal Structures and Clinical Classification

Core Literature Topics II : Prognosis of Periodontal Diseases and Systemic Health

Core Classic Literature Topics III- Non-Surgical Treatment of Periodontal Diseases

Core Literature Topics IV: Surgical Periodontal Therapy- I

Core Literature Topics V: Surgical Periodontal Therapy-II. Regeneration and Interdisciplinary Care

Core Literature Topics VI: Implant Dentistry

Core Literature Topics I: The Periodontal Structures and Clinical Classification		
Session	**Topic**	
I. Pathophysiology of periodontal diseases		
1	The periodontal sulcus and the periodontal pocket formation	
2	Pathogenesis of gingivitis and periodontitis	
3	Formation of infrabony defects and furcation lesions	
4	Clinical and radiographic signs of periodontal health and disease	
5	Factors affecting disease progression: genetic, molecular, and local factors	
II. Periodontal disease classification and clinical significance		
6	Classification guidelines of periodontal diseases including types, severity, and extent	
7	Gingivitis and gingival diseases and conditions. Includes: Desquamative gingivitis and erosive gingival lesions and effects of certain medications and systemic conditions on the gingiva	
8	Periodontitis classification I	
9	Periodontitis classification II (with case-based exercises)	
10	Periodontitis linked to genetic abnormalities and periodontitis in children	
11	Acute gingival & periodontal conditions: Periodontal abscess Periodontal cysts Necrotizing periodontal diseases HIV-associated periodontal lesions	
12	Mucogingival health and disease I: • Clinical impact of keratinized and attached mucosa • Gingival recession • Aberrant frenum attachment • Mucosa around dental implants • Other mucogingival anomalies	
13	Mucogingival health and disease I: • Clinical impact of keratinized and attached mucosa • Gingival recession • Aberrant frenum attachment • Mucosa around dental implants • Other mucogingival anomalies	
III. Examination, diagnosis & progression of periodontitis		
14	A. General consideration: probe designs B. Periodontal probing depth, attachment loss, and bleeding on probing	
15	Validity and significance of diagnostic indicators: mobility, furcation lesions, root anomalies, and GCF markers	
16	2-D and 3-D radiologic diagnostic markers in periodontics	
17	Advanced topics: technologically advanced diagnostic tools: mobility assessment devices, automated probes, blood markers, microbial DNA/PCR and new technological updates.	

Core Literature Topics II : Prognosis of Periodontal Diseases and Systemic		
Session	**Topic**	
IV. Impact of prognosis		
1	Periodontal indices/epidemiology and progression studies of periodontal diseases	
2	Prognosis of dentition affected with periodontal disease	
3	Case Conference I: clinical diagnosis and prognosis of periodontal diseases and anomalies	
V. The systemic link: Periodontal medicine		
4	Periodontal medicine: diabetes mellitus and the periodontium	
5	Periodontal health in women: considerations for pregnancy, oral contraceptives, and postmenopausal status	
6	Periodontal manifestations of smoking, nicotine, smokeless tobacco, and chewable substances	
7	Management of patients on chemotherapy, radiotherapy, immunosuppressants, and anticoagulants, and rationale and	
8	protocols for premedication with antibiotics, steroids, and other medications.	
VI. Management of periodontal diseases and anomalies		
9	Treatment planning for management of periodontal diseases and anomalies	
10	Case Conference I: Treatment planning for management of periodontal diseases and anomalies	
11	Case Conference II: Treatment planning for management of periodontal diseases and anomalies	
12	Personalized management of the biofilm: office and home plaque control techniques: • Oral hygiene education and motivation • Smoking cessation; motivation towards better health • Brushing techniques and oral hygiene education accustomed to patient needs and conditions • Periodontally recommended oral rinses and toothpastes • Supragingival irrigation and water-pumps • Interdental cleaning: floss, tape, and brushes	
13	Prescription protocols of chlorhexidine and other chemotherapeutic oral preparations customized to patient needs for periodontal health.	
14	Dentine hypersensitivity: etiology, diagnosis, and management	
15	Elective Topic (decided by the training center)	

Core Literature Topics II : Prognosis of Periodontal Diseases and Systemic		
Session	**Topic**	
VII. Non-surgical periodontal care		
1	Periodontal indices/epidemiology and progression studies of periodontal diseases	
2	Expected histologic and clinical healing outcomes of periodontal tissues after non-surgical therapy: new attachment/ reattachment/repair/clinical parameter changes	
VIII. Office management of periodontal diseases		
3	Mechanical therapy: manual scaling, root planing and polishing	
4	Mechanical therapy: ultrasonic scalers- types and effectiveness	
5	Chemical root surface treatments, local/topical antimicrobials (including subgingival irrigation, lasers, and photodynamic therapy)	
5	Use of evidence-based systemic antimicrobial agents in management of periodontal diseases	
6	Advanced concepts on periodontal disease control: host modulation therapy and precision medicine in management of periodontitis	
7	Re-evaluation of mechanical therapy and rationale for surgical periodontal therapy	
8	Evidence-based dentistry: outcomes of non-surgical therapy: long term studies	
IX. Introduction to surgical therapy		
9	Periodontal surgical instruments and burs: selection criteria and four-handed dentistry setup	
10	Surgical therapy: types of surgical incisions and flaps used in periodontics and implant dentistry	
11	Postoperative healing management: includes dressings and sutures: selection criteria and rationale	
12	Hands-on practice session on surgical competency techniques	
13	Laser surgery in periodontics: evidence-based concepts	
14	Piezo surgical techniques in periodontics	
15	Center elective: (suggested: Hands-on on LASER and piezosurgery)	

Core Literature Topics IV: Surgical Periodontal Therapy- I			
Session	**Topic**		
X. Surgical therapy rationale and techniques			
1	Soft tissue plastic surgery: Gingivectomy/gingivoplasty/wedge designs/coronally advanced flaps		
2	Mucogingival procedure: frenectomy, rationale and techniques- classic and laser		
3	Root coverage techniques: pedicle flaps, coronally positioned flap, and free gingival graft		
4	Autogenous connective tissue graft techniques and sources		
5	Soft tissue allografts and xenografts		
6	Histologic and clinical healing after mucogingival surgery		
7	Osseous resective techniques (I) to manage periodontitis		
8	Osseous resective techniques (II) to manage periodontitis		
9	Crown lengthening surgery: biologic and restorative rationale and techniques		
10	Wound healing after resective surgery		
XI. Periodontal maintenance & longitudinal studies			
11	Periodontal maintenance & longitudinal studies (I)		
12	Periodontal maintenance & longitudinal studies (II)		
13	Occlusal therapy: splinting, occlusal adjustment, and occlusal devices		
14	Elective topic (decided by the training center)		
15	Elective topic (decided by the training center)		

Core Literature Topics V: Surgical Periodontal Therapy-II. Regeneration and Interdisciplinary Care			
Session	**Topic**		
XII. Regenerative Therapy			
1	Introduction to regenerative therapy: classification of bone defects around teeth and in alveolar ridge, rationale and clinical indications of regenerative therapy		
2	Regenerative periodontal therapy: bone graft indications Regenerative techniques: intraoral autogenous grafts: granular, chips, and block Regenerative techniques: extraoral autogenous grafts including iliac crest		
3	Allografts use in regenerative therapy: including DFDBA		
4	Other types of grafts: alloplasts and xenografts		
5	Guided tissue regeneration (GTR) and guided bone regeneration (GBR): concept and non-absorbable membranes in GTR and GBR		
6	Biodegradable membranes in GTR and GBR		
7	Surgical management of furcation lesions (regenerative vs. non-regenerative)		
8	Alveolar ridge types, socket healing after extraction, and ridge preservation and augmentation		

XIII. Interdisciplinary concepts			
9	Interdisciplinary consideration: endodontic-periodontal relations: endodontic-periodontic lesions and periodontal-endodontic lesions, endodontic status influence on success of different modalities of periodontal therapy and implant dentistry.		
10	Interdisciplinary consideration: periodontally enhanced orthodontics; including corticotomy, piezocision, teeth impactions, aberrant frenum, orthodontics in periodontitis patients, space creation for dental implants and mucogingival effect of orthodontic therapy		
11	Interdisciplinary consideration: esthetic concepts in restorative and implant dentistry, biologic width, esthetic smile design, and design of esthetic treatment plans including digital smile design and use of CAD-CAM technology.		
12	Interdisciplinary consideration: periodontal-prosthetic collaboration: managing the crown: root ratio, prosthetic prognosis vs. periodontal prognosis, effect of prosthetic designs on periodontal status, and effects of prosthetic materials on the periodontium		
XIV. Advanced topics in periodontics			
13	Elective topic: (suggested hands on: computer guided surgical planning for periodontics and implant dentistry (includes CAD-CAM, software applications, and digital smile design)		
14	Elective topic (to be decided by the training center)		
15	Elective topic (to be decided by the training center)		

Core Literature Topics VI: Implant Dentistry			
Session	**Topic**		
XV. Implant dentistry			
1	Implant dentistry basics: • Definitions of osseointegration and functional ankylosis. • Histology of osseointegrated implants. • Classification of implant placement timings and types of placement		
2	Biomaterials and biomechanics: titanium alloys, micro and macro designs of dental implant fixtures, and implant-abutment connections.		
3	Implant dentistry, diagnosis, treatment planning: surgical site anatomy and diagnostic tools		
4	Digital workflow of dental implants and CAD-CAM technology in implant dentistry		
5	Surgical techniques for placement of dental implant fixtures: technique selection, indications, and contraindications		
6	Advanced techniques in hard tissue augmentation and guided bone regeneration		
7	Soft tissue significance and management around dental implants		
8	Sinus augmentation techniques: success and complications		
9	Restorative and biomechanical guidelines and types of provisional and permanent loading of dental implants (focus on immediate provisionalization)		
10	Microbiology of healthy and diseased implants		
11	Evidence-based success of dental implants: • Long-term survival and success studies. • Influence of medical conditions, smoking, and medications on the success of dental implant therapy. • Contraindications of dental implants.		

12	Maintenance protocols of implant fixtures and restorations and management of surgical complications and failures of dental implants		
13	Management of peri-implant diseases including peri-implantitis		
14	Elective topic (to be decided by the training center): suggested: hands-on provisional loading of dental implants		
15	Elective topic (to be decided by the training center)		

Case Presentation Seminar

During the second year, residents will be required to present the various phases of treatment of their patients for discussion within the group. This will provide residents with the opportunity to see and discuss a wide range of problems. Emphasis will be placed on diagnosis and treatment planning.

e. Rationale

Residents' presentation of clinical cases will serve as the basis for discussion of diagnosis and treatment philosophies and for evaluation of residents' clinical performance.

f. Materials

Residents are required to present cases which demonstrate a broad spectrum of treatment procedures with justification and thorough documentation. The diversity and complexity of the procedures must be documented along with the exceptional skills and expertise required in periodontal treatment. Each resident should demonstrate a clear and precise understanding of the rationale for a course of treatment, differential diagnosis, alternative approaches to treatment, and the biological basis for modern periodontal practice. Consultations are prerequisites for cases presented, as they are needed to support the presentations.

g. Calendar of Activities

The schedule of seminars and assignments will be distributed before the course commencement.

h. Evaluation

The following categories will be evaluated:

- Diagnostic approach
- Clinical approach
- Rationale of therapy
- Background literature

Supervisors will observe and evaluate the case presented, the quality of the resident's response, familiarity, experience, confidence, authority, and manner of presentation.

Text Book Review Course

The objective of this course is to review current techniques and philosophies of periodontal practice, as presented in current textbooks. The textbooks recommended are the latest editions of:

- Clinical Periodontology and Implant Dentistry (6th edition or newer by Jan Lindhe, Niklaus P. Lang, and Thorkild Karring)
- Carranza's Clinical Periodontology (12th edition or newer by Michael G. Newman, Henry Takei, Perry R. Klokkevold, DDS, MS and Fermin A. Carranza)
- Periodontics: Medicine, Surgery and Implants (1st edition by Louis F. Rose, .Brian Mealey and Robert Genco)

The book review is expected to meet the following criteria:

a. Allow the candidate to learn from books at graduate level rather than from undergraduate study.

b. Discuss topics rather than chapters to explain the topic with different concepts, approaches, and opinions.

c. Conduct a comparison between periodontal methods or techniques regarding different schools of thoughts.

In addition, evaluation will depend on the resident's effort and participation in oral and written presentations.

Periodontics Interdisciplinary Seminars

(1st option: R4 SB-Perio residents are required to prepare a review on a topic and a presentation of a clinical case that requires an interdisciplinary approach with senior residents from other specialties.

2nd option: literature review seminars moderated by faculties from each discipline)

Seminars focusing on the interrelation of periodontics with other specialties, such as endodontics, orthodontics, pediatric dentistry, and prosthodontics.

Periodontic–Endodontic Interdisciplinary Seminars

A seminar held in conjunction with endodontics on the clinical, cellular, and molecular aspects of inflammation as it relates to acute inflammation of endodontic origin, chronic destructive periodontal disease, and healing and repair of periodontal wounds.

Periodontic/Pediatric Dental Interdisciplinary Seminars

Seminars on periodontal disease in pediatric and adolescent dental patients. The literature of common interest in both specialties is reviewed in conjunction and discussed with residents in pediatric dentistry.

Periodontic/Prosthodontic/Restorative Interdisciplinary Seminars

Seminars on the periodontal problems related with prosthodontics. The literature of common interest in both specialties is reviewed and discussed with residents in prosthodontics.

Periodontic/Orthodontic Interdisciplinary Seminars

Seminars on the periodontal problems related with orthodontics. Literature of common interest in both specialties is reviewed and discussed with residents in orthodontics.

III. Trainee selected topics (elective):

Rationale and description

Elective courses can help residents develop skills that they want to have. Additionally, elective courses can help residents increase their knowledge of a specialized area within the field of periodontics or the education process. These topics are selected by the residents themselves; however, they have to be planned and approved by the SCFHS regional committee.

Delivery method

- Lectures
- Seminars and interactive sessions
- Workshops and hands-on training
- Practice-based learning

Topics

Example of some of the topics (not limited to)

- Dental implants
- Advanced periodontal regeneration
- Advanced periodontal microsurgical techniques
- Dental esthetic analysis courses
- Digital CAD/CAM technology courses
- Esthetic digital smile design courses
- Periodontics review course
- Computed tomography scan (CT and cone-beam-CT scan) courses
- Managing medically compromised and special need patients
- Management of elderly and geriatric patients.
- Community/public health awareness
- Communication skills
- Leadership skills
- Research proposal and publications
- Ethical issues in human-subject research

Minimum training requirements of residency:

Integrity, academic honesty, and zero-tolerance to plagiarism are highly regarded according the SCFHS bylaws and the regulations of the training centers that address ethical issues related to academic integrity and patients' rights.

Clinical performance and competency:

The resident should document and prove competency in the clinical skills needed for a successful career in periodontics and implant dentistry. The resident should have a minimal number of clinical exposures before attempting the competency tests. All competencies and their clinical prerequisites must be documented by the resident on the SCFHS online assessment tools in order to be considered eligible for passing the clinical requirements of the assessment.

Some training centers may have other documentation tools for the clinical case portfolios, in addition to the SCFHS system which is mandatory. In case of discrepancy or conflict of the portfolios, the Scientific Committee of Periodontics will have the right to review the portfolios and recommend whether to consider cases that are undocumented on the SCFHS or disregard them.

The SCFHS requires successful completion of four years of clinical residency training for the candidate to become eligible to apply for the final board examination. During the four years, there are multiple summative and formative assessments that are performed to provide 360-degrees assessment of the candidate.

Academic contribution during the residency:

The residents need to develop academic portfolios involving lectures, supervision of dental students, and other academic activities that could be provided or required by training center, like poster and workshops presentations and conference/ workshop attendance. This is important to develop scholarly and professional skills of the resident.
In case the training center lacks the academic potential to do so, this mandatory training must be coordinated through the local committee of the area to allow the resident to have minimum of 10% of the weekly schedule of the senior years, in an academic/teaching environment.

Research module and project:

Each resident must show adequate capabilities in planning, designing, and conducting one research project during his/her training. A manuscript must be submitted in a format suitable for publication in one/any scientific indexing services journal well known in the field of periodontics. This is important for development of scholarly, research-oriented, professional, and collaborative skills.

Community service:

Each resident should demonstrate the will and the ability to become an active patient advocate by planning and actively participating in at least one community service project through the residency program. This service should be clearly identifiable and signed by the training center and added to the resident portfolio. It is expected that the resident will be an active member in organizing and attending a certain community service activity planned and delivered by the training center. This is important to develop patient advocacy and leadership skills.

ASSESSMENT

All assessment practices will comply with SCFHS policies.

The Assessment System:

The purpose of the assessment system is to:

- Enhance learning by providing formative assessments, enabling trainees to receive immediate feedback, measure their own performance, and identify areas for development.
- Drive learning and enhance the training process by clarifying the requirements of trainees and motivating them to ensure that they receive suitable training and experience.
- Provide robust, summative evidence to prove that the trainees are meeting the curriculum standards during the training program.
- Ensure trainees are acquiring competencies within the domains of good medical practice.
- Assess actual performance of the trainees in the workplace.
- Ensure that trainees possess the essential underlying knowledge, skills, and perspectives required for their specialty.
- Identify trainees who should be advised to consider a career change.

Assessment Methods:

Multiple assessment tools are available for postgraduate education and the training centers have the authority to use any of the important assessment tools for example:

- E- Portfolio
- Online SCFHS assessment tools
- Progress reports
- Formative assessment
- Mini-CEX
- OSCE/OSPE
- 360-degree assessment
- Projects
- MCQ
- Modified essay questions (MEQ)
- Structured oral examination (SOE)

Assessment tools

A combination of tools for assessment of learning that have a balance between summative and formative assessments, and are reliable, valid, and authentic will be used (refer to appendices for assessment forms).

Miller's Pyramid – 1990

Clinical oral examination	• Shows stage (Miller's pyramid) • Test clinical skill performance and competence in skills such as clinical examination, history recording, dental procedures, manipulation techniques, counseling, radiographic image evaluation, and interpretation of investigation tools. • Assesses medical expert, health advocate and scholar CanMEDS competencies.

Does (work place-based assessment)	
Mini-clinical evalua-tion exercise	- Does stage (Miller's pyramid) - Skills of recording patient history, medical interview, physical examination, clinical judgment, professionalism or humanistic qualities, organization/efficiency, counseling skills, collaboration, and communication skills. - Assesses medical expert, communicator, collaborator, and professionalCanMEDS competencies.
Direct observation of procedural skills (DOPES)	- Does stage (Miller's pyramid) - Assesses the procedural skills essential for providing good clinical care, focusing on especially important and technically demanding procedures. - Assesses medical expert CanMEDS competency.
Multiple source feedback (360 assessment method)	- Does stage (Miller's pyramid). - Patient care, professionalism, collaboration, and communication skills and practice-based learning. - Assesses communicator, collaborator, professional, teacher, and leader CanMEDS competencies.
Case-based discussion	- Focuses on clinical knowledge, record-keeping, history-taking, clinical findings and interpretations, searching the evidence base, diagnosis, treatment plans,consultations, management, and follow-up. - Assesses medical expert and scholar CanMEDS competencies.
Portfolios and logbook (preferably electronic version)	- Does stage (Miller's pyramid). - Clinical performance and technical skills can be assessed using the portfolio approach. - Portfolios may be best used for assessment of competencies that are difficult to evaluate using other techniques, e.g., communication, risk management,problem-solving, response to feedback, decision-making, response to ethicaland professional dilemmas, patient advocacy, scholarship, information, andchange in management skills. - Assesses medical expert, communicator, collaborator, professional, healthadvocate, scholar, and leader CanMEDS competencies.
Scholarly projects	-Planning and conducting research and presentations. -Assesses scholar and medical knowledge CanMEDS competencies.
Clinical supervisor's report (in training assessment)	-Does stage (Miller's pyramid). - Specialty in training assessment in which the key standards of clinicalperformance, technical skills, and all other competencies are defined. Residentsare requested to meet all the standards. - Assesses collaborator, communicator, scholar, health advocate, leader, and professional CanMEDS competencies.

Trainee support (mentorship):

- Each trainee must have an assigned supervisor.
- A clinical supervisor must not have more than three trainees at any given time.
- Assigned supervisors must observe the trainee for at least one year.

Portfolio and logbook

- The portfolio will be an integral component of training.
- Each trainee will be required to maintain a logbook.
- An educational supervisor should be in charge of maintaining and reviewing the portfolio and providing continuous feedback to the trainee.

The portfolio should include the following:

- Records of educational training events
- Reports from educational supervisors
- Logbook
- Reflection
- Others, for example, patient feedback and clinical audits.

ASSESSMENT IN PERIODONTICS

Assessment in dental education programs is evolving towards a more focused and objective approach. They need to focus on holistic evaluation or systems rather than on individual tools, and must focus on multiple methods and sampling strategies to ensure that the full range of relevant competencies are evaluated as robustly as possible. To promote learning, the assessment should be educational and informative, and residents should learn from tests and receive feedback on which they build their knowledge and skills. Pragmatically, assessment is the most appropriate instrument for reviewing the effectiveness of the curriculum.

Additionally, with an increasing focus on the performance of dentists and on assurance that dentists are competent, assessment also needs to have a summative function. Final tests of clinical competence which allow a decision to be made about whether a dentist is fit to practice or not, are in demand.

Purpose:

The assessment plan of the periodontics program is formulated in accordance with the Saudi Commission's
Training and examination rules and regulations. It includes the following:

Formative assessment

Annual formative assessment for promotion:

This assessment is conducted towards the end of each training year throughout the program, andincludes the following:

End of year in-training evaluation (ITER)

This evaluation report is prepared for each resident at the end of each year based on quarterly ITER, oral presentation on a treatment plan, academic assignments, and oral clinical examination, OSPE, in addition to successful completion of competencies, minimal clinical experiences relevant to the level of the training, and completing other clinical or academic requirements. These requirements should be documented by an electronic tracking system on an annual basis. Evaluations will be based on achieving the minimum requirements of the procedures and clinical skills.

It is important to note that failure to complete the level of clinical competency must require a submitted action plan by the program director to assess the resident current status, expected progress, and needed resources. This plan should be addressed to the local committee Chairman or Scientific Council Chairman for approval.

Formative Assessment

Continuous evaluation

This evaluation should fulfill the CanMEDS competencies criteria based on the in-training evaluation, including dental expert, communicator, and clinical procedure skill performance. Resident's performance will be evaluated by the program director and joint staff (at least two) for the following competencies:

1) Performance of the trainee during daily work for each discipline.
2) Performance and participation in academic activities.
3) Performance of diagnostic and therapeutic procedural skills by the trainee (DOPS and daily direct clinical supervision). A timely and specific feedback for the trainee after each procedure is mandatory.
4) The training center shall utilize assessment tools such as DOPS, Mini-CEX, multi-source feedback, and case-based discussion (CbD) ratings on a regular basis to maximize the objectivity of assessment and distribute it throughout the training year.
5) The evaluation form for CanMEDS-based competencies circulated at the end of a rotation must be completed every three months during the training year and signed by at least two consultants. The program director should discuss the evalu-

ation with the resident as necessary; thereafter, the residents should sign the form. The evaluation form should be submitted to the local training committee of the SCFHS within one week after the end of every three months.

6) The clinical case portfolio is mandatory and should be documented and assessed by the SCFHS electronic system (e-logbook when applicable) on an annual basis. Evaluation will be based on achievement of minimum requirements of the procedures and clinical skills as determined by the program.

7) The training centers must calibrate the trainers to assess the skills. This calibration is important to the quality of the training and must be consistent with SCFHS calibration protocols.

Complex treatment plan oral presentation:summative evaluation

The resident will be evaluated based on an oral presentation as part of his/her annual promotion assessment where he/she describes a case, including history-taking, diagnostic tools used, diagnosis, prognosis, and how he/she can formulate an integrated treatment plan and identify alternative plans. The presentation must follow an evidence-based approach to support the diagnosis, prognosis, and treatment options.

A completed case is not mandatory at the junior level, so the resident can present a case in progress. However, senior-level residents are expected to present completed cases and/or cases of innovative approaches to treatment.

Clinical portfolio evaluation and examination: formative and summative evaluation

This evaluation is based on presenting completed cases towards the end of the academic year. A committee will assess the management of the case from a comprehensive point of view in a structured objective template format. The discussion process with the resident will be recorded and graded.

Summative assessment

End of year written examination

The end of the year examination will be limited to R1, R2, and R3. The number of examination items, eligibility, and passing score will be in accordance with the Commission's training and examination rules and regulations. A resident will not need to appear for this end-of-year examination, if he/she obtains a passing grade in the Part I examination during R1. Examination details and blueprints are published on the commission website: www.scfhs.org.sa

Final in-training evaluation report:

In addition to online approval for completion of all competencies listed in the curriculum, including clinical procedures, completed cases, and all other clinical, academic, research, and community service prerequisites, the residents will need to submit a notification of completion of program requirements, signed by the program director at the training center, accompanied by the minutes of the program committee meetings indicating approval of the content by the highest chairman of training (or postgraduate dean) at the training center and the chairman of the local committee, accordingly. Moreover, R4 residents must score more than 70% during the final year (minimum three quarterly evaluations) in order to be eligible for writing the final written examination. Otherwise, an action plan needs to be submitted by the program director and approved by the scientific council of the specialty to address the weakness of the resident who has not scored adequate grades.

It is important to state that this evaluation/completion report from the program director must be consistent with the official SCFHS assessment documentation of the resident portfolio. The report validity is the responsibility of the training center and any discrepancy discovered will be noted in the program accreditation portfolio.

Principles of periodontal therapy (Specialty Board Examination: Part I)

This is conducted in the form of a written examination with an MCQ format and is held at least once a year. The number of examination items, eligibility, and passing score will be in accordance with the Commission's training and examination rules and regulations. The examination details and blueprints are published on the commission website: www.scfhs.org.sa

Final periodontics board examination (Specialty Board Examination: Part 2)

The final Specialty Board Examination consists of two parts:

Written examination

This examination assesses the theoretical knowledge (including recent advances) and problem-solving capabilities of candidates in the specialty of Periodontology. It is delivered in an MCQ format and held at least once a year. Number of examination items, eligibility, and passing score will be in accordance with the Commission's training and examination rules and regulations. Examination details and blueprints are published on the commission website: www.scfhs.org.sa

MCQ format: 200 questions divided into 2 papers: (Paper 1 – Periodontics, Paper 2 – Implants) Length of each paper: 2–3 hours

Clinical/Oral examination/OSCE

This examination assesses a broad range of high-level clinical skills, including data gathering, diagnosis, patient management, and communication and counseling skills. The examination is conducted at least once a year. The examination eligibility and passing score will be in accordance with the Commission's training and examination rules and regulations. The examination details and blueprints are published on the commission website: www.scfhs.org.sa

Clinical examination will be in the form of a multi-station exam, including task-based OSCE and structured oral examination (SOE). The OSCE stations (minimum four) would examine the candidate's ability in a range of clinical tasks. The SOE stations (minimum of four) will be in the form of case discussions with predefined questions and an agreed-upon marking scheme and pass/fail criteria.

Certification

Certificate of completion of training will only be issued upon the successful completion of all program requirements by the resident. Candidates passing all components of the final specialty examination will be awarded the Saudi Board in Periodontics certificate.

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