SAUDI BOARD IN **PEDIATRIC DENTISTRY** CURRICULUM

2020

- The primary goal of this document is to enrich the training experience of PG trainees by outlining the learning objectives of the curriculum, and the criteria to be met in order to become an independent and competent pediatric dentist.
- This curriculum may contain sections outlining some regulations of training. However, such regulations need to follow the most updated general bylaws and executive policies of the Saudi Commission for Health Specialties, which can be accessed online through the official SCFHS website.
- As this curriculum is subject to periodic updates, please refer to the electronic version posted online at: https://www.scfhs.org.sa/MESPS/TrainingProgs/TrainingProgsStatement/Pages/index.asp


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الهيئة السعودية للتخصصات الصحية
Saudi Commission for Health Specialties

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FOREWORD

Curriculum development in medical or dental education is a scholarly process that integrates a content area with learning theories and methodologies, and evaluates its impact.

In this updated curriculum, we are adopting the Canadian Medical Education Directions for Specialists framework, as it is an innovative, competency-based framework that describes the core knowledge, skills, and attitude of physicians. This curriculum provides a broad framework for faculty staff to focus on teaching, and for residents to focus on learning obtaining clinical experience and professional development during the training program. It is not intended to be the sole source for defining what is to be taught and learned during the residency training. Residents are expected to acquire knowledge and skills, as well as develop appropriate attitudes and behaviors throughout their training program. Above all, they are expected to take personal responsibility for their own learning.

This curriculum is a part of the strategic planning process of the Saudi Commission for Health Specialties, which entails the review and update of curricula for specialty training programs. It was developed and reviewed by the Scientific Council of the Saudi Pediatric Dentistry Board, the residents' representative, as well as international and local advisors.

The Saudi Commission for Health Specialties, as represented by the Pediatric Dentistry Scientific Board, Regional Training Committee, and Central Accreditation Committee, are committed to providing full support for the implementation of the curriculum by way of allocating necessary resources, providing faculty development, and establishing a monitoring system. Further reinforcement and a continuous quality improvement process via feedback from residents, trainers, and program directors as well as site visits, will be performed by the Central Accreditation Committee and the Pediatric Dentistry Scientific Board.

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INTRODUCTION

1. Context of Practice

1.1 Child oral and dental health: a brief introduction

Oral and dental health are key indicators of overall health, wellbeing, and quality of life. According to the World Health Organization (WHO), good oral health is defined as "a state of being free from chronic mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing" [1]. Evidence clearly underscores the interrelationship between oral health and general health [2]. For example, there is a correlation between diabetes development and the progression of periodontitis [3, 4]. Most oral conditions share modifiable risk factors (such as tobacco use, alcohol consumption, and unhealthy diets high in free sugars) common to the four leading non-communicable diseases, which are cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes [5]. Furthermore, many conditions also have oral manifestations that increase the risk of oral disease.

Research indicates that good oral and dental health is particularly important in children and young people. This is because dental health can affect the functional, psychological, and social dimensions of children's wellbeing. Oral pain has devastating effects on children; these include lost sleep, poor growth, behavioral problems, and poor learning [6, 7]. Poor dental health also has an impact on developmentally crucial processes of communication, socialization, and self-esteem [7]. Furthermore, oral health problems are associated with a significant reduction in school attendance and parental working hours [8, 9]. Poor oral health is an indicator of wider health and social care issues such as poor nutrition, obesity, the need for parenting support, and in some instances, parental neglect.

There is a large evidence-base linking poor oral health in children to several negative effects. Children may experience pain and infection, such as gingival diseases or dental abscesses, which can result in issues with speaking, eating, and sleeping. Poor oral health may result in the need for fluoride varnish treatment, fillings, and even dental extractions, which are costly and cause stress among children and their parents/caregivers. Studies highlight that individuals who experience early childhood caries (ECC) are more likely to have an increased risk of subsequent caries in both their primary and permanent teeth [10]. This necessitates continuous treatment, not only for their childhood caries and poor oral health, but also to address new oral problems as they age. In the case of advanced tooth decay where dental extraction is required, a child is more likely to develop orthodontic problems, as the premature loss of primary teeth can affect the alignment of their permanent successors [11].

Despite advancements in dental treatment and general improvements in oral health in most countries, oral disease remains a major global health concern [12]. Dental caries and periodontal disease are the most frequently diagnosed oral diseases in young individuals [5]. Children's primary teeth are more susceptible to diseases than permanent teeth, owing to differences in their chemical composition and physical properties. In particular, primary teeth have thinner and often less resilient enamel that does not provide as much protection from bacteria [13]. Specialists state that both dental caries and periodontal disease are preventable when individuals perform good oral hygiene practices and receive appropriate dental care when required [5, 10, 12].

1.2 Oral and dental disease: the scale of the problem

The Global Burden of Disease Study conducted in 2016 found that severe periodontal disease, which may result in tooth loss, was the 11th most prevalent disease worldwide. Additionally, the study estimated that 60% to 90% of children across the world (i.e., approximately 486 million children) have caries in their primary teeth. In Saudi Arabia (SA), about 80% of children have caries in their primary dentition, with a mean dmft (decayed, missing, or filled primary teeth) score of 5.0 [14]. Furthermore, 70% of children suffer from caries in their permanent dentition, with a mean DMFT score of 3.5 [14]. In some severe cases, children require hospital admission for multiple tooth extractions under general anesthesia despite tooth decay being almost entirely preventable. This constitutes a major concern, as it indicates that Saudi Arabia is far from achieving the WHO's oral health goals for 2020 [15].

Studies conducted in different regions of Saudi Arabia show that the prevalence of dental diseases is highest in Riyadh and lowest in Ha'il [14, 16, 17]. With increasing urbanization and changes in living conditions, the prevalence of oral diseases is on the rise; this is mainly attributed to inadequate exposure to fluoride and poor access to oral health care services. Furthermore, heavy marketing of processed foods, sugars, and tobacco continues to contribute to the consumption of unhealthy products among children and youth leading to higher risks of oral and dental diseases in this age group [18]. Therefore, childhood oral and dental health are focal points of interest that warrant the immediate attention of government and dental profession officials in SA.

1.3 Pediatric dentistry: scope of practice

According to the American Academy of Pediatric Dentistry, pediatric dentistry is "an age-defined specialty that provides both primary and comprehensive preventive and therapeutic oral health care for infants and children through adolescence, including those with special health care needs" [19]. The focus of other dental specialties is a particular area of dental, oral, or maxillofacial expertise. While pediatric dentistry comprises a variety of disciplines, techniques, procedures, and skills that share a common basis with other specialties, these are adapted to fit the unique requirements of infants, children, and adolescents, including those who demonstrate intellectual, medical, physical, psychological, and/or emotional problems.

In addition to general interpersonal, academic, and technical skills, pediatric dentists also require a special type of competency when interacting with children, which can be termed "child care competency" [20]. This entails a specific insight into the oral and dental health of children and young people, as well as a positive professional attitude and an ability to communicate effectively with children, adolescents, and their parents and/or caregivers.

Pediatric dentists work closely with pediatricians, surgeons, and anesthetists as part of a team in the overall care of children with complex medical problems. In addition, they may work with other agencies such as health visitors and social workers in managing vulnerable children. The realm of the specialty is constantly expanding, and now includes areas such as the early identification of children suspected to have other health conditions and/or syndromes, and those potentially suffering from maltreatment. A cross-sectional study conducted among dentists in SA found that approximately 60% had experienced a case of child abuse or neglect in their practice over the previous five years [21]. This highlights the important role that pediatric dentists have in identifying and reporting cases of child maltreatment.

Pediatric dentistry is unlike any other dental specialty in that it covers all aspects of oral health care for children, such as restorative care (including endodontic treatment and prosthetics), minor oral surgery procedures, and interceptive orthodontics. This discipline is based on knowledge from various dental, medical, and behavioral sciences, and skills are applied to meet the needs of children throughout their ever-changing stages of development, with the purpose of treating conditions and diseases unique to growing individuals. Within pediatric dentistry, prevention is the focal point of care. Promoting and facilitating the prevention of oral and dental diseases in early childhood enables the maintenance of erupting teeth and healthy oral structures. Some duties of pediatric dentists include:

- providing a full range of oral health care to children, including those with special needs;
- managing children with oral and dental developmental problems;
- managing traumatic injuries; and
- contributing to the multidisciplinary care of children with complex issues such as cleft lip and palate, and hypodontia.

1.4 Current challenges

1.4.1 Shortages in pediatric dentists

Training programs in pediatric dentistry are vital to meeting the Kingdom's oral health care needs. The 3-year Pediatric Dentistry residency program immerses the dentist in scientific study enhanced with clinical experience. This training is the dental counterpart to general pediatrics. The resident learns advanced diagnostic and surgical procedures, in addition to:

- pediatric dental emergencies
- child psychology and behavior guidance
- infant oral health
- pediatric oral pathology
- pediatric pharmacology
- maxillofacial radiology
- craniofacial growth and development in children
- management of orofacial trauma
- caring for children with special health care needs (CSHCN), and
- sedation and GA.

According to 2019 data from the Saudi Commission for Health Specialties (SCFHS), the total number of certified Saudi pediatric dentists is 257. They serve a population of approximately 8 million children up to 14 years old; therefore, there are 3.2 pediatric dentists per 100,000 children in Saudi Arabia. There is a total of 532 registered pediatric dentists when including non-Saudis, which corresponds to 6.6 dentists per 100,000 children in SA. This dentist-to-population ratio is lower than that in the USA (8.7 pediatric dentists per 100,000 children) [22, 23], and is grossly inadequate to meet the present demands posed by the continuing high caries rate among children and young people in Saudi Arabia.

Table 1. Breakdown of the number of licensed dentists in SA as of 2019.

Total number of licensed pediatric dentists	532
Saudi pediatric dentists	257
Non-Saudi pediatric dentists	275
General dentists	11924
Saudi general dentists	2378
Non-Saudi general dentists	9546

1.4.2 Pediatric dentistry residency program in Saudi Arabia

Pediatric dentists are the backbone of the pediatric oral health care delivery system, and help to ensure that all children have access to high quality and comprehensive dental services.

There continues to be a shortage of pediatric dentists, as the Kingdom is currently not training a sufficient number to meet the increasing need for pediatric oral health care services. Every program that can be funded is important, as pediatric dentistry residency programs provide a significant amount of care to underserved child populations, including those with special care needs. As a result of the increased attention to this issue, the Pediatric Dentistry Council, supported by the training and accreditation councils at the SCFHS has strived to create a greater number of first-year positions since the initiation of the Saudi Pediatric Dentistry Board in 2005.

1.5 Vision

The vision is to equip the national health care sector with leaders in pediatric dentistry who have been trained and qualified in accordance with international benchmarks, with the overarching aims of satisfying the ambitious national objectives of the 2030 preventive model and improving children's quality of life.

1.6 Mission

The Saudi Board of Pediatric Dentistry program is dedicated to bringing together the best in oral health care for the pediatric population with the vision of a dental home, considering the psychological development of the child and transition to adolescence and adulthood. The mission of this program is to train future leaders in the field of pediatric dentistry. The program is uniquely organized such that residents benefit from the rich academic and institutional resources at the different universities and training institutes in the Kingdom of Saudi Arabia as well as the concept of translational research which is embedded into their training curricula. Furthermore, residents are provided with opportunities to contribute to the promotion of oral health awareness through community engagement.

2. Goals and Responsibilities of Curriculum Implementation

The ultimate goal of this curriculum is to guide trainees to become competent pediatric dentists. This will require a significant amount of effort and coordination from all stakeholders involved in postgraduate training. As an *"*adult-learner,*"* trainees have to fully engage in a proactive role by (1) understanding learning objectives; (2) demonstrating self-directed learning; (3) exhibiting openness to reflective feedback and formative assessment; and (4) seeking support when required. The program director has a vital role in ensuring the successful implementation of the curriculum. Training committee members, particularly the program administrator and chief resident, also have a significant impact on program implementation. Trainees also share responsibility for curriculum implementation. The SCFHS will apply the optimal models of training governance to achieve the best possible quality of training. Program directors in training centers and the Regional Supervisory Training Committee will have major roles in training supervision and implementation. The Pediatric Dentistry Scientific Council will be responsible for ensuring that the curriculum content is continuously updated to match the best-known standards in this discipline.

3. What is New in this Edition?

3.1 Competency-based versus time/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 skills acquired. Additionally, program evaluations have been similarly focused on meeting minimum requirements for curriculum duration.

In the current reformed curriculum, we have shifted from a time/process-based framework to a competency-based framework by implementing the Canadian Medical Education Directions for Specialists (CanMEDS) model. Training is based on successfully demonstrating the application of the specific knowledge, skills, and attitudes that are required for the practice of pediatric dentistry.

3.2 Better supervisory framework

Prior to the current reformed curriculum, there was a lack of clear supervisory guidelines specific to residency levels and predefined competencies. Indeed, there were few details or descriptions as to what the term “supervised” entailed. A new supervisory guideline has now been introduced which integrates competency-based objectives, and matches the specific clinical procedures performed with the resident’s level in the program.

3.3 Addition of research

There has been an increasing trend towards the integration of scientific research training into the Saudi Board PG training programs. The importance of this trend has been greatly emphasized by the SCFHS. Adequate knowledge, skills, and attitude are essential for carrying out research, and evidence-based studies.

4. Policies and Procedures

This curriculum document outlines the learning objectives and educational outcomes expected to be achieved by trainees. The SCFHS has a full set of general bylaws (e.g., on training, assessment, and accreditation) and executive policies (admission, registration, continuous assessment and promotion, examination, trainees’ representation and support, duty hours, and leave) that are published on the official SCFHS website; these regulate all processes related to training, and are to be strictly adhered to by trainees, trainers, and supervisors.

Based on the CanMEDS 2015 framework [24], educators will be able to:

- identify the abilities of individual learners as they progress through their training milestones, and provide constructive feedback to improve and enhance learners’ knowledge, skills, and capabilities;
- use a range of assessment methods, such as formative, summative, self, and workplace assessment; and
- incorporate knowledge, communication, clinical skill, and behavioral domains into the overall assessment.

Learners will be able to:

- provide high-quality care to patients and communities in a safe environment;
- continue to update their knowledge, communication, and technical skills, while exhibiting professional and ethical behavior;
- conduct scientific research to support clinical decision-making and patient management;
- identify their limits and what they should achieve in each stage of training;
- select elective topics in the program; and
- demonstrate abilities that are expected of residents at a given training milestone, and which are in accordance with the continuum of learning as outlined in the CanMEDS 2015 framework.

Furthermore, the integration of scientific translational research into clinical practice is intended to inspire a perpetual process of refinement, transformation, and application of knowledge; this involves organizing input from diverse stakeholders and facilitating a multidirectional exchange of information. The concept of evidence-based dentistry will be integrated across all levels of academic learning and clinical practice. The incorporation of community outreach into the curriculum further provides service to society, which is a pillar of Saudi Arabia Vision 2030 [25]. The concept of the preventive care model and dental public health will be emphasized at all training milestones. The following sections further highlight the new changes that have been made in the reformed curriculum.

5. Abbreviations Used in this Document

ABBREVIATIONS

AAPD	American Academy of Pediatric Dentistry
ACGME	Accreditation Council for Graduate Medical Education
ADA	American Dental Association
AIDS	Acquired immunodeficiency syndrome
ART	Atraumatic restorative treatment
ASA	American Society of Anesthesiologists
CanMEDS	Canadian Medical Education Directions for Specialists
CBD	Case Based Discussion
CBE	Competency-based education
CBME	Competency-based medical education
CCD	Charge coupled device
CDC	Comprehensive documented cases
CEX	Clinical experiences
CLABSI	Central line-associated bloodstream infection
CPD	Continuous professional development
CRC	Comprehensive required cases
CSHCN	Children with special health care needs
CBCT	Cone beam computed tomography
CVM	Cervical vertebral maturation
DIC	Disseminated intravascular coagulation
DMFT	Decayed, missing, or filled teeth
DOPS	Direct observation of procedural skills
DPC	Direct pulp capping
E	Emergency case
ECC	Early childhood caries
ECG	Electrocardiogram
EYPT	End-of-year progress test
FITER	Final in-training evaluation report
GA	General anesthesia
GERD	Gastroesophageal reflux disease
GI	Gastrointestinal
HAI	Hospital-acquired infection
HCW	Health care workers
HIV	Human immunodeficiency virus
ICDAS	International Caries Detection and Assessment System
IM	Intramuscular
IO	Interceptive orthodontics
IRB	Institutional review board
ITE	In-training exam
ITER	In-training evaluation report
ITR	Interim therapeutic restorations
IV	Intravenous

MCQ	Multiple choice question
DIVC	Disseminated intravascular coagulation
MRSA	Methicillin-resistant *Staphylococcus aureus*
MS	Mutans streptococci
MSE	Mental State Examination
MTA	Mineral trioxide aggregate
N_2O	Nitrous oxide
NHANES	National Health and Nutrition Examination Survey
O_2	Diatomic oxygen gas
OH	Oral hygiene
OR	Operating room
OSCE	Objective structured clinical examination
OSPE	Objective structured practical examination
PALS	Pediatric advanced life support
PD	Pediatric dentistry
PG	Postgraduate
OHI	Oral hygiene instructions
PT	Pulp therapy
R1	First-year residents
R2	Second-year residents
R3	Third-year residents
RCPSC	The Royal College of Physicians and Surgeons of Canada
RCT	Root canal treatment
SBPD	Saudi Board of Pediatric Dentistry
SCFHS	Saudi Commission for Health Specialties
SDL	Self-directed learning
SIRS	Systemic inflammatory response syndrome
SOE	Structured oral examination
SSC	Stainless steel crown
T	Trauma case
UCSF	University of California, San Francisco
US	United States
VRE	Vancomycin-resistant *Enterococcus*
WHO	World Health Organization
✔	Practicing skill independently
☑	Practicing skill under supervision

PROGRAM STRUCTURE

1. Program Entry Requirements

- Admission into the program is in accordance with the commission training rules and regulations.
- Trainees shall abide by the training regulations and obligations established by the SCFHS and the training center.
- Training is a full-time commitment. Residents shall be enrolled in full-time, continuous education for the entire duration of the program.
- Training is to be conducted in institutions accredited by the SCFHS.
- Training shall be comprehensive and in fulfillment of promotion requirements and comprehensive patient management.
- Trainees shall be actively involved in patient care with gradual progression of responsibility.

2. Program Durations

- The SBPD is a program that runs for a period of 3 years.
- Didactic clinical sciences and advanced clinical training are integrated into the program.
- Documentation of progress in the program and all related activities must be maintained by the program director and available for review.
- Comprehensive child dental care is divided into two parts: junior residency (the first 2 years), which is dependent (under supervision), and senior residency (the final year) after passing the Part 1 examination, which is independent.

3. Program Description

The SBPD program is comprehensive and consists of preclinical and clinical components with a strong applied evidence-based theoretical background (see table 1). Instruction in all areas of pediatric dentistry is provided through lectures, seminars, crash courses (see table 2), preclinical training in the laboratory and clinical training in ambulatory as well as hospital setting. Further, the hospital operating rooms provide intensive experience in treating healthy children with behavioral challenges as well as special care pediatric patients under GA. While emphasizing the importance of applied basic and clinical sciences, the program highlights a multidisciplinary approach to patient care, and residents in addition to their clinical sessions will complete clinical rotations in pediatric medicine, anesthesia, oral and maxillofacial surgery, hospital operating room and special care dentistry such as craniofacial anomalies and childhood cancer (see table 3).

Table 1-SBPD Program general outline

Course	1st Year*	2nd Year*	3rd Year*	Total hours	% of program
Basic Science	161	84	84	329	6.74
Pediatric Dentistry Seminar	56	56		112	2.29
Book Review	56			56	1.15
Preclinical: Lectures	96			96	1.97
Preclinical: Simulation Laboratory	40			40	0.82
Scientific Case Presentation	40	40	40	120	2.46

Topic for Review	54	92	92	238	4.87
Clinical Observation	128			128	2.62
Hospital Rotations**	384	48	48	480	9.83
Hospital Operating Room rotation		192	384	576	11.80
Clinical Sessions	768	1056	704	2528	51.77
Research Project		60	60	120	2.45
Teaching			60	60	1.23
TOTAL	1783	1628	1472	4883	100

* Number of teaching hours

** Hospital Rotations: For R1: Pediatric Medicine, Oral and Maxillofacial Surgery and Anesthesiology. For R2/3: Children with Craniofacial anomalies and Children with Special Medical Healthcare Needs

Table 2-Crash courses

Course	1st Year*	2nd Year*	3rd Year*	Total hours
Advanced oral biology	14			14
Advanced oral maxillofacial radiology	14			14
Oral medicine diagnosis	7			7
Oral pathology	14			14
Craniofacial development and growth	14			14
Oral microbiology and immunology	14			14
Applied head and neck anatomy	14			14
Dental ethics	14			14
Genetics			14	14
Educational methods			14	14
Infection control guidelines	7			7
Oral epidemiology in Saudi Arabia			14	14
Biostatistics in dentistry		14		14
Child psychology	14			14
Dental biomaterials		14		14
Nitrous oxide-oxygen analgesia/anxiolysis	14			
Pharmacology		14		14
Practice management			14	14
Public health			14	14
Research design and scientific writing		14		14
Evidence-based dentistry		14		14
Clinical photography	14			14
Orthodontic appliances		14		14
Moderate sedation		14		28
Cone-beam computed tomography (CBCT)	7			7
TOTAL	161	84	84	329

* Number of teaching hours

Table 3-Pediatric Dentistry Rotations
*Mandatory
**Elective

Training Year	Discipline	Duration
R1	Pediatric medicine* (General pediatrics, pediatric endocrinology, pediatric neurology, pediatric hematology/oncology, and in-patient care)	Four weeks
	Oral and maxillofacial surgery*	Four weeks
	Anaesthesiology*	Four weeks
R2 and R3	Hospital Operating Room*	One session per week
	Children with craniofacial anomalies**	One session per week for 3 months
	Children with Special Medical Healthcare Needs**	One session per week for 3 months

LEARNING AND COMPETENCIES

1. Introduction to Learning Outcomes and Competency-Based Education

Training should be guided by well-defined "learning objectives" that are driven by targeted "learning outcomes" of a particular program to serve specific specialty needs. Learning outcomes are intended to reflect the professional "competencies" that are entrusted to trainees upon graduation. This ensures that graduates will meet the expected demands of the health care system, in relation to their particular specialty. Competency-based education (CBE) is an adult learning approach that is based on achieving pre-defined, fine-grained, and well-paced learning objectives that are driven by complex professional competencies.

Professional competencies related to health care are usually complex, and comprise a mixture of multiple learning domains (knowledge, skills, and attitudes). CBE is expected to change the traditional methods of evaluation in PG education. For instance, while time is indeed a precious resource, the duration of training should not be considered a proxy for competence (e.g., the time spent on a rotation in a certain hospital ward is not a primary marker of competence achievement in a given discipline). Furthermore, CBE emphasizes the critical role of informed judgment of a learner's progress in achieving competency, which is based on a staged and formative assessment that comprises multiple workplace-based observations. Several CBE models have been developed for PG education in health care, including CanMEDS (The Royal College of Physicians and Surgeons of Canada, the Competency Based Medical Education model (Accreditation Council for Graduate Medical Education, Tomorrow's Doctor in the UK, and many others. The following are concepts used to enhance the implementation of CBE in this curriculum:

- **Competency:** Competency is a cognitive construct assessing the potential to perform efficiently in a given situation, based on the standard of the profession. Professional roles (e.g., expert, advocate, communicator, leader, scholar, collaborator, and professional) are used to define the competency role in order to make it amenable to learning and assessment.
- **Milestones**: Milestones are stages in the developmental journey, which are placed along the competency continuum. Trainees at all stages of their learning journey, from junior to senior levels, will be assisted in developing from novice (requiring supervision) to master (unsupervised) practitioners. At the same time, this should not undermine the role of supervisory/regulatory bodies in malpractice cases among independent practitioners. Milestones are expected to enhance the learning process by regulating the pace of training/assessment to match the developmental level of trainees.
- **Learning domains:** Whenever possible, efforts have been made to categorize the learning outcomes into the corresponding learning domains (K = Knowledge, S = Skills, and A = Attitude). In general, it is advisable to design learning outcomes at a medium depth and breadth (i.e., neither too broad nor too specific). An example of a skill-based learning outcome would be: "Demonstrate competency in taking a focused medical and dental history for a pediatric patient and performing a complete and appropriate physical examination. (S)". A given learning outcome may be categorized into more than one domain.
- **Content area categorization:** It is advisable to categorize learning outcomes into broad content areas related to professional practice. Examples of content areas in pediatrics include growth, nutrition, development, adolescent health issues, prevention, healthy life styles, as well as diagnosis and management of childhood diseases.

2. Mapping of Milestones

Dental Expert

Definition

As Dental Experts, SBPD residents integrate all CanMEDS roles, applying dental knowledge, clinical skills, and professional values in their provision of high-quality and safe patient-centered care. Being a Dental Expert is the central role of the dentist in the CanMEDS framework, and defines the clinical scope of practice for SBPD residents.

Integration of disciplines

To simplify the distribution of the learning objectives, and to ensure that all are adequately covered by residents, the committee reorganized them into integrated modules. A well-planned curriculum, where modules and learning activities are logically aligned, and the modules build upon one another along the learning continuum, will ultimately result in a good learning experience for the residents. These modules are classified according to subject themes as follows.

- **Module 1**: Basic science (Crash course)
- **Module 2**: Specialty topic (Book review)
- **Module 3**: Scientific, evidence-based dentistry (Journal Club) [26]
- **Module 4**: Pre-clinical
- **Module 5**: Clinical
- **Module 6**: Rotation

Key competencies	Learning Objectives/Outcomes	Junior (R1&R2)	Senior (R3)
Practice pediatric dentistry within their defined scope of practice and expertise	1. Demonstrate a commitment to high-quality care for their patients.	☑	✓
	2. Integrate the intrinsic roles of CanMEDS into their pediatric dentistry practice.	☑	✓
	3. Apply knowledge of the clinical and biomedical sciences relevant to their discipline.	☑	✓
	4. Perform appropriately timed clinical assessments with recommendations that are presented in an organized manner.	☑	✓
	5. Carry out professional duties in the face of multiple competing demands.	☑	✓
	6. Recognize and respond to the complexity, uncertainty, and ambiguity inherent in dental practice.	☑	✓
	Module 1: Basic Science (Crash Course) This module provides essential theoretical knowledge in anatomy, embryology, oral biology, oral pathology, oral microbiology, pharmacology, oral medicine, radiology, and biomaterials. It is delivered in a style that facilitates easy learning of the essential facts.		
	1.1 <u>Advanced Oral Biology</u> 1.1.1 Describe selected topics in oral biology relevant to oral structures, functions, and developmental abnormalities.	✓	✓
	1.1.2 List the salivary glands and describe the properties of secretion, and functions of saliva.	✓	✓
	1.1.3 Explain the structure of connective and mineralized tissues (collagen and bone).	✓	✓
	1.1.4 Explain the relationship between the above topics and the host response to systemic and environmental influences.	✓	✓

	1.2 <u>Oral Medicine/Diagnosis</u> 1.2.1 Describe the epidemiology (e.g., prevalence and severity) of oral diseases that are encountered in infants and children through adolescence, including those with special health care needs. 1.2.2 Describe oral diseases of the hard and soft tissues, which are encountered in infants and children through adolescence, including those with special health care needs. 1.2.3 Describe oral and perioral lesions, as well as soft and hard tissue disorders and anomalies in infants, children, adolescents and pediatric patients with special health care needs.	✓ ✓ ✓	✓ ✓ ✓
	1.3 <u>Oral Pathology</u> 1.3.1 Describe the etiology and pathogenesis of oral and paraoral diseases in infants, children, and adults.	✓	✓
	1.4 <u>Craniofacial Development and Growth</u> 1.4.1 List the theories of normal dentofacial growth mechanisms. 1.4.2 Describe the principles of diagnosis and treatment planning for normal and abnormal dentofacial growth and development. 1.4.3 Describe the differential classification of skeletal and dental malocclusion in children and adolescents. 1.4.4 Identify the indications and contraindications of interceptive orthodontic treatment or dentofacial orthopedics in the developing dentition, with the goal of obtaining optimal function, esthetics, and a stable occlusion.	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓

	1.5 <u>Applied Head and Neck Anatomy</u> 1.5.1 Describe the anatomy and structure of the neck. 1.5.2 Describe the anatomy of the structures involved in the special senses, such as the nasal cavities (smell), and tongue (taste). 1.5.3 Describe the soft tissue structures of the oral cavity (e.g., tongue, palate, pharynx, larynx, submandibular and pterygopalatine regions) as observed in the bisected head. 1.5.4 List the structure and function of the cranial nerves. Explain their direct and indirect associations with the brainstem, and how these are relevant when performing a neurological examination.	✓	✓
	1.6 <u>Oral Microbiology and Immunology</u> 1.6.1 Explain immunity to viruses, bacteria, fungi, protozoa, worms, and tumors, as well as the host cells involved in the immune response. 1.6.2 Describe the role of oral bacteria in the development of human dental plaque. 1.6.3 List the current theories of caries formation. 1.6.4 Describe the role of oral bacteria in periodontal disease, and the host immune response. 1.6.5 List the microbiological causes of blood-borne dental infections (e.g., hepatitis B, C or human immunodeficiency viruses) and their major clinical manifestations.	✓	✓
	1.7 <u>Infection Control Guidelines</u> 1.7.1 Describe the pathological and immunological basis of infectious disease. 1.7.2 Explain the methods of transmission and prevention. 1.7.3 Infection control principles and practices.	✓	✓

	1.8 <u>Pharmacology</u> 1.8.1 Describe agents commonly used to treat oral and systemic diseases. 1.8.2 List the indications, contraindications, and potential adverse reactions of medications used. 1.8.3 Prescribe medications for patients under their care	✓	✓
	1.9 <u>Biostatistics in Dentistry</u> 1.9.1 Define the following statistical terms: descriptive statistics, inferential statistics, degrees of freedom, level of statistical significance, tests of significance, measures of association, parametric, non-parametric. 1.9.2 Describe the characteristics of a standard normal curve. 1.9.3 Recognize different measures of central tendency and dispersion according to their characteristics, indications, advantages, limitations, and computations. 1.9.4 Test assumptions of statistical tests. 1.9.5 Interpret the results of a data analysis.	✓	✓
	1.10 <u>Child Psychological Development and Behavior Guidance</u> 1.10.1 Recognize the most accepted theories, including psychodynamic theory (e.g., Erikson, Freud), learning theories, biological-genetic theory, and Piaget's theory. 1.10.2 Describe the multidimensional nature of child development, including physical development, social development, intellectual development (e.g., Alfred Binet, Jean Piaget), and personality development.	✓	✓

	1.10.3 Describe the behavioral characteristics of a normal child during the various stages of growth and development. 1.10.4 Describe the different behavior guidance techniques used to modify a child's behavior.		
	1.11 <u>Public Health</u> 1.11.1 Describe the dental care delivery system. 1.11.2 Describe public health methodology, scientific evaluation, and health care financing; list the patient groups that are served.	☑	✓
	1.12 <u>Oral Epidemiology in Saudi Arabia</u> 1.12.1 Explain the principles and methods of oral epidemiology, as well as the distribution and determinants of oral diseases in SA. 1.12.2 List the etiological agents, host factors, and environmental factors that have been investigated for their association with oral diseases in published epidemiological studies conducted among children in SA, and describe the statistical measures.	☑	✓
	1.13 <u>Nitrous Oxide-Oxygenanalgesia/anxiolysis</u> 1.13.1 Describe how to use N_2O-O_2inhalation. 1.13.2 Identify the complications that could occur and how to prevent and manage them. 1.13.3 Identify the indications and contraindications, as well as advantages and disadvantages of inhalation. 1.13.4 Describe the armamentarium used in the N_2O-O_2inhalation technique, including the continuous flow unit and types of systems used. 1.13.5 Describe the administration technique, and its limitations.	☑	✓

	1.14 <u>Moderate Sedation - (Oral and Parenteral Sedation)</u> 1.14.1 Recognize indications and contraindications of moderate sedation. 1.14.2 Discuss the different types of drugs used in oral and parenteral sedation. 1.14.3 State appropriate monitoring techniques and requirements for patients undergoing moderate sedation. 1.14.4 Explain the necessity for a baseline assessment, as well as frequent monitoring of patients during moderate sedation. 1.14.5 Evaluate and manage expected and unexpected outcomes of moderate sedation.	☑	☑
	1.15 <u>Research Design and Scientific Writing</u> 1.15.1 Explain research design and methodology. 1.15.2 Describe several experimental and quasi-experimental models used in research. 1.15.3 Explain the common threats to internal validity. 1.15.4 Identify causal relationships between independent and dependent variables. 1.15.5 Plan the research process efficiently through a systematic set of procedures. 1.15.6 Construct a well-designed research proposal, which clearly presents the problem to be researched, and discuss existing evidence in a review of the literature. Graduate students will be able to delineate precisely the methods that should be followed to obtain relevant data, and indicate how these data will be organized and analyzed to answer the research question.	☑	✓

	1.16 Dental Biomaterials 1.16.1 Describe different types of dental materials used in pediatric patients, such as cements, glass ionomer, composite, stainless steel crowns, and esthetic crowns. 1.16.2 Describe physical and chemical properties of different tooth-colored restorative materials and their manipulation. 1.16.3 Select suitable restorative dental materials according to the requirements of each case, and describe suitable methods for testing the properties of the materials.	✓	✓
	1.17 Orthodontic Appliances 1.17.1 Identify anterior and posterior inter-arch discrepancies. 1.17.2 Recognize the implications of arch length and occlusal discrepancies. 1.17.3 Describe the use of space analysis to diagnose space discrepancies, and methods for managing them. 1.17.4 Diagnose minor irregularities in the developing dentition. 1.17.5 Explain interceptive orthodontics.	☑	✓
	1.18 Practice Management 1.18.1 Describe the practice and business of dentistry. 1.18.2 Describe dental office design and ergonomics. 1.18.3 Recognize the role of accounting and marketing in dental practice. 1.18.4 Outline determinants of success in the private practice of dentistry. 1.18.5 Identify consumer needs and demands. 1.18.6 Recognize governmental regulations related to dental practice.	☑	✓

	1.19 Clinical Photography 1.19.1 Describe a systematic and new approach for clinical photography. 1.19.2 Describe the types of cameras and the complete range of materials that are available and required for obtaining additional intra-oral pictures. 1.19.3 Explain visual data.	✓	✓
	1.20 Dental Ethics 1.20.1 List ethical issues relevant to situations ranging from ordinary chair side decision making to the treatment of patients with HIV/AIDS. 1.20.2 Describe the essential principles in the practice of ethics. 1.20.3 Describe the legal process, civil law, and forensic dentistry.	✓	✓
	1.21 Advanced Oral and Maxillofacial Radiology 1.21.1 Describe the key principles of radiation physics, radiation biology, hazards and protection, advanced imaging techniques, and diagnostic oral radiology.	✓	✓
	1.22 Educational Methods 1.22.1 Describe teaching methods, curriculum development, instructional objectives, instructional media, audio-visual teaching, learning aids, and assessment methods for knowledge, skills, and attitude.	☑	✓
	1.23 Evidence-Based Dentistry 1.23.1 Describe the processes involved in obtaining the best available clinical evidence from systematic research, and integrating this with individual clinical expertise.	☑	✓
	1.24 Genetics 1.24.1 Describe the basics of genetics, including gene and chromosome structure and function, protein synthesis, hereditary traits in families, different types of inheritance, variation in gene expression, and genetic aspects	☑	✓

	of the most common dental diseases/syndromes.		
	Module 2: Specialty Topics (Book Review) Through recommended activities and reading assignments, the resident will acquire knowledge essential for performing the following tasks: 1. Develop a comprehensive oral health care program based on a complete examination and relevant patient and family medical, dental and social histories. 2. The use of conscious sedation, deep sedation, GA, and various behavioral management techniques for modifying patient behavior. 3. Identify the common dental defects found in children. 4. Properly prescribe drugs used in pediatric dentistry. 5. Develop and present preventive treatment plans, as an integral part of the ongoing comprehensive oral health care program. 6. Provide standard restorative dental procedures in the primary, mixed, and permanent dentitions, while using materials and techniques that will provide maximum benefit for the pediatric patient. 7. Describe space management and the utilization of an interceptive orthodontic approach.	✓ ☑ ✓ ✓ ✓ ✓ ✓ ☑	✓ ☑ ✓ ✓ ✓ ✓ ✓ ☑
	2.1 <u>Examination of the Mouth and Other Relevant Structures</u> 2.1.1 Identify the objectives of treatment planning. 2.1.2 Explain the different types of treatment planning. 2.1.3 Describe the different components of a dental examination (personal data, chief complaint, fluoride history, medical and dental history, dental habits, extra-oral and intra-oral soft tissue examinations, and occlusion) for a child patient. 2.1.4 Define caries risk assessment. 2.1.5 Identify the importance of obtaining the parent/guardian's consent and patient's assent.	✓	✓

	2.1.6 Interpret the obtained data from dental examination (personal data, chief complaint, fluoride history, medical and dental history, dental habits, extra-oral and intra-oral soft tissue examinations, and occlusion) before formalizing a sequential treatment plan for a child patient. 2.1.7 Interpret dental charting. 2.1.8 Obtain a child patient's dietary habits and perform a caries risk assessment. 2.1.9 Assess the level of caries risk in a child patient. 2.1.10 Formulate an overall treatment plan (spanning multiple visits) which prioritizes different treatment items according to urgency of need, while using the concept of quadrant dentistry. 2.1.11 Assess the difficulty of a case and refer difficult-to-manage cases for sedation or GA. 2.1.12 Calculate oral health scores using an OH scoring system such as the Green and Vermillion index. 2.1.13 Obtain the parent/ guardian's consent after presenting and discussing the treatment plan including preventive measures with the parents and the patient. 2.1.14 Choose the appropriate behavior guidance techniques (non-pharmacological) for a child patient. 2.1.15 Complete patient records, before and after treatment (personal data, chief complaint, fluoride history, medical and dental history, dental habits, extra-oral and intra-oral soft tissue examinations, occlusion, OH scoring, and caries risk) using the pediatric dentistry forms in the electronic health record system. 2.1.16 Plan and perform preventive measures for each pediatric patient according to their needs.		

	2.2 <u>Radiographic Techniques</u> 2.2.1 Recognize the importance of radiation hygiene. 2.2.2 Describe the required dental radiographs (radiographic survey) for a child patient (American Academy of Pediatric Dentistry [AAPD] guidelines on prescribing dental radiographs). 2.2.3 Describe the frequency of taking bitewing radiographs based on the need of a child patient. 2.2.4 Describe the indications and clinical steps required for different radiographic techniques. 2.2.5 Evaluate a patient's radiographic findings before formulating a comprehensive sequential treatment plan.	✓	✓
	2.3 <u>Anomalies of the Developing Dentition</u> 2.3.1 Describe the various stages of tooth development. 2.3.2 Identify anomalies that result in disturbances at each stage of tooth development. 2.3.3 Define and describe the various terminologies related to anomalies of the developing dentition. 2.3.4 Describe chronologic enamel hypoplasia and its etiology. 2.3.5 Describe briefly various types of amelogenesis imperfecta. 2.3.6 Describe briefly various genetic and inherited conditions which manifest as generalized enamel dysplasia. 2.3.7 Describe various types of dentine defects. 2.3.8 List various systemic and inherited conditions that may also manifest as generalized dentine defects. 2.3.9 Describe various types of cemental defects. 2.3.10 Recognize various systemic and inherited conditions that may also manifest as generalized cemental defects.	✓	✓

	2.3.11 Discuss the various theories of tooth eruption.		
	2.4 <u>Dental Caries in the Child and Adolescent</u> 2.4.1 Dentist's role in the caries control program. 2.4.2 Etiology of dental caries. 2.4.3 Caries prevalence in preschool children. 2.4.4 Caries prevalence in schoolchildren. 2.4.5 Define rampant dental caries. 2.4.6 Define ECC, severe ECC 2.4.7 Describe additional factors known to influence dental caries. 2.4.8 Early detection of disease activity. 2.4.9 Prediction of patients' risk for future disease (risk assessment). 2.4.10 Describe the control of dental caries. 2.4.11 Describe diagnostic tools. 2.4.12 Describe other preventive therapies.	✓	✓
	2.5 <u>Restorative Dentistry</u> 2.5.1 Define the concept of minimal intervention. 2.5.2 List the recent approaches for the proper maintenance (e.g., application of bonding agents) of pits and fissures. 2.5.3 Discuss the significance of microleakage and the importance of proper cavity sealing. 2.5.4 List difficulties in bonding to primary enamel and dentin. 2.5.5 Mention common errors in class I and class II amalgam restorations in primary molars. 2.5.6 List limitations of amalgam, composite resin materials, and glass ionomer cements. 2.5.7 Describe the composition of resin-modified glass ionomer cements and polyacid-modified composite resin materials, and differences in their properties. 2.5.8 Discuss the use of caries detecting dyes.	✓	✓

	2.5.9 List the advantages and disadvantages of micro air abrasion. 2.5.10 Describe the atraumatic/ alternative restorative treatment (ART) approach, and differentiate it from the use of interim therapeutic restorations (ITR). 2.5.11 List the advantages and disadvantages of calcium hydroxide as a base material.		
	2.6 Pit and Fissure Sealants and Preventive Resin Restorations 2.6.1 Define fissure sealant and preventive resin restoration. 2.6.2 Explain the principles of fissure sealant application and preventive resin restoration. 2.6.3 Identify common errors with fissure sealant application and preventive resin restoration. 2.6.4 Describe the clinical steps of fissure sealant application and preventive resin restoration. 2.6.5 Identify the rationale and indications for fissure sealants and preventive resin restorations. 2.6.6 Identify the fissure sealant as one of the main caries-preventive measures for child patients. 2.6.7 Differentiate between fissure sealants and preventive resin restorations, in terms of the need for a cavity design and filling. 2.6.8 Apply a fissure sealant after proper prophylaxis. 2.6.9 Prepare a cavity and place a preventive resin restoration.	✓	✓
	2.7 Dental Materials 2.7.1 Describe the different types of bases and liners. 2.7.2 Describe cavity varnishes. 2.7.3 Classify dentin-bonding agents. 2.7.4 Discuss the physical, chemical, and mechanical properties of	✓	✓

	restorative materials, and differentiate between different restorative materials and their handling techniques. 2.7.5 Classify dental cements and list the uses of each type of cement.		
	2.8 <u>Treatment of Deep Caries, Vital Pulp Exposure, and Pulpless Teeth</u> **<u>Pulp Therapy for Primary Teeth (Part 1)</u>** 2.8.1 Define pulpotomy in primary teeth. 2.8.2 List the goals of pulp therapy. 2.8.3 List the advantages of pulp therapy. 2.8.4 Describe how to differentially diagnose a vital pulp from a non-vital pulp (history of pain, clinical and radiographic findings). 2.8.5 Describe the different types of vital and non-vital pulp therapies, and their indications and goals. 2.8.6 List the contraindications to performing a pulpotomy on a tooth. 2.8.7 List the medicaments (e.g., mineral trioxide aggregate, ferric sulphate, formecresol) used in primary tooth pulpotomy and describe the quality of evidence supporting their use. 2.8.8 Describe the clinical steps (including the instruments and materials used) for performing a primary tooth pulpotomy. 2.8.9 List the indications and contraindications for performing a pulpectomy on a primary tooth. 2.8.10 List the intracanal medicaments used for performing a pulpectomy. **<u>Pulp Therapy for Young Permanent Teeth (Part 2)</u>** 2.8.11 Define partial pulpotomy in young permanent teeth and list its indications and advantages. 2.8.12 Describe the clinical steps for performing a partial pulpotomy in young permanent teeth.	✓	✓

	2.8.13 Define apexogenesis in young permanent teeth and list its indications and advantages. 2.8.14 Describe the clinical steps for performing an apexogenesis in young permanent teeth. 2.8.15 Define apexification in young permanent teeth and describe its goals. 2.8.16 List the possible complications that can occur after performing vital pulp therapy. 2.8.17 Describe the different pulp therapy techniques which are performed on young permanent teeth. 2.8.18 Define regeneration (revascularization) of non-vital immature permanent teeth, and describe its pros and cons.	☑	✓
	2.9 <u>Gingivitis and Periodontal Disease</u> 2.9.1 Describe the characteristics of healthy periodontium in children, and contrast these with features observed in adults. 2.9.2 Classify the different periodontal conditions in children. 2.9.3 Distinguish abnormal from physiologically normal features of the gingival and periodontal tissues. 2.9.4 Identify different etiological causes and underlying risk factors of common oral and gingival diseases. 2.9.5 Recognize clinical characteristics of the common oral and gingival diseases in children. 2.9.6 Objectively diagnose drug-induced gingival enlargement in children. 2.9.7 Recognize systemic disorders associated with periodontal diseases in children.	☑	✓
	2.10 <u>Local Anesthesia and Pain Control for the Child and Adolescent</u> 2.10.1 Explain the principles of pain theory. 2.10.2 Describe pain assessment and the use of accepted pain scales.	✓	✓

	2.10.3 List the types of topical anesthetics, and their composition, concentration, and maximum recommended dose. 2.10.4 Describe the advantages of vasoconstrictors. 2.10.5 Describe the recommended techniques for the administration of local anesthesia to anesthetize different nerves in children. 2.10.6 Recognize the complications of local anesthesia in a child patient and how to manage them. 2.10.7 List the post-operative instructions that should be provided after local anesthesia administration in children. 2.10.8 Describe how to calculate the maximum recommended dose. 2.10.9 Explain how profound local anesthesia can be administered to a child patient.	✓	✓
	2.11 <u>Nonpharmacologic Management of Children's Behaviors</u> 2.11.1 Describe the stages of child psychological development. 2.11.2 List developmental milestones and the characteristics of each milestone. 2.11.3 Describe the general classification of intellectual development. 2.11.4 Identify theories of development. 2.11.5 Classify children's behavior.	✓	✓
	2.12 <u>Pharmacologic Management of Patient Behavior (Nitrous oxide-oxygen inhalation technique)</u> 2.12.1 Describe how to use N_2O-O_2 inhalation for anxiolysis and analgesia. 2.12.2 Identify potential complications, and how to prevent and manage them. 2.12.3 List the indications and contraindications of this technique, and its advantages and disadvantages.	☑	✓

	2.12.4 Describe the armamentarium used in the N_2O-O_2 inhalation technique, including the continuous flow unit and the types of systems used. 2.12.5 Describe the administration technique, and its limitations. 2.12.6 Outline potential complications and possible adverse effects of N_2O-O_2 inhalation and long-term effects on the dentist and auxiliary staff. **(Moderate Sedation in Pediatric Dentistry)** 2.12.7 List the objectives of moderate sedation. 2.12.8 Be aware of the drugs commonly used in this procedure. 2.12.9 Describe methods of drug administration. 2.12.10 Have an awareness of the monitoring devices and personnel needed to monitor patients. 2.12.11 Discuss the adverse side effects of the drugs used in this procedure. 2.12.12 Outline the procedures used to manage complications or emergencies.	☑	✓
	2.13 Hospital Dental Services for Children and the Use of GA 2.13.1 List indications and contraindications for treatment under GA. 2.13.2 Describe the psychological effects of hospitalization and how to minimize them. 2.13.3 Explain how parental anxiety can be reduced. 2.13.4 Compare outpatient versus in-patient care. 2.13.4.1 Indications and advantages of outpatient care. 2.13.4.2 American Society of Anesthesiologists (ASA) classification. 2.13.4.3 Indications for pre-operative hospitalization.	☑	✓

	2.13.4.4 Indications for post-operative hospitalization. 2.13.5 Describe procedures for dental care.		
	2.14 <u>Eruption of the Teeth: Local, Systemic, and Congenital Factors that Influence the Process</u> 2.14.1 Explain the chronologic development and eruption of the teeth. 2.14.1.1 Describe the effect of the premature loss of primary molars on the eruption time of their successors. 2.14.1.2 List variations in the sequence of eruption. 2.14.2 Describe the lingual eruption of the mandibular permanent incisors. 2.14.3 Describe teething and difficult eruption. 2.14.4 Define natal and neonatal teeth. 2.14.5 Define Epstein pearls, Bohn's nodules, and dental lamina cysts. 2.14.6 List the local and systemic factors that influence eruption.	✓	✓
	2.15 <u>Managing the Developing Occlusion</u> 2.15.1 Describe the occlusion in the developing child. 2.15.2 Classify different occlusal components in the primary and mixed dentition stages. **<u>(Space Management)</u>** 2.15.3 Assess the need for placing a space maintainer. 2.15.4 List the different types of space maintainers. 2.15.5 Identify the indications for each type of space maintainer. 2.15.6 Identify causes and effects of space loss in the primary and mixed dentition. 2.15.7 Recognize indications, contraindications, advantages, and disadvantages of space maintainers.	✓	✓

	2.15.8 List factors to be considered before providing space maintainers. 2.15.9 List factors which influence the development of malocclusion. 2.15.10 Describe the design and placement of different space maintainers. 2.15.11 List the consequences of the improper placement or fabrication of space maintainers. **(Oral habits)** 2.15.12 Recognize the different types of oral habits. 2.15.13 Describe the etiological factors of oral habits. 2.15.14 Identify the effects of each habit on occlusion. 2.15.15 Diagnose each habit. 2.15.16 Describe the techniques used to manage the different habits.	☑	✓
	2.16 Dental Problems of CSHCN 2.16.1 Define CSHCN and describe the barriers they have to dental care. 2.16.2 Describe common oral problems in these children. 2.16.3 Discuss the different adjustments the dentist needs to make to accommodate these children. 2.16.4 Classify and describe some common special health care needs. 2.16.5 Describe and interpret the dental findings in these children. 2.16.6 List the various management options available for each special health care need. 2.16.7 Identify some emergency/crisis situations and explain how they are best managed.	☑	✓
	2.17 Management of the Medically Compromised Patient: Hematologic Disorders (Genetic and Acquired), Cancer, Hepatitis, and AIDS 2.17.1 Describe the different hematologic disorders. 2.17.1.1 Disorders of hemostasis. 2.17.1.2 Procoagulant classification.		✓

	2.17.1.3 Treatment. 2.17.1.4 Patients with bleeding disorders. 2.17.1.5 Complications of bleeding disorders. 2.17.1.6 Development of a treatment plan. 2.17.1.7 Use of antifibrinolytic agents. 2.17.1.8 Pain control. 2.17.1.9 Dental management. 2.17.2 Describe viral hepatitis. 2.17.3 Describe AIDS. 2.17.3.1 Oral manifestations of HIV Infection. 2.17.4 Describe leukemia. 2.17.4.1 Oral manifestations of leukemia. 2.17.4.2 Dental management of patients with leukemia who are undergoing chemotherapy and radiation therapy. 2.17.5 Explain hematopoietic stem cell transplantation. 2.17.5.1 Oral complications of bone marrow transplantation. 2.17.5.2 Graft-versus-host disease. 2.17.5.3 Pretransplantation preparation. 2.17.5.4 Admission and nursing interventions. 2.17.5.5 Remission phase. 2.17.6 List the most common solid tumors and their complications. 2.17.7 Oral cancer.	☑	✓
	2.18 <u>Management of Trauma to the Teeth and Supporting Tissues</u> 2.18.1 Describe the basic epidemiology of traumatic injuries, and their etiology, predisposing factors, and prevention. 2.18.2 Explain methods for the examination and diagnosis of the traumatized patient. 2.18.3 List the various classifications of traumatic dental injuries.		

	2.18.4 Outline the treatment of traumatic dental injuries to the permanent teeth. 2.18.5 List the complications of injuries to the permanent teeth. 2.18.6 Describe injuries to the primary teeth. 2.18.7 Describe the treatment of various dental injuries to the primary teeth. 2.18.8 List the sequelae of traumatic injuries to the primary teeth and developing permanent dentition.	☑	✓
	2.19 <u>Tumors of the Oral Soft Tissues and Cysts and Tumors of Bone</u> 2.19.1 Identify various dental and oral anomalies in pediatric patients. 2.19.2 Differentiate common oral lesions and infections in children. 2.19.3 List common oral lesions and infections in children.	☑	✓
	2.20 <u>Oral Surgery for the Pediatric Patient</u> 2.20.1 Describe simple exodontia, as well as indications and contraindications for extraction. 2.20.2 Describe the management of impacted teeth. 2.20.3 Describe the surgical management of common hard tissue lesions. 2.20.4 Describe the most common surgical soft tissue procedures such as gingivectomy and the surgical management of mucocele. 2.20.5 Describe the infections of the head and neck region and surgical management. 2.20.6 Describe the theory and management of ankyloglossia. 2.20.7 Describe the use of lasers in pediatric dentistry.	☑	✓
	2.21 <u>Antimicrobials in Pediatric Dentistry</u> 2.21.1 Classify antimicrobials. 2.21.1.1 Microbial target. 2.21.1.2 Mode of action. 2.21.1.3 Bactericidal versus bacteriostatic antibiotics.		

	2.21.2 Describe antibiotic resistance. 2.21.3 List antibiotic agents. 2.21.4 Discuss antibiotic prophylaxis. 2.21.4.1 Endocarditis prophylaxis. 2.21.4.2 Prophylaxis for other high-risk patients. 2.21.5 List antifungal agents. 2.21.6 List antiviral agents.	☑	✓
	2.22 <u>Medical Emergencies</u> 2.22.1 Explain how to prevent medical emergencies. 2.22.1.1 History and physical examination. 2.22.1.2 Medical consultation. 2.22.1.3 Patient monitoring. 2.22.2 Describe how to prepare for emergencies. 2.22.2.1 Personal preparation. 2.22.2.2 Staff preparation. 2.22.2.3 Backup medical assistance. 2.22.2.4 Office preparation. 2.22.3 Discuss emergency equipment. 2.22.4 List emergency drugs. 2.22.4.1 Epinephrine. 2.22.4.2 Albuterol (Proventil, Ventolin, others). 2.22.4.3 Nitroglycerin (Nitromyst, Nitrolingual, pump spray, others). 2.22.4.4 Aspirin (multiple brands). 2.22.4.5 Diphenhydramine (Benadryl). 2.22.4.6 Midazolam (Versed). 2.22.4.7 Sugar. 2.22.4.8 Other optional medications. 2.22.5 Describe the management of medical emergencies. 2.22.5.1 Position. 2.22.5.2 Circulation (C), airway (A), breathing (B), and definitive therapy (D).	☑	✓

	Module 3: Scientific, Evidence-Based Dentistry (Journal Club) A reading list will be provided before the module Classical and current dental literature on different topics in pediatric dentistry will be prepared and discussed in the form of a seminar by residents in the presence of training staff. Residents will be evaluated weekly by the tutor at the end of the session. 1. Describe the prediction and evaluation of the changes that occur during the dynamic development of the pediatric dental arch. 2. Describe the location, prevention, and treatment of permanent canine impaction. 3. Describe the diagnosis and management of the ectopic eruption of permanent teeth.		
	Diagnosis and Treatment Planning **3.1** Determine if the number of visits and costs of dental treatment in high-caries-risk children differ between those receiving early dental intervention and those receiving later intervention. **3.2** Compare treatments and treatment costs among children with an early initial dental intervention, to a group of children with a similar caries risk and later dental intervention. **3.3** Identify different methods of caries lesion detection, including the evaluation of caries lesion severity. **3.4** Describe the use of indices, such as the International Caries Detection and Assessment System (ICDAS) and its role in caries diagnosis. **3.5** Assess the diagnostic ability of visual inspection, film, charge coupled device sensors, phosphor storage plate sensors, and cone-beam CT in the detection of proximal caries in posterior teeth, in comparison with the histological gold standard. **3.6** Describe the diagnostic accuracy of different imaging modalities in the detection of proximal caries. **3.7** Evaluate the practices and attitudes of pediatric dentists regarding weight-and caries-related counseling.	☑	✓

	3.8	Identify the primary barriers to weight-related counseling cited by pediatric dentists.		
	3.9	Assess the relationship between the consumption of 100% fruit juice and caries among U.S. preschool children, adjusting for sociodemographic characteristics.		
	3.10	Identify updated evidence demonstrating the association between caries prevalence and sociodemographic factors (poverty level, race/ethnicity) among U.S. children.		
	3.11	Recognize that caries-risk assessment and management protocols can assist clinicians with decisions regarding treatment.		
	3.12	Explain the Caries Assessment Tool and its application.		
	3.13	Define speech and language.		
	3.14	Describe speech and language problems in children.		
	3.15	Define gastroesophageal reflux disease (GERD) and know its manifestations.		
	3.16	Analyze the association of GERD, as well as other potential factors, with dental erosion experience in children.		
	3.17	Recognize that gingival inflammation is a clinical manifestation of the most common infectious disease in children.		
	3.18	Describe key characteristics of chronic inflammation in gingival tissues of children and adolescents.		
	3.19	Summarize the sources of mutans streptococci (MS) colonization in children, and the effect of MS levels in primary caregivers.		
	3.20	Evaluate studies which have investigated the effectiveness of interventions in reducing the transmission of MS from caregivers to their children.		
	3.21	Describe salivary *Streptococcus mutans* as a predictive variable for caries progression.		
	3.22	Differentiate the sensitivity, specificity, and likelihood ratios of a very high (too numerous to count) MS test result.		

	Prevention: **3.23** Describe the treatment of the disease process instead of treating the outcome of the disease. **3.24** Describe the predisposing factors for oral disease in a specific patient, and how they facilitate the formulation of an individualized preventive treatment plan. **3.25** Define ECC and severe ECC. **3.26** Describe the causes of dental caries. **3.27** Explain the mechanism of ECC. **3.28** Describe caries risk assessment. **3.29** Recognize health care providers that are involved in assessing perinatal and infant oral health care (e.g., caries risk assessment, anticipatory guidance, preventive strategies, and therapeutic interventions), as well as stakeholders in pediatric oral health. **3.30** Describe and recognize health care providers involved in educating parents, and ancillary organizations involved in the management of oral health care needs specific to CSHCN (rather than the provision of specific treatment recommendations for oral conditions). **3.31** Plan a preventive oral health intervention, including anticipatory guidance and preventive counseling, for infants, children, and adolescents. **3.32** Describe the use of silver diamine in caries management. **3.33** Describe evidence-based guidelines related to dental caries management in children and adolescents, including those with special health care needs. **3.34** Describe methods of fluoride administration. **3.35** Explain the rationale for water fluoridation and dietary fluoride supplementation. **3.36** Describe fluoride mouth rinse and its uses. **3.37** Explain the mechanism of action and site of fluoride absorption. **3.38** Describe fluoride metabolism and bioavailability. **3.39** Describe the safety and toxicity of fluoride.	☑	✓

	3.40 Present evidence-based clinical recommendations for the use of pit-and-fissure sealants on the occlusal surfaces of primary and permanent molars in children and adolescents. **3.41** Explain whether the risk of developing caries in a formerly sealed tooth, with fully or partially lost sealant, exceeds the risk in a never-sealed tooth. **3.42** Recognize the potential impact of sugar substitutes (e.g., xylitol) on the oral health of infants, children, adolescents, and persons with special health care needs. **3.43** Describe the use of xylitol-based products in preventing caries in children. **3.44** Explain how chlorhexidine can prevent caries. **3.45** Describe the effectiveness of different modes of chlorhexidine delivery for caries prevention. **3.46** Describe guidelines for chlorhexidine use in caries management.	☑	✓
	Growth and Development and Orthodontics **3.47** Examine data-driven advances in clinical orthodontics and explain how they might influence the decision-making process in the specialty. **3.48** Describe the role of the pediatric dentist in performing nasoalveolar molding. **3.49** Elucidate patterns of association among seven types of dental anomalies (aplasia of second premolars, microdontia of maxillary lateral incisors, infraocclusion of primary molars, enamel hypoplasia, ectopic eruption of first molars, supernumerary teeth, and palatal displacement of maxillary canines) in an untreated orthodontic population. **3.50** Describe how to use a version of the Cervical Vertebral Maturation (CVM) method for the detection of the peak in mandibular growth, based on the analysis of the second through fourth cervical vertebrae in a single cephalogram.	☑	✓

	3.51	Describe some of the new modalities that have become available to the dental profession, and explain how they may be advantageous compared to conventional modalities for orthodontic treatment.		
	3.52	Recognize the causes of maxillary permanent canine impaction (including hard tissue obstructions, soft tissue lesions, and anomalies of neighboring teeth), and discuss its controversial relationship with environmental and genetic factors.		
	3.53	Discuss the extent and rate of physiological tooth migration and the mechanism which determines the development of occlusion.		
	3.54	Describe three different biologic mechanisms for the development of occlusion.		
	3.55	Review the clinical and radiographic diagnoses of impacted maxillary canines, as well as the interceptive treatment used to prevent or properly treat this condition.		
	3.56	Describe the changes in the molar relationship from the primary dentition to the permanent dentition.		
	3.57	Explain how changes in intercanine and intermolar widths, as well as changes in maxillary and mandibular arch lengths, may be evaluated on a longitudinal basis over a 45-year span.		
	3.58	Describe the implant method as applied to the maxilla; examine the general pattern of maxillary growth in the lateral view; report the results of an analysis of the sutural growth of the upper face in the sagittal plane, and illustrate the graphical method employed.		
	3.59	Examine the health effects and effectiveness of very long-term retention after orthodontic treatment.		
	3.60	Analyze the effect of extracting the primary maxillary canine on the palatal eruption of the permanent maxillary canine in young individuals.		
	3.61	Describe the effect of extracting the primary molars on the formation and eruption of their successors.		

	3.62 Describe the available evidence regarding orthodontics as an adjunct to post-oral trauma treatment for permanent teeth. **3.63** Examine the theories of craniofacial growth and development in the context of diagnosis and treatment planning of an orthodontic patient. **3.64** Describe the clinical management of ectopically erupting first permanent molars. **3.65** Describe the current knowledge of space management in the primary and mixed dentitions. **3.66** Determine the optimum time for surgical removal of unerupted maxillary anterior supernumerary teeth.		
	Restorative Dentistry **3.67** Recognize materials used in restorative dentistry. **3.68** Describe the selection of materials and appropriate techniques for infant, children, adolescents, and patients with special health care needs. **3.69** Identify the indications, efficacy, and safety of internal and external bleaching of primary and young permanent teeth. **3.70** Recognize the importance of incorporating restorative care into a comprehensive treatment plan. **3.71** Explain how phentolamine mesylate may be used to reverse soft tissue local anesthesia. **3.72** Recognize the judicious use of lasers as a beneficial instrument in the provision of dental restorative and soft tissue procedures for infants, children, and adolescents, including those with CSHCN.	☑	✓
	Pulp Therapy **3.73** Define indirect pulp treatment and know its indications. **3.74** Compare the clinical and radiographic outcomes of an adhesive resin system versus a calcium hydroxide liner for protection of the dentin-pulp complex of primary molars which have undergone indirect pulp treatment.		

	3.75 Identify the different excavation methods for asymptomatic deep carious lesions. **3.76** Describe the stepwise excavation technique. **3.77** Describe evidence-based literature and current techniques for indirect pulp therapy, pulp capping, and pulpotomy for primary teeth and permanent teeth with an open apex. **3.78** Describe the formation of an apical barrier with mineral trioxide aggregate, followed by root strengthening with bonded composite. **3.79** Define partial pulpotomy in young permanent teeth. **3.80** Describe the clinical steps for performing a partial pulpotomy in young permanent teeth. **3.81** Recognize the indications and contraindications for pulp therapy in primary and immature permanent teeth. **3.82** Identify various materials used in indirect pulp therapy, pulpotomy, and pulpectomy in primary and immature permanent teeth.	☑	✓
	Module 4: Pre-Clinical This course is aimed at presenting the residents with basic diagnostic and technical information. Upon completion of the course, the residents should be able to: 1. Describe the principles of cavity preparation design in primary teeth. 2. Apply the principles of rubber dam application by properly placing a rubber dam for restorative procedures. 3. Apply the general principles of cavity design for various classes of caries in primary teeth by preparing and restoring teeth on a typodont. This includes knowledge of the matrix system, as well as amalgam and composite resin manipulation. 4. Utilize the sealant system as a preventive measure against caries. 5. Apply the principles of crown preparation by preparing teeth and fitting stainless steel crowns on a typodont. 6. Apply the principles involved in performing a pulpotomy.		

	7. Compute an arch length analysis for a simulation case and correlate the information obtained with various other diagnostic data to conclude the need for space maintenance and orthodontic treatment. 8. Predict possible crowding problems and utilize a space maintainer as a preventive measure against Class I malocclusion.		
	4.1 <u>Morphology of Primary Teeth: Timing, Sequence, Morphological Differences, and Clinical Significance</u> 4.1.1 Describe the importance of primary teeth. 4.1.2 Identify the general morphological features of primary teeth. 4.1.3 Describe the morphological differences between primary and permanent teeth. 4.1.4 Describe the different tooth numbering systems. 4.1.5 Differentiate the anatomical features of primary and permanent teeth, and describe how these relate to differences in cavity preparation. 4.1.6 Differentiate the anatomical features of primary and permanent teeth, and explain their clinical significance. 4.1.7 Apply tooth numbering systems on primary and permanent teeth. **(Skill)**	✓	✓
	4.2 <u>Rubber Dam Application</u> 4.2.1 List the advantages of rubber dam application. 4.2.2 Explain the indications/contraindications for rubber dam application. 4.2.3 Identify the rubber dam armamentarium. 4.2.4 Describe the clinical steps of rubber dam application.	✓	✓
	4.3 <u>Glossary of Restorative Terminology</u> 4.3.1 Define: axial wall, cavosurface angle, dovetail, isthmus, line angle, point angle, proximal box, pulpal wall, pulpotomy, resistance form, restoration.	✓	✓

	4.4 <u>Principles of Cavity Preparation and Restoration</u> 4.4.1 Apply the general principles of cavity design for various classes of caries in primary teeth, by preparing and restoring teeth on a typodont. This includes knowledge of the matrix system, as well as amalgam and composite resin manipulation. **(Skill)** 4.4.2 List the principal reasons for restoring carious primary teeth.	✓	✓
	4.5 <u>Class I Cavity Preparation</u> 4.5.1 Define Class I cavity preparation. 4.5.2 Explain the principles of Class I cavity preparation for amalgam restorations in primary teeth. 4.5.3 Describe the clinical steps of Class I cavity preparation for amalgam restorations in primary teeth. 4.5.4 Identify the modifications in Class I cavity preparation that are required in cases of anatomical variation in primary teeth. 4.5.5 Perform Class I cavity preparations and restorations in primary teeth. **(Skill)**	✓	✓
	4.6 <u>Class II Cavity Preparation</u> 4.6.1 Describe the prevalence of proximal caries. 4.6.2 Define Class II cavity preparation. 4.6.3 Explain the principles of Class II cavity preparation for amalgam restorations in primary teeth. 4.6.4 Identify common errors with Class II cavity preparation for amalgam restorations in primary teeth. 4.6.5 Describe the clinical steps of Class II cavity preparation for amalgam restorations in primary teeth. 4.6.6 Identify the modifications in Class II cavity preparation that are required in cases of anatomical variation in primary teeth. 4.6.7 Perform Class II cavity preparations and restorations in primary teeth. **(Skill)**	✓	✓

	4.7 <u>Class III Cavity Preparation</u> 4.7.1 Describe the structural anatomy of anterior teeth. 4.7.2 Identify the different types of Class III cavity preparation. 4.7.3 Explain the contraindications for Class III cavity preparation in primary teeth. 4.7.4 Define Class III cavity preparation. 4.7.5 Explain the principles of Class III cavity preparation in primary teeth. 4.7.6 Identify common errors with Class III cavity preparation in primary teeth. 4.7.7 Describe the clinical steps of Class III cavity preparation in primary teeth. 4.7.8 Identify the modifications in Class III cavity preparation that are required due to the anatomic variation of primary teeth. 4.7.9 Perform Class III cavity preparations in primary teeth. **(Skill)**	✓	✓
	4.8 <u>Fissure Sealant</u> 4.8.1 Describe the clinical steps of fissure sealant application.	✓	✓
	4.9 <u>Celluloid Crown Preparation</u> 4.9.1 Define celluloid crown restoration. 4.9.2 Explain the principles of celluloid crown preparation in primary teeth. 4.9.3 Identify common errors with celluloid crown preparation in primary teeth. 4.9.4 Describe the clinical steps of celluloid crown preparation in primary teeth. 4.9.5 Perform celluloid crown preparations in primary teeth. **(Skill)**	✓	✓
	4.10 <u>Class V Cavity Preparation</u> 4.10.1 Describe ECC (bottle caries). 4.10.2 Differentiate between minimum and maximum Class V cavity preparations. 4.10.3 Define Class V cavity preparation.	✓	✓

	4.10.4 Explain the principles of Class V cavity preparation in primary teeth. 4.10.5 Identify common errors with Class V cavity preparation in primary teeth. 4.10.6 Describe the clinical steps of Class V cavity preparation in primary teeth. 4.10.7 Identify the modifications in Class V cavity preparation that are required due to the anatomic variation of primary teeth. 4.10.8 Perform Class V cavity preparations in primary teeth. **(Skill)**	✓	✓
	4.11 <u>Stainless Steel Crown Restoration</u> 4.11.1 Identify types of SSC. 4.11.2 Identify indications for SSCs in primary and permanent teeth. 4.11.3 Define class SSC preparation. 4.11.4 Explain the principles of SSC preparation, selection, and cementation in primary teeth. 4.11.5 Identify common errors with SSC preparation, selection, and cementation in primary teeth. 4.11.6 Describe the clinical steps of SSC preparation, selection, and cementation in primary teeth. 4.11.7 Perform SSC preparation, selection, and cementation in primary teeth. **(Skill)**	✓	✓
	4.12 <u>Pulp Therapy for the Primary Dentition</u> 4.12.1 Define pulpotomy in primary teeth. 4.12.2 List the goals of pulp therapy. 4.12.3 List the advantages of pulp therapy. 4.12.4 Describe how to differentiate between vital and non-vital pulp diagnoses (e.g., via pain history, and clinical and radiographic findings). 4.12.5 Describe different types of vital and non-vital pulp therapy, and their indications and goals. 4.12.6 List the contraindications to performing a pulpotomy on a primary tooth.	✓	✓

	4.12.7 List the pulp medicaments used in the pulpotomy of primary teeth. 4.12.8 Describe the clinical steps for performing a pulpotomy in primary teeth, and the instruments and materials used. 4.12.9 Perform the formocresol pulpotomy technique on primary teeth. **(Skill)**	✓	✓
	4.13 <u>Space maintenance (band and loop)</u> 4.13.1 Describe the clinical steps of Band and loop indications, fabrication and cementation	✓	✓
	4.14 <u>Arch length and model analysis</u> 4.14.1 Formulate Moyers Space analysis in mixed dentation using orthodontic cast.**(Skill)**	✓	✓
	Module 5: Clinical **Description:** Clinical training in pediatric dentistry is spread over the duration of the3-year program. It is designed to train residents with a variety of clinical cases, which involve primary and comprehensive dental care for not only healthy pediatric patients, but also those with special needs and medical conditions. The final part of the program will involve the use of different pharmacological and non-pharmacological behavioral management techniques. In addition, it will include treatment of occlusal problems in the primary, mixed, and young permanent dentition. **Skills and Knowledge Acquired:** Residents who complete the full 36-month SBPD program are expected to have developed their skills and knowledge to the level of a specialist in pediatric dentistry. Pediatric dentistry is an age-defined specialty that provides both primary and comprehensive preventive and therapeutic oral health care for infants and children through adolescence, including those with special health care needs. The specialty emphasizes the prevention of oral diseases through early intervention and initiation of comprehensive preventive practices.		

	Treatment includes restoration and replacement of teeth; management of soft and hard tissue pathology, vital and non-vital pulpal tissues, traumatized primary and permanent teeth, and the developing occlusion; and the use of pharmacological and non-pharmacological techniques to manage patient anxiety and behavior. Pediatric dentists provide comprehensive care in traditional settings, as well as hospital and institutional sites. Care is provided in conjunction with other dental and medical disciplines, when indicated. ***SBPD Program Competencies:*** The SBPD program will enhance the resident's specialty skills beyond the level of pre-doctoral dental education, and successful completion of the program entails the achievement of a number of competencies, as outlined below. Upon entry into the program, residents will dedicate 8 weeks for pre-clinical work on typodonts in the phantom laboratory. They will also be attached to the clinical sessions of a consultant. In addition, residents must be certified in Pediatric Advance Life Support (PALS) within the first year of the program.		
	5.1 <u>Clinical Based Discussion (Clinical documented cases)</u>The resident should submit 6 cases (covering at least 3 categories)over the duration of the 3-year program as follows: **R1**: 2 cases (1 or 2 categories) **R2**: 2 cases (2 categories) **R3**: 2 cases (2 categories) **<u>Categories of Cases</u>** **5.1.1 CATEGORY 1: Comprehensive Care of a Pediatric Patient with Emphasis on Dental Trauma** **Case 1A** – Coronal fracture of a permanent incisor involving enamel and dentin, with or without pulp involvement **Case 1B** – Complete avulsion of a permanent incisor treated with replantation **Case 1C** – Root fracture of a permanent incisor **Case 1D** – Crown fracture or luxation injury of a primary incisor involving pulp therapy		

	5.1.2 CATEGORY 2: Comprehensive Care of a Pediatric Patient with Emphasis on Periodontal Therapy **Case 2A** – Treatment of generalized or localized prepubertal/juvenile periodontitis **Case 2B** – Surgical correction of a mucogingival defect **Case 2C** – Treatment of acute necrotizing ulcerative gingivitis **Case 2D** – Surgical management of a labial or lingual frenum Option 1: Surgical management of an oral frenum Option 2: Surgical management of a restrictive lingual frenum **Case 2E** – Surgical management of fibrous gingival hyperplasia **5.1.3 CATEGORY 3: Comprehensive Care of a Pediatric Patient with Emphasis on Orthodontic Therapy** **Case 3A** – Interceptive orthodontics case **Case 3B** – Comprehensive orthodontics case **5.1.4 CATEGORY 4: Comprehensive Care of a Pediatric Patient with Emphasis on Restorative Therapy Using Sedation or GA for Patient Management** **Case 4A** – Restorative therapy using sedation **Case 4B** – Restorative therapy using GA **5.1.5 CATEGORY 5: Comprehensive Care of a Pediatric Patient with Emphasis on Restorative Therapy for a Child with Special Health Care Needs** **5.1.6 CATEGORY 6: Comprehensive Care of a Pediatric Patient with Emphasis on Restorative Therapy for a Child without Use of Sedation or GA**		
	5.2 <u>Clinical Requirements (Log Book)</u> The resident will provide treatment for a number of pediatric patients under the guidance and supervision of different consultants. Each resident should be allocated a minimum of six clinical including operating room sessions on a weekly basis for each academic year. Each resident should complete a minimum of 90 comprehensive pediatric dentistry cases during the 3-year program, which should include the following:		

Type of Case	Number of Patients
Comprehensive treatment under local anesthesia in a normal setting	35 healthy children 5 Children with special healthcare needs
Comprehensive treatment under sedation (inhalation, oral, intramuscular or intravenous)	10 healthy children 5 Children with special healthcare needs
Comprehensive treatment under GA	15healthy children 5 Children with special healthcare needs 5 Assisting any category
Orthodontic cases (Interceptive)	5 cases
Total	85

Additional clinical requirements may be added, based on the recommendation of the SBPD Scientific Committee, on an individual basis.
The resident is required to maintain a log of all clinical cases, which is to be presented according to the resident's graduation requirements and job description.
All 85 cases should demonstrate comprehensive care (NOT LIMITED TREATMENT) and they should include a minimum of one accepted case for each of the following:

- Trauma in a primary incisor, which requires pulp therapy.
- Trauma in a permanent incisor. This case must involve an avulsion, a crown fracture involving the pulp, or a root fracture in a permanent tooth.
- Treatment of periodontal diseases such as generalized, localized prepubertal, or juvenile periodontitis, or acute necrotizing ulcerative gingivitis.
- Surgical correction of a mucogingival defect in the mixed dentition, surgical management of a labial or lingual frenum, or surgical management of fibrous gingival hyperplasia.
- Correction of a posterior quadrant crossbite in the primary dentition.

- Correction of a single permanent tooth in the mixed dentition (e.g., crossbite).
- Space regaining for a single permanent tooth in the mixed dentition.
- Dental management of a non-nutritive oral habit.

Restorative requirements. The 85 cases should include the following at a minimum:

Procedure	Required Number
Examination and treatment plan	85
Recall	70
Prophylaxis/fluoride	150
Sealants	150
Pulpotomy	120
Pulpectomy	20
Tooth-colored restoration (1 surface)	170
Tooth-colored restoration (2 surfaces)	80
Tooth-colored restoration (3 surfaces)	17
Stainless steel crowns	220
Esthetic crowns	25
Space maintainers	35

Procedure	Required Number
Pulp capping (direct/indirect)	10
Extraction	As needed
Apexification (permanent tooth)	1
Apexogenesis (permanent tooth)	1
Habit appliance/bite guard/interceptive orthodontics	2
Surgery (operculectomy, incision and drainage of an abscess, frenectomy, mucocele excision, biopsy, etc.) with or without assistance	1

	The resident should provide a minimum number of comprehensive cases in each level (85 cases in total), as follows: **Resident Level** / **Required Number** R1 — 15 R2 — 30 R3 — 40 **Total** — **85** **Objectives of 5.1 and 5.2** ▪ Demonstrate in-depth knowledge that would enable them to educate and guide the child and parent to accept and practice preventive oral health care. **(Skill) (Attitude)** ▪ Demonstrate in-depth background knowledge in the basic sciences, as they relate to the clinical practice of pediatric dentistry. **(Skill)** ▪ Diagnose and manage traumatized and carious primary/young permanent teeth to maintain the teeth, pulp tissues, and periodontium in a healthy state. **(Skill)** ▪ Demonstrate the ability to provide comprehensive oral health care for medically, emotionally, mentally, or physically handicapped patients. **(Skill)** ▪ Perform comprehensive and individualized preventive care for the child patient. **(Skill)** ▪ Perform comprehensive therapeutic oral health treatment for the child patient. **(Skill)** ▪ Demonstrate the ability to control pain and anxiety through psychologic and pharmacologic methods, during the provision of dental care in the hospital. **(Skill)** ▪ Implement individual and community prevention programs targeting dental and systemic diseases, as well as traumatic injuries. **(Skill)** Justify and discuss clinical cases. **(Skill)**	✓ ✓ ☑ ☑	✓ ✓ ✓ ✓

	▪ Achieve proficiency in the diagnosis and treatment of occlusion problems in primary, mixed, and young permanent dentition, through the completion of a sufficient number of clinical cases. **(Skill)**	✓	✓
	▪ Implement basic principles of research methodology, including biostatistics and data analysis. **(Skill)**	☑	✓
	▪ Conduct a research project. **(Skill)**		
	▪ Diagnose, analyze, treat, plan, and manage orofacial health problems that occur in childhood or adolescence. **(Skill)**	☑ ☑	✓ ✓
	▪ Apply scientific knowledge that is state-of-the-art in patient management. **(Skill)**		
	▪ List the different treatment modalities.		
	▪ Describe difficulties during the treatment.		
	▪ Explain treatment outcomes of each case.	☑	✓
	▪ Communicate professionally with colleagues, dental auxiliaries, and instructors.	☑	✓
	▪ Communicate professionally with other health care providers in the dental and medical fields.		
	▪ Diagnose various local and systemic pathology. **(Skill)**	☑	✓
	▪ Describe the types of orofacial diseases and their characteristics.	☑	✓
	▪ Describe abnormal physical, mental, and emotional growth and development.	☑	✓
	▪ Explain the consequences of hormonal and nutritional deficiencies.	☑	✓
	▪ Discriminate speech problems associated with oral and dental problems from other causes.	☑	✓
	▪ Explain how speech problems may be associated with oral and dental problems.	✓	✓
	▪ Establish rapport and cooperation with dental and medical colleagues. **(Skill)**	✓	✓
	▪ Formulate and prepare treatment plans which utilize the diagnostic training received. **(Skill)**	✓ ✓ ☑	✓ ✓ ✓

	▪ Utilize good communication skills in the management of the behavior of a child. **(Skill)**	☑	✓
	▪ Provide emergency care of a systemic or dental nature. Residents should be prepared for medical emergencies in the dental clinic setting. Dental emergencies due to trauma, pulp pathosis, periodontal disease, etc., must be treated promptly and correctly by residents. **(Skill)**	☑ ☑	✓ ✓
	▪ Provide high quality restorative treatment for children, from infancy through adolescence. **(Skill)**	☑	✓
	▪ Provide pulpal diagnosis and treatment for carious or traumatized primary or young permanent teeth. **(Skill)**	☑	✓
	▪ Provide Treatment of fractured, subluxated, and avulsed teeth. **(Skill)**		
	▪ Apply knowledge of orofacial growth and development in the provision of preventive and interceptive occlusion management. **(Skill)**		
	▪ Manage various periodontal conditions such as gingivitis, periodontitis, mucogingival defects, frena, aphthous ulcers, herpes simplex, acute necrotizing ulcerative gingivitis, etc. **(Skill)**	✓ ☑	✓ ✓
	▪ Treat a range of surgical problems encountered in children, including simple extractions, impactions, supernumerary teeth, cysts, frena, and biopsy procedures. **(Skill)**	☑ ☑	✓ ✓
	▪ Formulate, present, and carry out preventive treatment plans, involving educational and motivational efforts, diet analysis, pit-and-fissure sealants, professionally and self-administered fluoride regimens, and trauma prevention. **(Skill)**	☑	✓
	▪ Manage CSHCN. **(Skill)**	☑	✓
	▪ Evaluate original dental research articles for methodology, results, statistical interpretation, conclusions, and implications. **(Skill)**	☑	✓

	▪ Develop considerable teaching skills from didactic courses, preparing and presenting lectures, clinical exposure to children and parents, and undergraduate clinical supervision. **(Skill)** ▪ Achieve proficiency in practice management.(Skill) ▪ Develop skills in learning, including continual inquiry and critical thinking. **(Skill)**	☑ ✓ ☑ ☑ ☑	✓ ✓ ✓ ✓ ✓
	5.3 Scientific case presentation Each academic year, residents will be requested to present at least two cases (as per the guidelines stated in the Clinical Case Review section of the handbook) in the presence of an Evaluation Committee during the monthly case presentation sessions (Scientific Day Activity). The purposes of these presentations are to: 5.3.1 List the different treatment modalities. 5.3.2 Describe difficulties during the treatment. 5.3.3 Explain treatment outcomes of each case.	✓ ✓ ✓	
	Module 6: Rotation		
	6.1 Pediatric Medicine (R1) Residents in pediatric dentistry must participate in an intensive pediatric medicine rotation of at least four weeks duration. The features of this rotation are listed below. Rotation in a variety of settings Emergency Department. Subspecialty clinics (Endocrine, Genetics, Hematology/Oncology). Multi-disciplinary team clinics. General pediatrics. Exposure to Obtaining and evaluating complete medical histories. Parental interviews. System-oriented physical examinations.		

	Clinical assessments of healthy and ill patients. Selection of laboratory tests and evaluation of data. Evaluation of physical, motor, and sensory development, as well as genetic implications of childhood diseases. Use of drug therapy in the management of diseases. Parental management through discussions and explanations. Inpatient Care Participate in the evaluation and medical management of pediatric patients admitted to the hospital. Demonstrate an understanding of the following procedures. Admitting procedures. Completing of consultation requests. Obtaining and evaluating patient/family history. Orofacial examination and diagnosis. Ordering radiological and laboratory tests. Writing patient management orders. Pediatric patient monitoring. Discharging and chart completion. Hospital experiences are intended to expose residents to hospital functions, which may include attendance at conferences, seminars, clinics, and clinical inpatient rounds. Through these experiences, residents will be able to demonstrate the following. 6.1.1 Describe childhood infections, infectious diseases, and immunization. 6.1.2 List metabolic disorders associated with bone lesions and defects in skull ossification. 6.1.3 Describe preventive pediatrics. 6.1.4 Describe immunodeficiency diseases and allergic disorders. 6.1.5 Describe diseases of the blood in children. 6.1.6 List cardiovascular system abnormalities and diseases.	☑	✓

	6.1.7 Outline GI diseases 6.1.8 Describe hepatic diseases. 6.1.9 Describe renal diseases (pediatric nephrology). 6.1.10 Recognize disorders of the endocrine system. 6.1.11 Describe neurological diseases, including perinatally acquired cerebral lesions and neuromuscular disease. 6.1.12 Describe the diagnosis and management of children with neoplasms. 6.1.13 Gather medical information. **(Skill)** 6.1.14 Diagnose growth and nutritional disorders, including congenital anomalies. **(Skill)** 6.1.15 Diagnose children with neoplasms. **(Skill)** 6.1.16 Apply effective infection control measures that comply with regulatory standards. **(Skill)** 6.1.17 Demonstrate appropriate communication skills with pediatric patients with chronic and emergency conditions, and their parents. **(Skill)** 6.1.18 Communicate effectively with individuals from diverse populations. **(Attitude) (Skill)** 6.1.19 Communicate with a consultant from a different specialty. **(Attitude) (Skill)** 6.1.20 Work in a team. **(Attitude) (Skill)** 6.1.21 Write progress notes and referral/consultation letters. **(Attitude) (Skill)** 6.1.22 Examine pediatric medical patients with chronic and emergency conditions. **(Skill)**	☑	✓
	6.2 <u>Oral and Maxillofacial Surgery (R1)</u> This is a four weeks rotation in which the resident will be assigned to the Division of Oral & Maxillofacial Surgery in the affiliated institution. The resident will attend, assist, or operate during their clinical sessions, operating room sessions, and participate on oncall duty. The objectives of this rotation are as follows.	✓	✓

	6.2.1 Perform under supervision minor surgical procedures such as extraction, biopsy, frenectomy, releasing ankyloglossia (Skill) **6.3 <u>Anaesthesia Rotation (R1)</u>** Residents will attend GA sessions over a duration of four weeks, at various hospitals. This program allows the resident to be involved with the anesthetist in the administration of general anesthesia and managing airway during GA. 6.3.1 Understand the use of anesthesia risk assessment classification, American Society of Anesthesia (ASA), to assess the physical status classification of dental patients who need to be hospitalized before treatment. 6.3.2 Describe the prevention and management of anaesthetic emergencies, and patient recovery. 6.3.3 Assess laboratory tests and the pre-and post-surgery condition of the patient. (Skill) 6.3.4 Assess the effects of pharmacological agents. (Skill) 6.3.5 Understand and calculate pre-operative, perioperative and post-operative fluid management.(Skill) 6.3.6 Understand the concepts of airway management and perform the skills related to airway management (Skill) 6.3.7 Understand possible anaesthesia risks, explain to parents/guardians and obtain parental consent.(Attitude) (Skill) 6.3.8 Work in a team. (Attitude) (Skill)	☑	✓
	6.4 <u>Hospital Operating Room (R2 & R3)</u> Residents will perform oral rehabilitation for hospitalized children under GA. This program will include the dental management of healthy children, as well as CSHCN, who require hospitalization. 6.4.1 Identify patients who need to be hospitalized before treatment based upon specific criteria such as psychology of the child, nature of treatment and medical history.(Skill)		

	6.4.2 Assess the physical status, based on anesthesia risk classification of the American Society of Anesthesia (ASA) of dental patients who need to be hospitalized before treatment. **(Skill)** 6.4.3 Conduct pre-and post-surgery assessments, as well as laboratory tests. **(Skill)** 6.4.4 Communicate with parents/guardian regarding proposed plan of management alternatives benefits and possible risks of treatment or no treatment.**(Attitude) (Skill)** 6.4.5 Obtain parental informed and written consent for proposed treatment under general anesthesia. **(Attitude) (Skill)** 6.4.6 Admit a patient into the hospital ward as per hospital policy in regard to pediatric patients requiring complete oral rehabilitation under general anaesthesia.**(Attitude) (Skill)** 6.4.7 Document properly per hospital policy preoperative orders, operative note, postoperative/discharge orders and dictate operating room reports. **(Attitude) (Skill)** 6.4.8 Perform comprehensive dental care under GA 6.4.9 Perform and document postoperative instructions to parents 6.4.10 Work in a team. **(Attitude) (Skill)**	☑	✓ ✓
	6.5 <u>Children with Craniofacial anomalies and/or Cleft Lip and Palate (R2 and R3)</u> In this rotation, the resident will be exposed to the principles of managing patients with craniofacial anomalies, via attachment to an interdisciplinary team of specialists. This will include a multidisciplinary which involves an oral surgeon, orthodontist, pediatrician, speech therapist, and pediatric dentist, plastic surgeon, pediatrician, audiologist and other as needed. The multidisciplinary team meets to evaluate patients and develop an individualized, coordinated and integrated plan for each patient.	☑	☑

	6.5.1 Manage patients with craniofacial anomalies in conjunction with an interdisciplinary team of specialists. 6.5.2 Understand the embryology, anatomy, physiology and pathophysiology of craniofacial abnormalities including cleft lip and palate and the terminology used in their description 6.5.3 Provide optimal care for patients with craniofacial anomalies. 6.5.4 Assess the psychological and social impact of cleft lip and palate and 6.5.5 Inform parents/caregivers about the recommended treatment procedures, options, risk factors, benefits, and costs, to assist their decision making.(Skill)(Attitude) 6.5.6 Understand multidisciplinary team working, roles and responsibilities 6.5.7 Assessment and management of children and families including feeding, nutrition and anticipatory guidance on prevention and malocclusion.(Skill)(Attitude)		
	6.6 <u>Children with Special Healthcare Needs (R2 or R3)</u> The resident will be encouraged to pursue specific interests in dealing with the child with special healthcare need. The rotation is specific in the area of interest. The rotation will be based on principles learnt earlier from seminars and evidence based literature review (journal club) covers the problems encountered in CSHCN, including their diagnoses, etiology, clinical features, medical management, prevention, and dental management considerations. The AAPD defines special health care needs as any physical, developmental, mental, sensory, behavioral, cognitive, or emotional impairment, or	☑	✓

	limiting condition that requires medical management, health care intervention, and/or the use of specialized services or programs. The condition may be congenital, developmental, or acquired through disease, trauma, or environmental causes. It may lead to limitations in the performance of daily self-maintenance activities and/or major life activities. Individuals with special health care needs may be at an increased risk for oral diseases throughout their lifetime. Oral diseases can have a direct and devastating impact on their health and quality of life. This rotation will provide knowledge and additional training, in terms of managing patients with special health care needs, and foster the development of increased awareness, attention, adaptation, and accommodative measures beyond what are considered routine care. The resident in providing both primary and comprehensive preventive and therapeutic oral health care to individuals with special health care needs, as an integral part of the specialty of pediatric dentistry. 6.6.1 Record medical and dental history. 6.6.2 Recognize the cause of dental caries for the individual patient. 6.6.3 Recall the phases of a treatment plan. 6.6.4 Identify indications and contra indications for vital pulp therapy. 6.6.5 Select a suitable restorative material on an individual basis. 6.6.6 Identify the contraindications for using antibiotics and analgesics. 6.6.7 Explain the causes of dental caries, as well as their prevention, to pediatric patients and their parents. 6.6.8 Recognize caries risk factors for each patient. 6.6.9 Diagnose orofacial health problems in CSHCN.		

	6.6.10 Identify the need for using dental radiographs as a diagnostic tool. 6.6.11 Interpret a patient's radiographs. (S) 6.6.12 Perform a comprehensive clinical dental examination. (S) 6.6.13 Formulate a comprehensive preventive individualized program and treatment plan for a pediatric dental patient. (S) 6.6.14 Estimate the most appropriate sequential treatment plan. (S) 6.6.15 Obtain parental consents for treatment, and use protective stabilization and pharmacological behavior guidance techniques. (S) 6.6.16 Lead the dental team. (S) 6.6.17 Demonstrate independent learning using evidence-based dentistry. (S) 6.6.18 Analyze the dietary history of patients who are at a high risk of caries. (S) 6.6.19 Give dietary instructions and recommendations to patients and parents. (S) 6.6.20 Communicate with patients, parents, dental assistants, technicians, and consultants. (S) 6.6.21 Present a patient's diagnosis and treatment options to the parents. (S) 6.6.22 Manage the behavior of a pediatric dental patient using non-pharmacological behavior guidance techniques. (S) 6.6.23 Manage the behavior of a pediatric dental patient using nitrous oxide inhalation. (S) 6.6.24 Write referral letters for medical and other dental specialists. (S) 6.6.25 Develop an electronic record for each patient. (S) 6.6.26 Calculate the maximum safe dose of drugs for local anesthesia and sedation in the child patient. **(S)** For example in an oncology rotation, the resident will be exposed to the principles of managing children with childhood cancer and those undergoing hematopoietic cell transplantation.		

	6.6.27 Assess pediatric patients receiving immunosuppressive therapy (skill)(Attitude) 6.6.28 Understand the oral management before initiation of immunosuppressive therapy 6.6.29 Know the dental and oral care during immunosuppression periods (Knowledge) 6.6.30 Understand the indications and specific considerations of hematopoietic cell transplantation (Knowledge) 6.6.31 Know the dental and oral care after the immunosuppressive therapy (Skill)		
Perform a patient centered-clinical assessment and establish a management plan	2.1 Prioritize issues to be addressed in a patient encounter. (Skill) 2.2 Obtain a patient history, perform a physical examination, select appropriate investigations, and interpret their results for diagnosis and management; disease prevention; and health promotion in children, adolescents, and patients with special health care needs. (Skill) 2.3 Establish goals of care in collaboration with patients and their families; this may include slowing disease progression, treating symptoms, achieving a cure, improving function, and palliation in children, adolescents, and patients with special health care needs. (Skill) 2.4 Establish a patient-centered management plan for children, adolescents, and patients with special health care needs. (Skill)	☑	✔
Plan and perform procedures and therapies for the purpose of assessment and/or management	3.1 Determine the most appropriate procedures and therapies for children, adolescents, and patients with special health care needs. (Skill) 3.2 Obtain and document informed consent; this includes the explanation of risks and benefits of, and the rationale for, a proposed procedure or therapy in children, adolescents, and patients with special health care needs. (Skill) 3.3 Prioritize a procedure or therapy, while considering clinical urgency and available resources, for children, adolescents, and patients with special health care needs. (Skill)	☑	✔

	3.4 Perform a procedure in a skilled and safe manner, and adapt methods to unanticipated findings or changing clinical circumstances in children, adolescents, and patients with special health care needs. (Skill)		
Establish plans for ongoing care and, when appropriate, timely consultation	4.1 Implement a patient-centered care plan that supports ongoing care, follow-up on investigations, response to treatment, and further consultation. (Skill)	☑	✔
Contribute actively, as an individual and as a member of a team providing care, to the continuous improvement of health care quality and patient safety	5.1 Recognize and respond to harm from health care delivery, including patient safety incidents, substance abuse, and child neglect and abuse. (Skill) 5.2 Adopt strategies that promote patient safety and address human and system factors. (Skill)	☑	✔

(S) skills; (A) Attitude ✔Practicing skill independently; ☑ practicing skill under supervision;

COMMUNICATOR

Definition

As communicators, SBPD residents form relationships with patients and their families that facilitate the gathering and sharing of essential information for effective dental health care.

Key competencies	Learning Objectives/Outcomes	Junior (R1 & R2)	Senior (R3)
Establish professional therapeutic relationships with patients and their families (Child specific)	**1.1. Communicate using a patient-centered approach that encourages patients' trust and autonomy, and is characterized by empathy, respect, and compassion.** 1.1.1. Apply psychological and behavioral principles in patient-centered communication. 1.1.2. Take time to talk and listen to dental patients to understand them better and improve the clinical relationship. 1.1.3. Provide direct and close contact with patients; this should be characterized by honesty and empathy to create a therapeutic alliance based on trust and respect.	✔ ☑ ✔	✔
	1.2. Optimize the clinical environment for the patient's comfort, dignity, privacy, engagement, and safety. 1.2.1. Show concern about patient privacy and comfort. 1.2.2. Apply all required safety standards.	✔	✔
	1.3. Recognize when the values, biases, or perspectives of patients, dentists, or other dental health care professionals may have an impact on the quality of care, and modify the treatment approach accordingly.	☑	✔
	1.4. Respond to a patient's non-verbal behaviors to enhance communication. 1.4.1. Recognize and appropriately manage anxious or fearful child dental patients. 1.4.2. Recognize and respect the dental patient's need for privacy.	☑ ✔	✔

	1.5. Manage disagreements and emotionally charged conversations. 1.5.1. Respect each patient's perspectives, situation, concerns, and values, and give alternative treatment plans. 1.5.2. Break bad news to child/parent in an empathic manner.	✔ ☑	✔
	1.6. Adapt to the unique needs and preferences of each patient and to his/her clinical condition and circumstances.	✔	✔
Elicit and synthesize accurate and relevant information, incorporating the perspectives of patients and their families	**2.1 Use patient-centered interviewing skills to gather relevant biomedical, dental, and psychological information.** 2.1.1 Encourage and facilitate the dental patient to take the conversational lead, initiating topics of their complaints, symptoms, experience, worries, values, and preferences.	✔☑	✔
	2.2 Provide a clear structure for and manage the flow of an entire patient encounter.	☑	✔
	2.3 Seek and synthesize relevant information from other sources, including the patient's family, with the patient's consent. 2.3.1 Collect the relevant necessary information from the patient's family, previous general dentist (or dental specialist), physician (if related to a medical issue), and other professionals, with the patient's permission. 2.3.2 Act professionally when screening for sensitive information.	✔	✔
Share dental health care information and plans with patients and their families	**3.1 Share information and explanations that are clear, accurate, and timely, while checking for patient and family understanding.**	✔	✔
	3.1.1 Use language that is easily comprehended and matches the patient's requirements and expectations.	✔	✔
	3.1.2 Utilize new technology to facilitate understanding of information and explain dental treatment plans.	✔☑	✔

	3.2	Disclose harmful patient safety incidents to patients and their families accurately and appropriately.	☑ ✔	✔
Engage patients and their families in developing plans that reflect the patient's dental health care needs and goals	4.1	Facilitate discussion with patients and their families in a way that is respectful, non-judgmental, and culturally safe.	✔☑	✔
	4.2	Assist patients and their families to identify, access, and make use of information and communication technologies to support and manage their treatment plan and dental care.	✔	✔
	4.3	Use communication skills and strategies that help patients and their families to make informed decisions regarding their dental health.	✔	✔
Document and share written and electronic information about the clinical encounter 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.	✔	✔
	5.2	Communicate effectively using a written dental and medical health record, electronic dental and medical record, or other digital technology.	✔	✔
	5.3	Share information with patients and others in a manner that respects patient privacy and confidentiality, and enhances understanding.	✔	✔

COLLABORATOR

Definition

As collaborators, SBPD residents work effectively with other dental health care professionals to provide safe, high-quality, patient-centered care.

Key competencies	Learning Objectives/Outcomes	Junior (R1 & R2)	Senior (R3)
Work effectively with dentists, physicians, and other colleagues in the dental health care professions	1.1 **Establish and maintain a positive relationship with dentists, physicians, and other colleagues in the dental health care professions to support relationship-centered collaborative care.**	✔	✔
	1.1.1 Participate in intraprofessional (among dental colleagues) and interprofessional (among other dental and medical health care professionals) relationships and teamwork.	✔	✔
	1.1.2 Work with other health care professionals and dental specialists to integrate care at the individual and community levels.	✔	✔
	1.1.3 Apply the principles of team dynamics.	✔	✔
	1.1.4 Engage in continuous intraprofessional and interprofessional development to enhance team performance.	✔	✔
	1.2 **Negotiate overlapping and shared responsibilities with dentists and other health care professionals during episodic and ongoing care.**	✔	✔
	1.2.1 Recognize one's own professional role and responsibilities and those of others, including dental assistants, laboratory technicians, radiologists, hygienists, and staff in other dental and medical specialties.	✔	✔
	1.3 **Engage in respectful shared decision-making with dentists and other colleagues in the dental health care professions.**	✔	✔

Work with dentists, and other colleagues in the dental health care professions to promote understanding, manage differences, and resolve conflicts	2.1 **Show respect toward collaborators.**	✔	✔
	2.1.1 Encourage the opinions and ideas of other interprofessional and intraprofessional dental health care team members.	✔	✔
	2.1.2 Respect the roles and limitations of other professionals.	✔	✔
	2.2 **Implement strategies to promote understanding, manage differences, and resolve conflicts in a manner that supports a collaborative culture.**	☑	✔
	2.2.1 Value diversity among dental professionals.	☑	✔
	2.2.2 Use constructive negotiation.	☑	✔
	2.2.3 Describe strategies for conflict resolution in the team. 2.2.4 Give timely, sensitive, and instructive feedback to others, and respond respectfully and professionally to feedback from others.	☑ ✔	✔ ✔
Hand over the care of dental patients to another dental health care professional when necessary to facilitate continuity of safe patient care	3.1 **Determine when care should be transferred to another dentist or dental health care professional.**	✔	✔
	3.1.1 Recognize one's own limitations and know when to seek help from others.	✔	✔
	3.2 **Demonstrate handover of care, using both verbal and written communication, during a patient's transition to a different dental health care professional, setting, or stage of care.**	✔	✔
	3.2.1 Write appropriate referral and consultation request forms.	✔	✔

LEADER

Definition

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

Key competencies	Learning Objectives/Outcomes	Junior (R1 & R2)	Senior (R3)
Contribute to the improved delivery of dental health care in teams, organizations, and systems			
	Contribute to a culture that promotes patient safety.	✔	✔
	Analyze patient safety incidents to enhance systems of care.	✔	✔
	Use health informatics to improve the quality of patient care and optimize patient safety.	✔	✔
Engage in the stewardship of dental care resources	Allocate dental care resources for optimal patient care.	✔	✔
	Apply evidence and management processes to achieve cost-appropriate care.	☑	✔
Demonstrate leadership in professional practice	Demonstrate leadership skills to enhance dental care.	✔	✔
	Facilitate change in dental health care to enhance services and outcomes.	✔	✔
Manage career planning, finances, and human resources in a dental practice	Set priorities and manage time to integrate practice and personal life.	✔	✔
	Manage a career and a practice.	✔	✔
	Implement processes to ensure improvement in personal practice.	✔	✔

HEALTH ADVOCATE

Definition

As health advocates, SBPD residents contribute their expertise and influence by working within communities to improve dental health in patient populations. They work with those they serve to determine and understand needs; speak on behalf of others when required; and support the mobilization of resources to effect change.

Key competencies	Learning Objectives/Outcomes	Junior (R1 & R2)	Senior (R3)
Respond to an individual patient's dental health needs by advocating for the patient within and beyond the clinical environment	Work with patients to address determinants of dental health that affect them and their access to necessary dental health services or resources.	✔☑	✔
	Work with patients and their families to increase opportunities to adopt healthy dental behaviors.	✔☑	✔
	Incorporate prevention, promotion, and surveillance of oral health into interactions with individual patients.	✔☑	✔
Respond to the needs of the communities or populations served by advocating for system level change in a socially accountable manner	Work with a community or population to identify the determinants of oral health that affect its members.	☑	✔
	Improve clinical practice by applying a process of continuous quality improvement in preventive care, and the promotion and surveillance of oral health.	☑	✔
	Contribute to the process of improving oral health in the community or population served.	☑	✔

SCHOLAR

Definition

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

Key competencies	Learning Objectives/Outcomes	Junior (R1 & R2)	Senior (R3)
LIFELONG LEARNING **Engage in continuous enhancement of professional activities through ongoing learning**	1.1. **Develop, implement, monitor, and revise a personal learning plan to enhance professional practice.**	✔	✔
	1.2. **Identify opportunities for learning and improvement by regularly reflecting on and assessing personal performance using various internal and external data sources.**	✔	✔
	1.3. **Engage in collaborative learning to improve personal practice and contribute to collective improvements in practice in an ongoing way**.	✔	✔
	1.3.1. Learn from and make use of the expertise of other dentists or dental health care professionals.	✔	✔
TEACHER **Teach students, residents, the public, and other health care professionals**	2.1 **Recognize the influence of role modeling and the impact of the formal, informal, and hidden curriculum on learners.**	✔	✔
	2.1.1 Participate in teaching with dental students, interns, residents, or colleagues.	✔	
	2.2 **Promote a safe learning environment.**	✔	✔
	2.3 **Ensure patient safety is maintained when learners are involved.**	✔	✔
	2.4 **Plan and deliver a learning activity.**	☑	✔
	2.5 **Provide feedback to enhance learning and performance.**	☑	✔
	2.6 **Assess and evaluate learners, teachers, and programs in an educationally appropriate manner.**	☑	✔

EVIDENCE-INFORMED DECISION-MAKING **Integrate best available evidence into practice**	3.1 **Recognize uncertainty in clinical practice and knowledge gaps in clinical and other professional encounters, and generate focused questions that address them.**	☑	✔
	3.2 **Identify, select, and navigate pre-appraised resources.**	✔	✔
	3.3 **Critically evaluate the integrity, reliability, and applicability of health-related research and literature.**	✔	✔
	3.4 **Integrate evidence into decision-making in clinical practice.**	✔	✔
RESEARCH **Contribute to the creation and dissemination of knowledge and practices applicable to health**	4.1 **Demonstrate an understanding of the scientific principles of research and scholarly inquiry, and the role of research evidence in health care.**	✔	✔
	4.2 **Identify ethical principles relevant to research, and how they relate to the informed consent process, as well as the consideration of vulnerable populations, and the potential harms and benefits of study participation.**	✔	✔
	4.3 **Contribute to the work of various research programs.**	✔	✔
	4.4 **Pose questions amenable to scholarly inquiry and select appropriate methods to address them.**	✔	✔
	4.5 **Summarize and communicate to professional and lay audiences, including patients and their families, the findings of relevant research and scholarly inquiry.**	✔	✔

PROFESSIONAL

Definition

As professionals, SBPD residents are committed to the dental health and well-being of individual patients and society through ethical practice, high personal standards of behavior, accountability to the profession and society, dentist-led regulation, and maintenance of personal oral health.

Key competencies	Learning Objectives/Outcomes	Junior (R1 & R2)	Senior (R3)
COMMITMENT TO PATIENTS **Demonstrate a commitment to patients by applying best practices and adhering to high ethical standards**	1.1 **Exhibit appropriate professional behavior and relationships in all aspects of practice by demonstrating honesty, integrity, humility, commitment, compassion, respect, altruism, respect for diversity, and maintenance of confidentiality.**	✔	✔
	1.1.1 Put patients' interests before their own or those of any colleague, organization, or business.	✔	✔
	1.1.2 Maintain the confidentiality of patient information and use it for the purposes for which it is given.	✔	✔
	1.1.3 Keep patient information secured at all times.	✔	✔
	1.1.4 In special cases, it may be justified to make confidential patient information known without consent if it is in the public interest or the patient's interest.	✔	✔
	1.1.5 Maintain appropriate boundaries in relationships with patients, without abusing those relationships.	✔	✔
	1.2 **Demonstrate a commitment to excellence in all aspects of practice.**	✔	✔
	1.3 **Recognize and respond to ethical issues encountered in practice.**	✔	✔
	1.3.1 Reject politely any payment, gift, hospitality, or request to make or accept any referral that may affect professional judgment.	✔	✔
	1.3.2 Treat patients politely and with respect, by recognizing their dignity and rights as individuals.	✔	✔
	1.3.3 Recognize and make patients aware of their responsibility and right to make decisions about their own oral and dental treatment.	✔	✔

	1.3.4 Treat patients fairly and in line with the law.	✔	✔
	1.4 **Recognize and manage conflicts of interest.**	✔	✔
	1.5 **Display professional behavior in the use of technology-enabled communication.**	✔	✔
COMMITMENT TO SOCIETY **Demonstrate a commitment to society by recognizing and responding to societal expectations in oral health care**	2.1 **Demonstrate accountability to patients, society, and the profession by meeting their expectations.**	✔	✔
	2.2 **Demonstrate a commitment to patient safety and quality improvement.**	✔	✔
COMMITMENT TO PROFESSION **Demonstrate a commitment to the profession by adhering to standards and participating in dentist-led regulation**	3.1 **Fulfill and adhere to the professional and ethical codes, standards of practice, and laws governing dental practice.**	✔	✔
	3.1.1 Recognize and follow laws and regulations that affect a dentist's work, premises, equipment, and business.	✔	✔
	3.2 **Recognize and respond to unprofessional and unethical behaviors in dentists and other colleagues in the health care professions.**	✔	✔
	3.2.1 Treat all team members and other colleagues fairly and in line with the law, without discrimination.	✔	✔
	3.3 **Participate in peer assessment and the setting of standards.**	✔	✔
	3.3.1 Share knowledge and skills effectively with other team members and colleagues in the interests of patients.	✔	✔
COMMITMENT TO SELF **Demonstrate a commitment to dental health and well-being by fostering optimal patient care.**	4.1 **Display self-awareness and manage influences on personal well-being and professional performance.**	✔	✔
	4.2 **Manage personal and professional demands for a sustainable practice throughout life.**	✔	✔
	4.3 **Promote a culture that recognizes, supports, and responds effectively to colleagues in need.**	✔	✔

3. Continuum of Learning

This includes learning that should take place in each key stage of progression within the specialty. Trainees are reminded of the need for life-long Continuous Professional Development (CPD). Trainees should keep in mind the necessity of CPD for every health care provider to meet the demands of their profession. The following table states how the role of the resident is expected to progressively develop throughout junior and senior levels of practice.

Undergraduate	PG		Continuous Professional Development
	R 1-2 (Junior Level)	R 3 (Senior Level)	
Non-practicing	Dependent/supervised practice	Dependent/supervised practice	Independent practice/provide supervision
Pre-entrustment	Approaching entrustment	Granting entrustment	Maintaining entrustment
Obtain basic health science and foundational level core discipline knowledge	Obtain fundamental knowledge related to core clinical problems of the specialty	Apply knowledge to provide appropriate clinical care related to core clinical problems of the specialty	Acquire advanced and up-to-date knowledge related to core clinical problems of the specialty
Internship to the practice of discipline	Apply clinical skills such as physical examination and practical procedures related to the core presenting problems and procedures of the specialty	Analyze and interpret findings using clinical skills, and develop appropriate differential diagnoses and management plans for patient care	Compare and evaluate challenging, contradictory findings, and develop expanded differential diagnoses and management plans

Integration of disciplines

To simplify the distribution of the learning objectives included in the different pediatric disciplines, the committee reorganized them into integrated modules that will ensure that the resident covers all the learning objectives of the pediatric dentistry specialty. A well-planned curriculum logically matches modules to learning activities, and the modules can build upon one another along the learning continuum; this will ultimately result in a good learning experience for the residents.

These modules are classified according to the following subject themes:

- **Module 1**: Basic Science (Crash Course);
- **Module 2**: Specialty Topic (Book Review);
- **Module 3**: Scientific, Evidence-Based Dentistry (Journal Club);
- **Module 4**: Pre-Clinical;
- **Module 5**: Clinical; and
- **Module 6**: Rotation

Milestones and continuum of learning

Milestones are a new feature of CanMEDS 2015 (part of the competency based education CBE project) and reflect the abilities expected of a health professional at a certain stage of expertise. These milestones represent a continuum of learning and training. This continuum focuses on residency and continuing professional development after graduation. The CBE continuum approach breaks down specialist education into a series of integrated stages (see the following diagram), whereby residents in the program develop competencies at different stages during their residency and throughout practice. These stages are described below.

Transition to discipline stage

This is a new preparatory stage which emphasizes the clinical knowledge and skills of the resident before entering the clinic.

Foundation of discipline

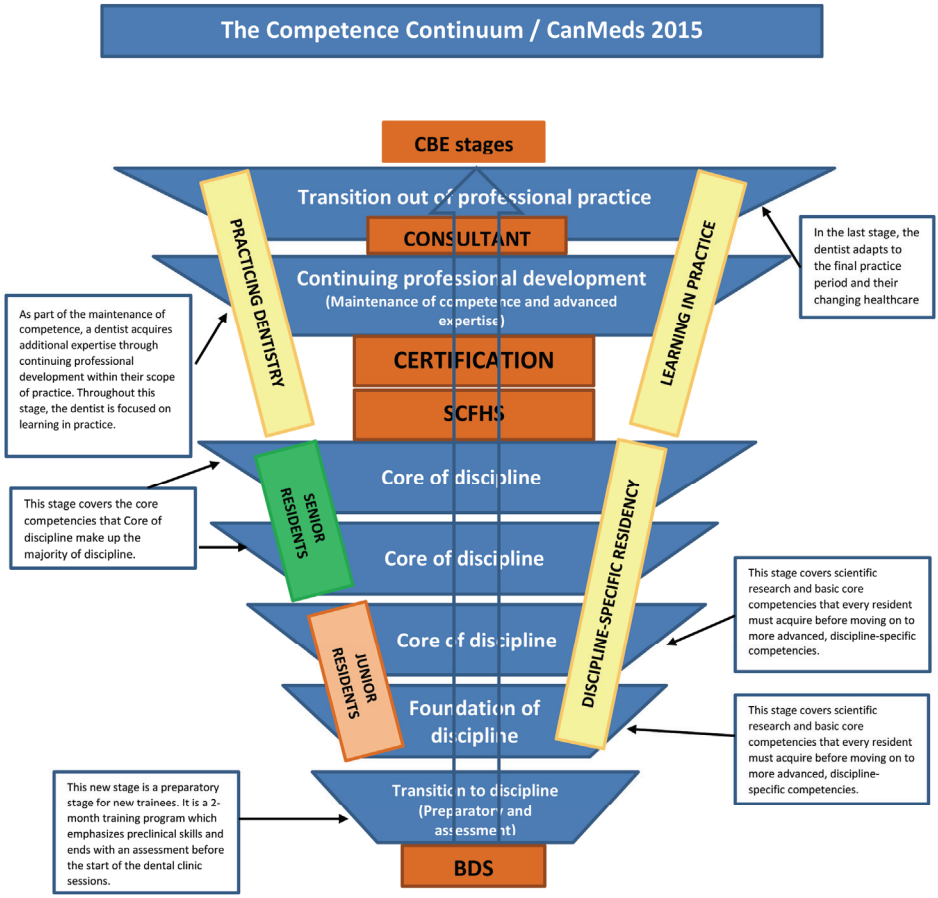
This stage covers scientific research and basic core science knowledge, before moving on to more advanced discipline-specific competencies.

Core of discipline

This is the main stage, in which the resident covers the core competencies that make up the majority of the discipline. This starts with the basic specialty and progresses to become more advanced and complex during the transition from junior to senior residency.

Continuing professional development (CPD)

After graduation, dentists progress in competence development by acquiring additional expertise during CPD (learning in practice).



Adapted from Saudi Board of Restorative Dentistry curriculum 2015

Residents in the clinical training program will be exposed to different cases in different training centers. Therefore, their responsibility in the clinic will increase and progress across the duration of the training period, starting with clinical examination and diagnosis, through to treatment planning and appropriate management. Junior residents have the responsibility for examination, collecting full patient data and records, making the right diagnosis, and formulating a treatment plan. Moreover, junior residents perform dental procedures in the clinic and provide high quality treatment for their patients. These procedures are performed under the supervision of an assigned specialist and consultant. Senior residents have a greater responsibility for the management of advanced cases, in addition to teaching junior residents, under minimum supervision by a specialist and consultant.

The following table shows the expected continuum of learning that should be achieved in each level of progression.

Procedures	Junior level	Senior level
Dental Expert: Comprehensive dental treatment includes: Clinical examination Diagnosis Treatment plan Dental Procedures Recall and follow-up.	Residents show limited knowledge, skills, and broad competencies. Residents work in a dental clinic with close supervision. Their attitude is under development.	Residents show knowledge and experience as specialists in pediatric dentistry. Residents work in dental clinics without close supervision. Residents perform dental procedures as expected of a specialist in pediatric dentistry. Their attitude develops as expected of a specialist in pediatric dentistry.
Communicator	Residents can actively listen and respond to the inquiries of patients and their parents. Residents use appropriate non-verbal body language to demonstrate attentiveness, interest, and responsiveness to patients and their families.	Residents use appropriate non-verbal behaviors to enhance communication with patients and their parents. Residents provide information on diagnosis and prognosis in a clear, compassionate, respectful, and objective manner. Residents facilitate discussions with patients and their families in a respectful and safe environment.

Collaborator	Residents respect the established rules of their team. Residents receive and appropriately respond to input from other health care professionals. Residents differentiate between task and relationship issues among health care professionals.	Residents work effectively with dentists and other colleagues in the health care professions. Residents establish and maintain positive and healthy relationships with dentists and other colleagues in the health care professions.
Leader	Residents describe the process for reporting adverse events and medical errors. Residents determine cost discrepancies between best practice and their current practice.	Residents analyze adverse events and medical errors to enhance systems of care. Residents develop plans to change areas of wasteful practice within their discipline. Residents evaluate problems, set priorities, execute plans, and analyze results.
Health advocate	Residents respond to an individual patient's health needs by advocating for the patient within and beyond the dental clinical environment. Residents analyze a given patient's need for health services or resources, within the scope of their discipline. Residents select appropriate patient education resources related to their discipline.	Residents apply the principles of behavior modification during conversations with patients to improve oral health. Residents participate in processes aimed at improving oral health in the community.

Scholar	Residents review and update earlier learning plan(s) with input from others. Residents demonstrate basic skills in teaching others. Residents demonstrate an understanding of the importance of scientific research and analyze its limitations and applicability.	Residents create a learning plan, incorporating all the CanMEDS domains. Residents discuss a learning plan and strategy for ongoing self-monitoring with a mentor and faculty advisor. Residents conduct scientific research.
Professional	Residents manage tensions between societal and dentists' expectations. Residents demonstrate an ability to regulate tension, emotions, thoughts, and behaviors while maintaining their capacity to perform professional tasks.	Residents demonstrate a commitment to patients by applying best practices and adhering to high ethical standards. Residents demonstrate a commitment to patients by applying best practices and adhering to high ethical standards.

Top 10 conditions in the specialty of pediatric dentistry

A child with acute situational anxiety (Pre-cooperative and uncooperative children)
ECC
CSHCN
Reversible and irreversible pulpitis
Dental abscess
Missing teeth and space loss
Anterior or posterior cross bite
Developmental anomalies
Traumatic injury
Restoration failure

Top 10 causes of a visit to the accident and emergency department

Dental pain
Traumatic Injury
Intra-oral swelling
Extra-oral swelling
Aphthous ulcer
Acute herpetic gingivitis
Loss of space maintainer

Tooth mobility
A dislodged restoration
Traumatic lip biting

Top 10 procedures performed

Stainless steel crown
Composite
Glass ionomer restorations
Pit-and-fissure sealants
Pulpotomy/pulpectomy
Space maintainer
Management of traumatic injuries
Prophylaxis and fluoride application
Treatment planning
Extractions

Common complications or causes of malpractice

Open contact
Failure of pulpotomy/pulpectomy
Occlusal interference
Overhanging restoration
Damage to the sound tooth
Facial Palsy
Traumatic lip biting
Dispute between the parents and the dentist due to the behavior of the child patient
Improper obtaining of informed consent for specific behavior guidance techniques such as protective stabilization
Improper calculations of medications per weight of the child

Procedural requirements upon completion of residency according to level of training

Procedure	Code	Requirement 3 years	Minimum requirements/year			Remarks
			R1	R2	R3	
I. COMPREHENSIVE DOCUMENTED CASES						
Treatment plan and diagnosis approval	CDC-1	**6**	2	2	2	Per patient
Diet analysis	CDC-2	**6**	2	2	2	Per patient
Caries assessment	CDC-3	**6**	2	2	2	Per patient
II. COMPREHENSIVE REQUIRED CASES						
Treatment plan and diagnosis approval	CRC-3	**85**	15	30	40	Per patient
Diet analysis	CRC-4	**85**	15	30	40	Per patient
Caries assessment	CRC-5	**85**	15	30	40	Per patient

III. OPERATIVE							
Composite	**Tooth color, Class I**	O-8	**170**				
	Tooth color, Class II	O-9	**80**				
	Tooth color, Class III	O-10	**17**				
Glass ionomers (resin-modified)		O-11	**30**				
Pit-and-fissure sealants		O-12	**150**				
Preventive resin restoration		O-13	**30**				
Crown	**Esthetic**	O-14	**25**				
	Stainless steel	O-15	**220**				
Prophylaxis		O-16	**150**				
IV. PULP THERAPY							
Pulpotomy		PT-17	**120**				
Pulpectomy		PT -18	**20**				
Pulp capping (direct/indirect)		PT -19	**10**				
Apexification (permanent teeth)		PT -20	**1**				
Apexogenesis (permanent teeth)		PT -21	**1**				
V. INTERCEPTIVE ORTHODONTICS							
Space maintainer		IO-22	**35**				
Space regainer		IO-23	**2**				
Habit appliances/bite guard		IO-24	**2**				
VI. RECALL							
Comprehensive documented/required cases		R-25	**90**				
VII. TRAUMA CASE							
Primary teeth		T-26	**1**				Prosthesis not included
Permanent teeth		T-27	**1**				

VIII. EMERGENCY CASE						
Primary/permanent teeth	E-28	**2**				

CDC (COMPREHENSIVE DOCUMENTED CASE), **CRC** (COMPREHENSIVE REQUIRED CASE), **O** (OPERATIVE CASE), **PT** (PULP THERAPY CASE), **IO** (INTERCEPTIVE ORTHODONTICS CASE), **R** (RECALL CASE), **T** (TRAUMA CASE), **E** (EMERGENCY CASE)

4. Teaching and Academic Activities:

4.1 General principles

Teaching and learning are based on strategies that encourage self-directed learning, development of a high level of intellectual ability, and integration of knowledge and skills. Multiple and effective instructional methods will be offered to help residents achieve their learning objectives in most areas.

Every week, at least 6 hours of formal teaching time should be reserved, and planned in advance with an assigned tutor, time slots, and venue. Formal teaching time excludes clinical training.

The core educational program includes the following formal teaching and learning activities:

- Universal topics
- Core specialty topics
  - Basic science course
  - Preclinical course (basic specialty topics and practical training)
  - Advanced specialty topics
- Trainee-selected topics
- Research and evidence-based topics
- Educational methods and professional development topics

The core educational program will be supplemented by other practice-based and work-based learning such as:

- Clinic-based learning
- Comprehensive case presentations
- Treatment plan sessions/case-based learning
- Scientific, evidence-based dentistry (Journal Club)
- Self-directed learning
- Community services
- Elective modules (special interest module)
- Supplementary courses and workshops

Every four weeks, at least one hour should be assigned to activities such as meeting with mentors, review of

4.2 Universal Topics

Introduction and rationale

Universal topics are high-value, interdisciplinary topics of the utmost importance to the trainee.

The reason for delivering the topics centrally is to ensure that each trainee receives high-quality teaching and acquires essential core knowledge. These topics are common to all dental specialties.

Description
Topics included here must meet one or more of the following criteria
Impactful (topics that are common or life-threatening);
Interdisciplinary (topics that are difficult to teach in a single discipline);
Orphan (topics that are poorly represented in the undergraduate curriculum); or
Practical (topics that trainees will encounter in clinical practice).

These topics will be developed and delivered centrally by the commission through an e-learning platform. A set of preliminary learning outcomes for each topic will be developed. Content experts, in collaboration with the central team, may modify the learning outcomes.

These topics will be didactic in nature and will focus on practical aspects of care; they contain more content than a workshop and other planned face-to-face interactive sessions. The suggested duration of each topic is 1.5 hours.

Teaching methods
E-learning

Assessment
An online formative assessment will be conducted at the end of each learning unit.

A combined summative assessment, in the form of context-rich multiple choice questions (MCQs), will be conducted after the completion of all topics.

Alternatively, these topics can be assessed in a summative manner along with the specialty examination.

Module	Universal topic
R1	- Hospital-acquired infections - Occupation hazards for health care workers
R2	- Safe drug prescribing - Recognition and management of diabetic emergencies - Prescribing drugs to the pediatric patient
R3	- Antibiotic stewardship - Abbreviations - Side effects of chemotherapy and radiation therapy

4.3 Core Specialty Topics

Basic science course

Introduction and rationale

This basic biomedical and biodental science course is delivered in a didactic format, and is designed to cover certain topics at a greater depth than that taught during undergraduate education. The aim of this course is to provide residents with the requisite level of knowledge in the basic sciences to achieve competence in their dental specialty.

Description

This course consists of intensive didactic lectures and seminars covering the following topics: advanced oral biology, oral medicine diagnosis, oral pathology, craniofacial development and growth, pharmacology, oral microbiology and immunology, infection control guidelines, applied head and neck anatomy, biostatistics in dentistry, child psychological development and behavior guidance, public health, oral epidemiology in Saudi Arabia, N2O-O2 inhalation, procedural sedation, research design and scientific writing, dental biomaterials, orthodontic appliances, practice management, clinical photography, dental ethics, advanced oral and maxillofacial radiology, educational methods, evidence-based dentistry, and genetics at the PG level. The course is delivered to residents over a 10-week period (2 days per week) at the beginning of the first year of residency.

Teaching methods

Didactic lectures or seminars

Assessment

End-of-year progress test (EYPT) in a MCQ format
Attendance

Course contents

Topic	Objective
Advanced oral biology	To present selected topics in oral biology relevant to oral structures, functions, and diseases. To describe connective and mineralized tissues (collagen and bone). To describe the relationships between oral structures, functions, and diseases, and the modifying effects of systemic and environmental factors.
Oral medicine and diagnosis	To describe the epidemiology (e.g., prevalence, severity) of oral diseases encountered in infants, children, and adolescents, including those with special health care needs. To describe oral diseases of the hard and soft tissues that are encountered in infants, children, and adolescents, including those with special health care needs.

Oral pathology	To advance residents' knowledge of oral pathology (including etiology and pathogenesis of oral and paraoral disease) beyond the undergraduate level.
Craniofacial development and growth	To list the theories of normative dentofacial growth mechanisms. To describe the principles of diagnosis and treatment planning for normal and abnormal dentofacial growth and development.
Pharmacology	To describe agents commonly used to treat oral and systemic diseases. To list the indications, contraindications, and potential adverse reactions of medications used. To prescribe medications for patients under their care.
Oral microbiology and immunology	To explain immunity to viruses, bacteria, fungi, protozoa, worms, and tumors, as well as the host cells involved in the immune response. To describe the role of oral bacteria in the development of human dental plaque.
Infection control guidelines	To describe the pathological and immunological basis of infectious disease. To explain the methods of transmission and prevention.
Applied head and neck anatomy and embryology	To describe the anatomy and structure of the neck. To describe the anatomy of the structures involved in the special senses, such as the nasal cavities (smell), and tongue (taste). To describe the soft tissue structures of the oral cavity (e.g., tongue, palate, pharynx, larynx, submandibular and pterygopalatine regions) as observed in the bisected head.
Biostatistics in dentistry	To define the following statistical terms: descriptive statistics, inferential statistics, degrees of freedom, level of statistical significance, tests of significance, measures of association, parametric, non-parametric. To recognize different measures of central tendency and dispersion according to their characteristics, indications, advantages, limitations, and computations.
Child psychological development and behavior guidance	To recognize the most accepted theories, including psychodynamic theory (e.g., Erikson, Freud), learning theories, biological-genetic theory, and Piaget's theory. To describe the multidimensional nature of child development. To describe the different behavior guidance techniques used to modify a child's behavior. To describe the behavioral characteristics of a normal child during the various stages of growth and development.
Public health	To describe the dental care delivery system. To describe public health methodology, scientific evaluation, and health care financing, and list the patient groups that are served.
Oral epidemiology in Saudi Arabia	To explain the principles and methods of oral epidemiology, as well as the distribution and determinants of oral diseases in SA. To list the etiological agents, host factors, and environmental factors that have been investigated for their association with oral diseases in published epidemiological studies conducted among children in SA, and describe the statistical measures used.

N2O-O2	To describe how to use N_2O-O_2 inhalation. To identify the complications that could occur and how to prevent and manage them. To understand the armamentarium used in the N_2O-O_2 inhalation technique, including the continuous flow unit and types of systems used. To understand the administration technique, and its limitations.
Moderate sedation	To recognize indications and contraindications of moderate sedation. To state appropriate monitoring techniques and requirements for patients undergoing moderate sedation. To explain the necessity for a baseline assessment, as well as frequent monitoring of patients during moderate sedation. To evaluate and manage expected and unexpected outcomes of moderate sedation.
Research design and scientific writing	To explain research design and methodology. To describe several experimental and quasi-experimental models used in research. To explain the common threats to internal validity. To identify those factors, which indicate a causal relationship between variables. To plan the research process efficiently through a systematic set of procedures. To construct a well-designed research proposal, which clearly presents the problem to be researched and discuss existing evidence in a review of the literature.
Dental biomaterials	To describe the physical and chemical properties of composite. To explain the manipulation and uses of composite materials. To describe different types of dental materials used in pediatric patients, including cements, glass ionomer, composite, and stainless steel crowns.
Orthodontic appliances	To identify anterior and posterior inter-arch discrepancies. To recognize the implications of arch length and occlusal discrepancies. To describe the management of space problems. To diagnose minor irregularities in the developing dentition. To perform interceptive orthodontics.
Practice management	To describe the practice and business of dentistry. To describe dental office design and ergonomics. To recognize the role of accounting and marketing in dental practice.
Clinical photography	To describe a systematic and new approach for clinical photography. To describe the types of cameras and the complete range of materials that are available and required for obtaining additional intra-oral pictures. To explain visual data.

Dental ethics	To list ethical issues relevant to situations ranging from ordinary chair side decision making to the treatment of patients with HIV/AIDS. To describe the essential principles in the practice of ethics. To describe the legal process, civil law, and forensic dentistry.
Advanced oral and maxillofacial radiology	To provide residents with education in radiation physics, radiation biology, hazards and protection, advanced imaging techniques, and diagnostic oral radiology.
Educational methods	To describe teaching methods, curriculum development, instructional objectives, instructional media, audio-visual teaching, learning aids, and assessment methods for knowledge, skills, and attitude.
Evidence-based dentistry	To describe the processes involved in obtaining the best available clinical evidence from systematic research, and integrating this with individual clinical expertise.
Genetics	To describe the basics of genetics, including gene and chromosome structure and function, protein synthesis, hereditary traits in families, different types of inheritance, variation in gene expression, and genetic aspects of the most common dental diseases/syndromes.

Preclinical Pediatric Dentistry

Introduction

The primary function of the laboratory is to facilitate the development of the dentist's psychomotor skills. Psychomotor skills must be highly developed in order to provide quality care for patients.

Due to the high degree of skill required, disappointments and frustrations may occur during the process of learning and development. Some residents, for example, will need to repeat various projects. However, the practical laboratory is the place where the mistakes can occur without inflicting harm upon the patient, and where skills can be developed to a high level of proficiency.

General objectives

This course is aimed at presenting the residents with basic diagnostic and technical information. Upon completion of the course the residents should be able to:

Describe the priciples of cavity preparation design in primary teeth.
Apply the principles of rubber dam application by properly placing a rubber dam for restoration procedures.
Apply the general principles of cavity design for various classes of caries in primary teeth by preparing and restoring teeth on a typodont. This includes knowledge of the matrix system, as well as amalgam and composite resin manipulation.
Utilize the sealant system as a preventive measure against caries.
Apply the principles of crown preparation by preparing teeth and fitting stainless steel crowns on a typodont.
Apply the principles involved in performing a pulpotomy.

Compute an arch length analysis for a simulation case and correlate the information obtained with various other diagnostic data to conclude the need for space maintenance and orthodontic treatment
Predict possible crowding problems and utilize a space maintainer as a preventive measure against Class I malocclusion.

Course Learning Outcomes

Knowledge

Describe morphological differences between primary and permanent teeth.
Identify different cavity preparations and restorations used in the primary dentition.
Describe how a band and loop space maintainer is fabricated.
Identify the main types of preventive treatment (e.g., fissure sealants) that may be performed according to the patients' need.
Recognize indications and contraindications of different pulp therapies for primary teeth.

Cognitive skills

Outline differences in the anatomy of primary and permanent teeth, and how these relate to the choice of cavity design and selection of filling materials.
Determine discrepancies in self-evaluation of performance by comparing self-assessment forms with assessment forms completed by instructors and peers.

Interpersonal skills and responsibility

Adhere to the code of dental ethics and professionalism, in terms of relationships to peers and auxiliaries.

Psychomotor skills

Perform different cavity preparations and restorations in the primary dentition.
Perform pulpotomies in primary teeth.

Staff evaluation

Responsiveness to learning is assessed by:
Attendance - Working to one’s full potential.
Punctuality - Following accepted procedures.
Preparation - Understanding procedures.

Evaluation

Careful self-evaluation is essential for becoming a knowledgeable and capable operator. Residents should use the models and forms provided in each module to evaluate their own cavity preparations, and ask for the instructor’s evaluation thereafter. Residents should also treat the time criterion (i.e., the time in which a competent operator can complete the preparation) as equally important, compared to the other criteria.

In the laboratory

The criteria stated for each cavity preparation on a plastic tooth are essentially the same as for a natural tooth with a similar carious lesion. However, in some instances, estimated measurements (e.g., pulpal depth) are given because reference to an anatomic feature such as the dentino-enamel junction would not be meaningful in a plastic tooth. Most criteria are stated as ranges, as represented by the minimum models. The instructor's grading policy will reflect the importance of meeting the criteria of the minimum, rather than the maximum, model.

For the evaluation, the prepared tooth should be left in the manikin. The resident should check the cavity preparation against the models and the criteria on the typodont evaluation form. Before completing the evaluation form, the resident should decide whether any criteria that are not satisfied could be met with slight improvements. Then, after making any possible improvements, the resident should complete the self-evaluation form. The instructor is subsequently asked to evaluate the resident's work. The resident and instructor should discuss the results; the identification of discrepancies between the two evaluations can be especially helpful in resolving deficiencies in self-assessment ability and learning.

Content and learning objectives

Topics	Learning objectives (Residents should be able to:)
Morphology of primary teeth: Timing, sequence, morphological differences and clinical significance	**Lectures and presentations** List the importance of primary teeth. Identify the general morphological features of primary teeth. Describe the morphological differences between primary and permanent teeth. Describe tooth numbering systems. Differentiate between the anatomy of primary and permanent teeth and describe how the differences affect cavity preparation. Differentiate between the anatomy of primary and permanent teeth and explain how the differences are clinically significant. Apply FDI tooth numbering system on primary and permanent teeth. **Hands-on training session** A brief discussion of the development and morphology of primary teeth is important before considering restorative procedures for children. The discussion includes a general description of primary teeth, which highlights the differences with permanent teeth, and the clinical significance of tooth morphology. The residents are shown samples of plastic and natural primary and permanent teeth, and are asked to describe their characteristic features and distinguish between the tooth types.

Rubber dam application	**Lectures and presentations** List the advantages of rubber dam application. Explain the indications and contraindications for rubber dam application. Identify the rubber dam armamentarium. Explain the clinical steps of rubber dam application. **Hands-on training session** The resident attends a demonstration by the supervising staff member on how to apply the rubber dam on primary teeth. The resident applies a rubber dam on a selected tooth.
Glossary of restorative terminology	**Lectures and presentations** Define: axial wall, cavosurface angle, dovetail, isthmus, line angle, point angle, proximal box, pulpal wall, pulpotomy, resistance form, restoration. **Hands-on training session** A brief discussion of different restorative terminologies approved by the AAPD is conducted.
Principles of cavity preparation and restoration	**Lectures and presentations** Apply the general principles of cavity design for various classes of caries in primary teeth by preparing and restoring teeth on a typodont. This includes knowledge of the matrix system, as well as amalgam and composite resin manipulation. List the principal reasons for restoring carious primary teeth. **Hands-on training session** Discuss the general principles of cavity design for various classes of caries in primary teeth. The residents are shown samples of plastic primary anterior and posterior teeth with different types of cavity preparations for amalgam and composite restorations.
Class I cavity preparation	**Lectures and presentations** Describe the prevalence of occlusal caries. Define Class I cavity preparation. Explain the principles of Class I cavity preparation for amalgam restorations in primary teeth. Describe the clinical steps of Class I cavity preparation for amalgam restorations in primary teeth. Identify the modifications required in Class I cavity preparation due to the anatomic variation of primary teeth.

	Perform Class I cavity preparations and restorations in primary teeth. **Hands-on training session** Perform Class I cavity preparations for amalgam restorations in primary teeth. Restore cavities with amalgam.
Class II cavity preparation	**Lectures and presentations** Describe the prevalence of proximal caries. Define Class II cavity preparation. Explain the principles of Class II cavity preparation for amalgam restorations in primary teeth. Identify common errors with Class II cavity preparation for amalgam restorations in primary teeth. Describe the clinical steps of Class II cavity preparation for amalgam restorations in primary teeth. Identify the modifications required in Class II cavity preparation due to the anatomic variation of primary teeth. Perform Class II cavity preparations and restorations in primary teeth. **Hands-on training session** Prepare Class II amalgam restorations in primary teeth. Apply a matrix band and wedge. Restore cavities with amalgam.
Class III cavity preparation	**Lectures and presentations** Describe the anatomical characteristics of anterior teeth. Identify the different types of Class III cavity preparation. Explain the contraindications of Class III cavity preparation in primary teeth. Define Class III cavity preparation. Explain the principles of Class III cavity preparation in primary teeth. Identify common errors with Class III cavity preparation in primary teeth. Describe the clinical steps of Class III cavity preparation in primary teeth. Identify the modifications required in Class III cavity preparation due to the anatomic variation of primary teeth. Perform Class III cavity preparations in primary teeth.

	Hands-on training session Perform Class III preparations for composite resin restorations. Apply a clear plastic strip and wedge. Restore cavities with composite.
Fissure sealant	**Lectures and presentations** Describe the clinical steps of fissure sealant application. **Hands-on training session** Apply sealant material on a natural tooth and cure it with no voids.
Celluloid crown preparation	**Lectures and presentations** Define celluloid crown preparation. Explain the principles of celluloid crown preparation in primary teeth. Identify common errors with celluloid crown preparation in primary teeth. Describe the clinical steps of celluloid crown preparation in primary teeth. Perform celluloid crown preparations in primary teeth. **Hands-on training session** Perform a celluloid crown preparation in a primary incisor. Ensure the strip crown form is properly trimmed to follow the gingival margin. Fill the crown form with composite and cure it. Remove the crown form for finishing and polishing.
Class V cavity preparation	**Lectures and presentations** Describe ECC (bottle caries). Differentiate between minimum and maximum Class V cavity preparations. Define Class V cavity preparation. Explain the principles of Class V cavity preparation in primary teeth. Identify common errors with Class V cavity preparation in primary teeth. Describe the clinical steps of Class V cavity preparation in primary teeth. Identify the modifications required in Class V cavity preparation due to the anatomic variation of primary teeth. Perform Class V cavity preparations in primary teeth. **Hands-on training session** Perform Class V cavity preparations for composite resin restorations. Restore cavities with composite.

SSC	**Lectures and presentations** Identify the different types of SSC. Identify indications for SSCs in the primary and permanent dentition. Define SSC preparation. Explain the principles of SSC preparation, selection, and cementation in primary teeth. Identify common errors with SSC preparation, selection, and cementation in primary teeth. Describe the clinical steps of SSC preparation, selection, and cementation in primary teeth. Perform SSC preparation, selection, and cementation in primary teeth. **Hands-on training session** Perform SSC preparation, selection, and cementation in primary teeth.
Pulp therapy for the primary dentition	**Lectures and presentations** Define pulpotomy in primary teeth. List the goals of pulp therapy. List the advantages of pulp therapy. Describe how to differentially diagnose a vital pulp from a non-vital pulp, using pain history, clinical assessments, and radiographic examination. Describe different types of vital and non-vital pulp therapy, and their indications and goals. List the contraindications to performing a pulpotomy. List the medicaments used in a pulpotomy for primary teeth. Describe the clinical steps, along with the instruments and materials used, for performing a pulpotomy in primary teeth. Perform the formocresol pulpotomy technique on primary teeth. **Hands-on training session** Mount extracted primary teeth in acrylic resin. Prepare access cavities for anterior (single canal) and posterior (multiple canals) primary teeth.
Space maintenance (band and loop)	**Lectures and presentations** Describe the indications for band and loop space maintainers, and the clinical steps for fabrication and cementation. **Hands-on training session** Following a demonstration, fabricate a band and loop space maintainer with guided supervision, and evaluate the final appliance.

Arch length and model analysis	**Lectures and presentations** Perform a Moyers mixed dentition space analysis using an orthodontic cast. **Hands-on training session** A demonstration practical session is held on how to perform a Moyers mixed dentition space analysis using an orthodontic cast. Residents subsequently perform an analysis with guided supervision, and critique their work.

Specialty topics (Book Review)

This course will serve as a substantial foundation for the practice of comprehensive dentistry in children. The seminar topics are selected to teach the resident basic knowledge concerning clinical assessment, diagnosis, treatment planning, preventive care, behavioral management, restorative treatment, pulp therapy, and space management. It also provides the resident with essential knowledge to properly administer drugs in pediatric dentistry.

General Objectives

Through recommended activities and reading assignments, the resident will acquire knowledge essential to perform the following tasks:

Develop a comprehensive oral health care program based on a complete clinical examination and relevant patient and family information.
Implement various behavioral management techniques for modifying patients' behaviors, and use conscious sedation, deep sedation, and GA.
Manage common dental defects found in children, and properly administer drugs in pediatric dentistry.
Develop and present a prevention plan, as an integral part of an ongoing comprehensive oral health care program.
Provide standard restorative dental procedures in the primary, mixed, and permanent dentitions, and use materials and techniques that will provide maximum benefit for the child patient.
Perform space management and utilize an interceptive orthodontic approach.

Topics

Examination of the mouth and other relevant structures
Radiographic techniques
Anomalies of the developing dentition
Dental caries in the child and adolescent
Restorative dentistry
Pit-and-fissure sealants and preventive resin restorations
Dental materials
Treatment of deep caries, vital pulp exposure, and pulpless teeth
Gingivitis and periodontal disease
Local anesthesia and pain control for the child and adolescent
Nonpharmacologic management of patient behavior

Pharmacologic management of patient behavior
Hospital dental services for children and the use of GA
Eruption of the teeth: Local, systemic, and congenital factors that influence the process
Managing the developing occlusion
Dental problems of CSHCN
Management of the medically compromised patient: Hematologic disorders, cancer, hepatitis, and AIDS
Management of trauma to the teeth and supporting tissues
Cysts and tumors of the oral soft tissues and bone
Oral surgery for the pediatric patient
Antimicrobials in pediatric dentistry
Medical emergencies

Teaching Methods

These topics will be covered in seminars after the residents have been given reading assignments on them.

Evaluation Methods

At the end of the course, there will be a MCQ-format examination. The questions will be based on the assigned readings and seminars. Part of the evaluation will be based on the residents presentations of the assigned topics.

Topic and their objectives

Module	Content
Examination of the mouth and other relevant structures	The different types of treatment planning. The different components of a dental examination (personal data, chief complaint, fluoride history, medical and dental history, dental habits, extra-oral and intra-oral soft tissue examination, and occlusion) for the child patient. Caries risk assessment. The importance of discussing the formulated treatment plan with the parent or guardian and obtaining their consent. Obtained data from dental examination (personal data, chief complaint, fluoride history, medical and dental history, dental habits, extra-oral and intra-oral soft tissue examination, and occlusion) for the child patient, before formalizing a sequential treatment plan. Dental charting. Evaluating dietary habits in order to formulate a caries risk assessment. Assessing the level of caries risk in the child patient. Designing an overall treatment plan (spanning multiple visits) which prioritizes different treatment items according to urgency of need, while using the concept of quadrant dentistry. Assessing the difficulty of a case and referring difficult-to-manage cases for sedation or GA.

	Calculating oral health scores using an OH scoring system such as the Green and Vermillion index. Obtaining the parent's or guardian's consent after presenting and discussing the treatment plan (including preventive measures). Choosing the appropriate behavior guidance techniques (non-pharmacological) for a child patient. Completing patient records, before and after treatment (personal data, chief complaint, fluoride history, medical and dental history, dental habits, extra-oral and intra-oral soft tissue examinations, occlusion, OH scoring, and caries risk) using the pediatric dentistry forms in the electronic health record system (e.g., R4 system). Planning and performing preventive measures for each pediatric patient according to their needs.
Radiographic techniques	Radiation hygiene. Required dental radiographs (radiographic survey) for a child patient (AAPD guidelines on prescribing dental radiographs). Frequency of taking bitewing radiographs based on the need of a child patient. Indications and clinical steps required for different radiographic techniques. Evaluation of a patient's radiographic findings before formulating a comprehensive sequential treatment plan.
Anomalies of the developing dentition	The various stages of tooth development. Anomalies that result in disturbances at each stage of tooth development. Definition and description of the following terminologies. Enamel dysplasia Enamel hypoplasia Enamel hypocalcification Enamel hypomaturation Microdontia Macrodontia Hypodontia Hyperdontia Fusion Gemination Dens invaginatus (dens in dente) Dens evaginatus Concrescence Taurodontism Dilaceration Talon cusp Causes of chronologic enamel hypoplasia. Types of amelogenesis imperfecta. Genetic and inherited conditions which manifest as generalized enamel dysplasia.

	Types of dentine defects. Systemic and inherited conditions that may also manifest as generalized dentine defects. Types of cemental defects. Systemic and inherited conditions that may also manifest as generalized cemental defects. Theories of tooth eruption. Premature tooth eruption and its causes.
Dental caries in the child and adolescent	Dentist's role in the caries control program. Etiology of dental caries. Caries prevalence in preschool children. Caries prevalence in schoolchildren. Rampant dental caries. ECC, severe ECC, nursing caries, baby bottle tooth decay. Additional factors known to influence dental caries. Saliva Socioeconomic status Anatomic characteristics of the teeth Arrangement of the teeth in the arch Presence of dental appliances and restorations Hereditary factors Early detection of disease activity. Prediction of patients' risk for future disease (risk assessment). Control of dental caries. Control of all active caries lesions Reduction in the intake of freely fermentable carbohydrates Reduction of dental plaque (and microorganisms) with good OH procedures Use of fluorides and topical antimicrobial agents Diagnostic tools. Infrared laser fluorescence (DIAGNOdent) Digital imaging fiberoptic transillumination Quantitative light fluorescence Other preventive therapies. Chlorhexidine and thymol Povidone-iodine Xylitol Caries vaccine Dental caries activity tests
Restorative dentistry	The concept of minimal intervention. Recent approaches for the proper maintenance (e.g., application of bonding agents) of pits and fissures. Significance of microleakage and the importance of proper cavity sealing. Difficulties in bonding to primary enamel and dentin. Common errors in Class I and Class II amalgam restorations in primary molars. Types and limitations of modified Class II preparations.

	Limitations of amalgam, composite resin materials, and glass ionomer cements. The composition of resin-modified glass ionomer cements and polyacid-modified composite resin materials, and differences in their properties. The use of caries detecting dyes. Advantages and disadvantages of micro air abrasion. Application of the ART approach, also known as alternative restorative treatment. Advantages and disadvantages of calcium hydroxide as a base material.
Pit-and-fissure sealants and preventive resin restorations	Fissure sealants and preventive resin restorations. The principles of fissure sealant application and preventive resin restoration. Common errors with fissure sealant application and preventive resin restoration. The clinical steps of fissure sealant application and preventive resin restoration. The rationale and indications for fissure sealants and preventive resin restorations. The fissure sealant as one of the main caries-preventive measures for child patients. Differences between fissure sealants and preventive resin restorations, in terms of the need for a cavity design and filling. Application of fissure sealant after a proper prophylaxis. Cavity preparation and placement of a preventive resin restoration.
Dental materials	Bases and liners. Calcium hydroxide Zinc oxide eugenol Zinc phosphate Glass ionomer cement Cavity varnishes. Dentin-bonding agents. Restorative materials. Amalgam (amalgamation, properties, condensation, finishing and polishing) Resin-based composite (chemically polymerized resin-based composite, visible light-polymerized resin-based composite, resin-based composite wear, marginal adaptation, formulations) Glass ionomer (anterior restorations, posterior restorations) Compomers Cements

Pulp therapy	**<u>Pulp therapy for primary teeth (Part 1)</u>** Pulpotomy in primary teeth. Goals of pulp therapy. The advantages of pulp therapy. Differential diagnosis of a vital pulp from a non-vital pulp (via history of pain, and clinical and radiographic findings). Different types of vital and non-vital pulp therapies, and their indications and goals. Contraindications to performing a pulpotomy on a tooth. Medicaments used in primary tooth pulpotomy. Clinical steps (including the instruments and materials used) for performing a primary tooth pulpotomy. The indications and contraindications for performing a pulpectomy on a primary tooth. Intracanal medicaments used for performing a pulpectomy. **<u>Pulp therapy for young permanent teeth (Part 2)</u>** Partial pulpotomy in young permanent teeth and its indications and advantages. The clinical steps for performing a partial pulpotomy in young permanent teeth. Apexogenesis in young permanent teeth and its indications and advantages. Clinical steps for performing an apexogenesis in young permanent teeth. The goals of apexification in young permanent teeth. Possible complications that can occur after performing a vital pulp therapy. Different pulp therapy techniques for young permanent teeth.
Gingivitis and periodontal disease	The characteristics of healthy periodontium in children, and differences compared to adults. The different periodontal conditions in children. Distinguishing abnormal from physiologically normal features of the of the gingival and periodontal tissues. Different etiological causes and underlying risk factors of common oral and gingival diseases. Clinical characteristics of common oral and gingival diseases in children. Objective diagnosis of drug-induced gingival enlargement in children. Systemic disorders associated with periodontal diseases in children.

Local anesthesia and pain control for the child and adolescent	Types of topical anesthetics, and their composition, concentration, and maximum recommended dose. Advantages of vasoconstrictors. Recommended techniques for the administration of local anesthesia to anesthetize different nerves in children. Complications of local anesthesia in a child patient, and how to manage them. Post-operative instructions after local anesthesia administration in children. Calculation of the maximum recommended dose. Administration of profound local anesthesia to minimize pain in a child patient.
Nonpharmacologic behavior management	Developmental milestones and the characteristics of each milestone. The general classification of intellectual development. Theories of development. Nonpharmacological behavior management techniques
Pharmacologic behavior management	**N_2O-O_2 anxiolysis analgesia technique** N_2O-O_2 inhalation for anxiolysis and analgesia. Potential complications, and how to prevent and manage them. Indications and contraindications, advantages and disadvantages. The armamentarium used in the N_2O-O_2 inhalation technique, including the continuous flow unit and the types of systems used. The administration technique, and its limitations. Potential complications and adverse effects on the patient, and long-term effects on the dentist and auxiliary staff. **Moderate Sedation in Pediatric Dentistry** Objectives of moderate sedation. Awareness of drugs commonly used. Methods of drug administration. Awareness of the monitoring devices and personnel needed to monitor patients who are candidates for conscious sedation. Awareness of the adverse side effects of the drugs used in this procedure. Procedures used to manage complications or emergencies.
Hospital dental services for children and the use of GA	Indications and contraindications for treatment under GA. Psychological effects of hospitalization and how to minimize them. How parental anxiety can be reduced. Outpatient versus in-patient care. Indications and advantages of outpatient care ASA classification Indications for pre-operative hospitalization Indications for post-operative hospitalization Procedures for dental care

Eruption of the teeth: Local, systemic, and congenital factors that influence the process	Chronologic development and eruption of the teeth. The effect of the premature loss of primary molars on the eruption time of their successors Variations in the sequence of eruption Lingual eruption of the mandibular permanent incisors. Teething and difficult eruption. Eruption hematoma (eruption cyst) Eruption sequestrum Ectopic eruption Natal and neonatal teeth. Epstein pearls, Bohn's nodules, and dental lamina cysts. Local and systemic factors that influence eruption. Ankylosed teeth Ankylosis of primary molars with absence of permanent successors Ankylosed permanent teeth Trisomy 21 syndrome (Down syndrome) Cleidocranial dysplasia Hypothyroidism Hypopituitarism Achondroplastic dwarfism Other causes
Managing the developing occlusion	Occlusion in the developing child. Different occlusal components in the primary and mixed dentition stages. **(Space Management)** The need for placing a space maintainer. Different types of space maintainers. Indications for each type of space maintainer. Causes and effects of space loss in the primary and mixed dentition. Indications, contraindications, advantages, and disadvantages of space maintainers. Factors to be considered before providing space maintainers. Factors that influence the development of malocclusion. Design and placement of different space maintainers. The consequences of the improper placement or fabrication of space maintainers. **(Oral habits)** Different types of oral habits. Etiological factors of oral habits. Effects of each habit on occlusion. Diagnosis of each habit. Techniques used to manage the different habits.

Dental problems of CSHCN	CSHCN and the barriers they have to dental care. Common oral problems in these children. Different adjustments the dentist needs to make to accommodate these children. Some common special health care needs. The dental findings in CSHCN. Various management options available for each special health care need. Emergency/crisis situations and how they are best managed.
Management of the medically compromised patient: Hematologic disorders, cancer, hepatitis, and AIDS	Hemophilia. Disorders of hemostasis Procoagulant classification Treatment Women with bleeding disorders Complications of bleeding disorders Risks to dental staff Development of a treatment plan Use of antifibrinolytic agents Pain control Dental management Viral hepatitis. Sickle cell anemia AIDS. Oral manifestations of HIV infection Leukemia. Oral manifestations of leukemia Dental management of patients with leukemia Hematopoietic stem cell transplantation. Oral complications of bone marrow transplantation Graft-versus-host disease Pretransplantation preparation Admission and nursing interventions Remission phase Solid tumors
Management of trauma to the teeth and supporting tissues	Basic epidemiology of traumatic injuries, and their etiology, predisposing factors, and prevention. Methods for the examination and diagnosis of the traumatized patient. Various classifications of traumatic dental injuries. Treatment of traumatic dental injuries to the permanent teeth. These include injuries to the tooth crown, and the whole tooth. Complications of injuries to the permanent teeth. Injuries to the primary teeth. Treatment of the various dental injuries to the primary teeth. The sequelae of traumatic injuries to the primary teeth and developing permanent dentition.

Tumors of the oral soft tissues and cysts and tumors of bone	Various dental and oral anomalies in pediatric patients. Common oral lesions and infections in children.
Oral surgery for the pediatric patient	Simple exodontia. Impacted teeth. Impacted third molars Impacted teeth other than the third molars Associated hard tissue lesions. Odontoma Odontogenic cysts Soft-tissue procedures. Mucoceles and ranulas Fibroma and pyogenic granuloma Infection of the head and neck region. Fracture of the mandible Summary.
Antimicrobials in pediatric dentistry	Antimicrobial classification. Microbial target Mode of action Bactericidal versus bacteriostatic antibiotics Antibiotic resistance. Antibiotic agents. Penicillins (penicillin G, penicillin V, ampicillin, amoxicillin, penicillinase-resistant penicillins) Clindamycin Macrolides (erythromycin, azithromycin, and clarithromycin) Cephalosporins Summary Antibiotic prophylaxis. Endocarditis prophylaxis Prophylaxis for other high-risk patients Antifungal agents. Nystatin Clotrimazole Fluconazole and other azoles Amphotericin B and caspofungin Antiviral agents (antiherpetic agents).
Medical emergencies	Prevention of medical emergencies. History and physical examination Medical consultation Patient monitoring Preparation for emergencies. Personal preparation Staff preparation Backup medical assistance Office preparation Emergency equipment.

	Emergency drugs. Epinephrine Albuterol (Proventil, Ventolin, others) Nitroglycerin (Nitromyst, Nitrolingual, pump spray, others) Aspirin (multiple brands) Diphenhydramine (Benadryl) Midazolam (Versed) Sugar Other optional medications Management of medical emergencies. Position Circulation (C), airway (A), breathing (B), and definitive care (D)

Trainee-selected topics

Introduction and rationale

These practically relevant topics are selected by senior residents themselves. The aim is to provide an opportunity for senior residents to develop personally and professionally by choosing, arranging, and performing an educational activity of their own choice in any field of restorative dentistry.

Course description

During their final residency year, senior residents can select topics to be presented to junior residents, graduates, or other professionals in any format they choose, including lectures, case presentations, or workshops. These topics are to be presented within the core education program according to the following guidelines:

Trainees will be given the choice to develop a list of topics;
Trainees can choose any topic relevant to their needs;
All topics must be planned and cannot be chosen at random; and
All topics must be approved by the local education committee.

Assessment

Peer assessment and by supervisors and consultants of presentations

Research

Introduction and rationale

Research is a systematic process of collecting and analyzing information to increase understanding of the phenomenon under study. In the SBPD program, this process is helpful in generating, integrating, and applying knowledge gleaned from research into clinical practice.

Conducting scientific research will improve residents' skills, including their critical thinking, problem solving, and decision-making skills. Furthermore, it creates an innovation-oriented culture and encourages professional communication skills in residents. Moreover, residents will

have the opportunity to gain more knowledge and experience through a direct relationship with expert research supervisors.

Course description

This course will provide SBPD residents with the basic skills needed to approach a scientific research project and complete it successfully. Moreover, it will provide them with an overview of the application of research methodology in dentistry. Therefore, this course will cover topics such as:

Research process
study design
Basics of biostatistics
Manuscript writing, and
Research presentation.

The content of this course will be delivered at the beginning of R2, and utilize a student-centered concept. Residents will present scientific information by asking, discussing, critiquing, and justifying scientific issues based on scientific evidence. One specialist member will attend as a guest to contribute to the validity of the research, guide the discussion, and add valuable comments. A hands-on workshop will be held during this course to facilitate understanding of the research process.

General objectives

At the end of the SBPD program, residents will be able to:

Understand the basic principles of scientific research.
Explain the meaning and application of evidence-based dentistry.
Use relevant information sources (PubMed, journals, textbooks, websites, and library).
Recognize literature that has relevance to clinical practice.
Recognize the ethical principles of scientific research.
Explain the different types of study design.
Conduct scientific research (e.g., proposal defense, research presentation, and poster presentation).
Understand he basics of biostatistics.
Present scientific research, topics, and articles with good verbal communication.
Write a scientific research manuscript that will improve the resident's scientific writing skills.
Explain the process of publication.
Appraise published articles.

Topics	Objectives (Residents will be able to:)	Teaching methods	CanMEDS Framework roles
Introduction to scientific research	Define research. Discuss its importance. List the types of research. Explain the meaning and principles of evidence-based dentistry. List the steps of conducting research. Identify skills needed to design and conduct research studies. Recognize sources of information, articles, and data. Open an account in PubMed (workshop).	✓ Lecture. ✓ Group discussion. ✓ Workshop.	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional
Ethics in scientific research	Recognize research ethics (Ethics Training Module: http://www.pre.ethics.gc.ca/eng/index/). Present principles of the Declaration of Helsinki (ethics). Present principles of the Belmont Report (ethics). Select research group and/or supervisor.	✓ Assignment (resident needs to submit certificate of ethics by answering questions in the training module (website: Panel on Research Ethics). ✓ Residents will present principles of the Declaration of Helsinki and the Belmont Report to peers.	

Literature review	Describe the purpose of a literature review. Discuss the importance of a literature review. List the steps in conducting a literature review. Write the introduction section of a manuscript. Critique a literature review of published articles.	✓ Lecture. ✓ Group discussion. ✓ Residents (in a group) will review and critique the introduction section of a selected article. ✓ Residents will write the introduction section for a literature review of a selected topic (workshop).	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional
Research problem and objectives	Define a research problem and its purpose. Explain the importance of the research problem. Identify purpose statements, research questions, hypotheses, and objectives. Formulate a hypothesis. Formulate a research objective. Discuss the process of developing a research question. Write research objectives. Critique the research objectives of published articles.	✓ Lecture. ✓ Group discussion. ✓ Residents (in a group) will review and critique the introduction section and objectives of a selected article. ✓ Residents will write the research objectives for a selected topic (workshop).	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional

Introduction to referencing	Define a reference and a citation. List the different types of referencing styles. Understand the meaning of plagiarism. Write statements, or a paragraph, with citations and references. Attend an EndNote hands-on workshop.	✓ Lecture. ✓ Group discussion. ✓ Residents (in a group) will review and identify the types of references in a selected article. ✓ Residents will attend an EndNote hands-on workshop. ✓ Residents will write statements, or a paragraph, with citations and references using the EndNote program. ✓ Residents will write statements, or a paragraph, with different referencing styles.	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional
Study design/ research methodology	Describe the characteristics of quantitative, qualitative, and mixed methods research. Explain quantitative study design (research methodology). Describe descriptive studies and analytical studies. Describe experimental research (quasi-experimental and non-experimental quantitative research). Discuss the steps in conducting experimental research.	✓ Lecture. ✓ Group discussion. ✓ Residents will review and critique the methods section of a selected article. ✓ Residents will identify the type of study design used in a selected article.	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional

	Explain the meaning and uses of correlational research. Explain the meaning of causation and association research. Critique study designs of published articles.		
Types of variables, confounding modifiers, ethical committee research approval sampling techniques, data collection	List the different types of variables. Define confounding and modifier variables. List the types of bias found in research. Discuss the process of quantitative data collection. Describe the different sampling techniques used in research. Explain how to obtain a sample. List the types of data collection tools (instruments that will be used to collect data). Describe the different methods of data collection (tests, questionnaires, interviews, focus groups, observation). Critique the types of variables and sampling techniques used in published articles.	✓ Lecture. ✓ Group discussion. ✓ Residents will review and critique the methods section of a selected article. ✓ Residents will identify the types of variables in a selected article. ✓ Residents will identify the sampling technique used in a selected article.	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional
Questionnaires, standardized measurement	Discuss the different types of questionnaires. List the steps involved in the construction of an instrument (questionnaire). Describe the use of standardized measurements and assessments (including scales of measurement, validity, and reliability).	✓ Lecture. ✓ Group discussion. ✓ Residents (in a group) will review and critique questionnaires mentioned in a selected article.	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional

	Discuss the methods used to administer data collection tools.	✓ Residents will construct a questionnaire. ✓ Residents will select a research topic to be conducted during the program.	
Qualitative study design	Identify the types of qualitative study design (grounded theory research, ethnographic research, narrative research). Explain the process of qualitative data collection. Discuss how qualitative data can be analyzed and interpreted.	✓ Lecture. ✓ Group discussion. ✓ Residents (in a group) will review and critique a qualitative study design in a selected article. ✓ Identify the type of qualitative study design used in a selected article.	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional
Biostatistics I	Identify the basics of biostatistics. Explain how quantitative data can be interpreted. Explain the data management process. Discuss the process of quantitative data analysis. Conduct a descriptive analysis. Conduct an inferential analysis.	✓ Lecture. ✓ Group discussion. ✓ Residents (in a group) will review and critique the statistical section of a selected article. ✓ Residents will discuss the descriptive and inferential analysis of data.	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional

Biostatistics II	Describe how to analyze data. Describe how to present tables, figures, and results. Attend a hands-on SPSS workshop.	✓ Lecture. ✓ Group discussion. ✓ Residents (in a group) will review and critique the statistical section of a selected article. ✓ Residents will discuss the descriptive and inferential analysis of data. ✓ Residents will enter research data into the SPSS program and analyze it. ✓ Residents will arrange data in tables and figures.	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional
Research proposal	Describe the contents of a research proposal. Write-up of a research protocol in an academic style.	✓ Lecture. ✓ Group discussion. ✓ Residents (in a group) will complete a mini-research proposal. ✓ Residents will present their mini-research proposal.	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional
Discussion	Identify the content of the discussion section. Discuss the methods used to write the discussion section.	✓ Lecture. ✓ Group discussion. ✓ Residents will review and critique the discussion section of a selected article.	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional

Conclusion **Abstract** **Title** **Authorship** **Acknowledgements** **Publication** **Poster**	Identify the contents of the conclusion section. Identify the contents of the abstract. Know the different types of titles. State how authorship may be presented. Describe how to write acknowledgements. Explain the process of publication. Discuss how to design a poster presentation.	✓ Lecture. ✓ Group discussion. ✓ Residents (in a group) will review and critique the conclusion, abstract, and title of a selected article. ✓ Design a poster using the PowerPoint program. ✓ Discuss the publication process for a target journal.	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional
Research grants	Explain the process of applying for a research grant. Discuss the steps of critiquing research.	✓ Lecture. ✓ Group discussion. ✓ Residents (in a group) will review and critique some selected articles. ✓ Residents will use a check list to critique the selected articles.	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional
Research	R1 Selection of mentor. Selection of research project. R2 Research project presentation (proposal). Conduct research. R3 Final research project presentation (proposal). Submission of research project.	✓ Poster presentation. ✓ Report in the form of a manuscript for submission to peer-reviewed scientific journals.	✓ Collaborator ✓ Leader ✓ Scholar ✓ Professional

Educational methods and professional development topics

Introduction and rationale

The SBPD curriculum has adopted a clear mission and vision that supports excellence in medical education, and employs new educational strategies and instructional methods. This necessitates the appropriate development of both faculty and residents in the SBPD program to improve the understanding and application of the adopted concepts, as well as the principles and required skills for learning, teaching, management, communication, and professional development.

Course description

This course will introduce SBPD residents to the new approaches and concepts in medical education. It will provide them with the skills in teaching, learning, communication, leadership, teamwork, and self-directed learning needed during their training years, as well as their future professional education and development. The content of this course will be delivered in the form of lectures and workshops during the first and second years of residency.

Teaching strategies and methods

The medical educational methods and professional development courses are based on educational strategies that will emphasize interactive student-centered approaches; these will encourage self-directed learning, lifelong learning, problem-solving, and a high level of intellect. A number of teaching methods will be used, including,

- Interactive lectures
- Workshops
- Guest speakers, and
- Resident activities and assignments

Assessment

Residents will be assessed based on:

- Attendance and contribution
- Presentations and assignments, and
- Online examination.

Evaluation

- End of cycle evaluation form
- Final tests, and
- Comments on the course provided by residents and faculty during discussion sessions

Course content

Lecture/Workshop	Content	CanMEDS competencies
New approaches, concepts, and strategies in medical education	- Challenges and reasons for changes in medical education. - Outcome/competency-based education. - Problem-based learning. - Case-based learning. - Practice-based learning. - Community-based education. - Patient-centered education. - Student-centered learning. - E-learning. - Evidence-based medicine. - Active learning. - Problem-solving and critical thinking.	✓ Dental Expert ✓ Collaborator ✓ Scholar ✓ Professional
Principles of adult learning and learning styles	- Definition of andragogy. - Principles of adult learning. - Differences between pedagogy and andragogy. - Applying principles of adult learning to training. - Different styles of learning.	✓ Scholar ✓ Leader
Teaching methods	- Principles of teaching. - Innovative and traditional methods of teaching. - Advantages and disadvantages of the different teaching methods.	✓ Scholar ✓ Professional
Educational objectives	- Definition and rationale. - Taxonomy of educational objectives. - How to write educational objectives.	✓ Scholar
Problem-based learning	- Definition and rationale. - Steps of practice-based learning. - Roles of group members.	✓ Scholar ✓ Leader
Self-directed learning (SDL)	- Definition and rationale. - Principles of SDL. - Steps of SDL. - Advantages of SDL. - Perception of SDL.	✓ Collaborator ✓ Scholar ✓ Professional
Group dynamics and teamwork	- Definition of group dynamics, and how behaviors can affect teamwork. - Stage of group development. - Functions and ground rules in group work. - Nature of teamwork. - Steps for creating an effective team. - Importance of teamwork in education and health care.	✓ Collaborator ✓ Professional

Assessment and new methods of assessment	- Definition of assessment. - Summative and formative assessments. - Extended matching items versus MCQs. - Objective structured clinical and practical examinations. - Portfolio. - Work-based assessments.	✓ Scholar
Feedback and self-reflection	- Definition of feedback and self-reflection. - Importance and effect of feedback and self-reflection on learning outcomes.	✓ Scholar ✓ Collaborator ✓ Professional
Presentation skills	- The rationale for an oral presentation, and its basic components. - Steps for preparing and creating effective presentations. - Managing the presentation environment. - Using visual aids and support materials. - Understanding and overcoming fear and anxiety of public speaking, and gaining confidence and control. - Balancing verbal and non-verbal messages to engage listeners. - Maximizing vocal delivery. - Body language tips and technique. - Interacting with the audience, and handling questions.	✓ Collaborator ✓ Scholar ✓ Professional
Study and learning skills	- Process of studying. - Importance of study skills. - Effective learning/study skills.	✓ Scholar
Writing skills	- Importance and types of writing. - Strategies to improve writing. - Essential steps and process for writing assignments. - Definition of plagiarism. - Strategies that minimize the potential for plagiarism.	✓ Scholar ✓ Leadership
Leadership skills	- Concept of leadership and importance of leadership skills. - Differences between a leader and a manager. - Skills of an effective leader. - Techniques for dealing with conflict. - Aspects of leadership in health care.	✓ Collaborator ✓ Professional ✓ Leader

Communication skills and professionalism	- Meaning and relevance of communication skills in health sciences education and training. - Importance of effective communication skills in practice. - Communication skills in the context of health sciences education. - Definition and elements of professionalism. - Competencies needed for dentists as communicators and professionals, according to the CanMEDS competency framework.	✓ Collaborator ✓ Communicator ✓ Professional
Workshop design	- Definition and importance of workshops. - Workshops as an educational and developmental tool. - Essential steps for designing an effective workshop.	✓ Collaborator ✓ Leader ✓ Professional
Time management	- Definition and advantages of time management. - Steps and skills needed to manage time. - Implementation of time management in practice.	✓ Professional ✓ Dental Expert
Faculty development	- Definition and principles of program evaluation. - Purpose of program evaluation in education. - Evaluation according to Bloom's taxonomy of educational objectives. - Relevance of evaluation to the learning process.	✓ Scholar ✓ Leader
Dental practice management	- Business management, including third-party payment and professional practice development. - Management of auxiliaries and other office personnel. - Maintenance and management of patient records. - Book-keeping/accounting. - Office design and arrangement and placement of equipment. - New technology in practice.	✓ Leader ✓ Professional ✓ Communicator ✓ Collaborator

Practice and work-based learning

Clinical-based learning

Description:

Clinical training in pediatric dentistry is spread over the 3-year duration of the program. It is designed to train residents with a variety of clinical cases, which involve primary and comprehensive dental care for not only healthy pediatric patients, but also those with special needs and medical conditions. The final part of the program will involve the use of different pharmacological and non-pharmacological behavioral management techniques. It will also include the treatment of occlusal problems in the primary, mixed, and young permanent dentition.

Skills and Knowledge Acquired:

Residents who complete the full 36-month SBPD program are expected to have developed their skills and knowledge to the level of a specialist in pediatric dentistry. Pediatric dentistry is an age-defined specialty that provides both primary and comprehensive preventive and therapeutic oral health care for infants and children through adolescence, including those with special health care needs. The specialty emphasizes the prevention of oral diseases through early intervention and initiation of comprehensive preventive practices.

Treatment includes restoration of teeth and replacement of teeth; management of soft and hard tissue pathology, vital and non-vital pulpal tissues, traumatized primary and permanent teeth, and the developing occlusion; and the use of pharmacological and non-pharmacological techniques to manage patient anxiety and behavior. Pediatric dentists provide comprehensive care in traditional settings, as well as hospital and institutional sites. Care is provided in conjunction with other dental and medical disciplines, when indicated.

SBPD Program Competencies

The SBPD program will enhance residents specialty skills beyond the level of pre-doctoral dental education, and successful completion entails the achievement of a number of competencies, as outlined below.

Diagnostic Skill. Residents have considerable background knowledge in diagnosis, as well as experience with the management of children exhibiting a variety of local and systemic pathologies. They can recognize numerous disease states, congenital defects, and hereditary conditions. Residents are familiar with specific orofacial defects and disease states, as well as their manifestations and traumatic consequences, and have acquired knowledge pertaining to physical, mental, and emotional growth and development. They can recognize the consequences of hormonal and nutritional inadequacies, and are able to discriminate speech problems associated with oral or dental problems, from other causes. Pulpal pathosis, and both common and rare defects of the teeth and oral tissues, are readily diagnosed. Residents are proficient in obtaining and interpreting dental diagnostic aids (e.g., intra-oral radiographs, panoramic films, study models, space analyses, and dietary analysis), and can apply their knowledge in the basic sciences to the clinical setting.

Collaboration. Residents have developed considerable skills in establishing rapport and cooperation with dental and medical colleagues. Referrals to, or from, appropriate professionals occur frequently, and residents are familiar with the importance of these processes and the courtesies involved. Residents have been trained to make, and respond to, all appropriate consultation requests.

Treatment Planning. Residents are able to prepare and present treatment plans which utilize the diagnostic training received. The treatment plans are comprehensive, and treatment is provided in an efficient sequence. Residents are able to accurately self-assess their ability to deliver treatment.

Behavior Management. Residents are proficient in managing the behaviors of children and parents. They have good communication skills and an understanding of learning principles; this facilitates their ability to use motivational tools to modify child and parental behavior. Residents are capable of using several modes of pharmacological management such as treatment under sedation or general anesthesia when the psychological management of child behavior is inadequate.

Treatment. Residents provide high quality dental care in the office or hospital environment. Some of the specific treatment procedures are described below.

Emergency care of a systemic or dental nature: the resident is prepared for medical emergencies in a dental clinic setting. Dental emergencies due to trauma, pulp pathosis, periodontal disease are treated promptly and correctly by residents.

Residents provide restorative dentistry for children, from infancy through adolescence. Expertise in restorative treatment for primary and young permanent teeth is essential. Residents provide pulpal diagnosis and treatment for carious or traumatized primary teeth or young permanent teeth.

Residents are proficient in treating fractured, subluxated, and exarticulated teeth.

Residents have an extensive knowledge of orofacial growth and development; this facilitates the provision of interceptive orthodontic treatment. Residents are able to treat problems associated with premature tooth loss, ectopic eruption, supernumerary teeth, congenitally missing teeth, rotations, diastemas, and crossbites.

Conditions which affect the periodontium are familiar to the resident. Residents are proficient in treating aphthous ulcers, herpes simplex, acute necrotizing ulcerative gingivitis, gingivitis, periodontitis, periodontosis, mucogingival defects, frena, etc.

Residents are able to treat many surgical problems encountered in children, including simple extractions, some impactions, supernumerary teeth, cysts, frena, and biopsy procedures.

Comprehensive preventive procedures, including educational and motivational efforts, diet analysis, pit-and-fissure sealants, professionally and self-administered fluoride regimens, and trauma prevention are implemented by residents.

Residents can treat CSHCN who require the specialist skills of a pediatric dentist.

Research. Residents can evaluate original dental research articles, in terms of methodology, results, statistical interpretation, conclusions, and implications. They have acquired some experience in conducting research by developing their own research project. Published research is appreciated and understood.

Teaching. Residents have developed considerable teaching skills from didactic courses, preparing and presenting lectures, clinical exposure to children and parents, and undergraduate clinical supervision. These skills enable residents to be adept at educating patients and conducting professional presentations.

Practice Management and Auxiliary Utilization. The resident is well prepared for most aspects of practice administration and efficient auxiliary utilization.

Critical Thinking Residents have established an approach to learning which utilizes aspects of continual inquiry and critical thinking; this lifelong learning approach prepares them for clinical practice and continued professional development beyond graduation.

Upon entry into the program, residents will dedicate the first 2–3 months to preliminary clinical activities, which include working on typodonts in the phantom laboratory and attachment to the clinical sessions of a consultant, prior to beginning their own clinical sessions. Residents must be certified in Pediatric Advance Life Support (PALS) within the first year of the program.

Methods of Teaching

The clinical work of the residents will be supervised in the various assigned centers and hospitals.

Assessment

Assessments will comprise OSCE, DOPS and logbook

The program provides advanced clinical training in dentistry, with the aim of developing the ability of residents to provide comprehensive preventive and therapeutic oral health care. Disciplines covered include pulp therapy, space maintenance, interceptive orthodontics, periodontal disease, trauma, and emergency, with an emphasis on diagnostic science and soft tissue management. There will be a sufficient variety of cases in all disciplines to ensure an adequate level of training and experience for each resident.

Residents will be assigned patients who present with progressively more difficult oral problems, and given an increasingly greater clinical responsibility as they advance through the training program. Residents are expected to continually upgrade and increase their knowledge, skills, and abilities in the management of a wide range of complex dental problems, and acquire a specialist's perspective. Assessment methods will include: CBD, Direct Observation of procedural skills (DOPS), and a EYPT-local

Activity	Objectives (Residents will be trained to:)	CanMEDS competencies
Clinical-based learning	Elicit a detailed medical and dental history using patient-centered interviewing skills. Carry out a thorough and appropriate assessment and examination of oral and extra-oral structures of a patient and make appropriate diagnoses. Complete a thorough examination of any existing restorations, pulp treatments, removable appliances, implants, and associated tissues and structures; evaluate their biological and esthetic quality. Perform periodontal examinations, dental charting, and formulate diagnoses. Use and correctly interpret all appropriate investigations. Use evidence-based decision-making skills. Develop alternative and effective treatment strategies based on clinical examination, history, and investigation findings. Develop communication skills by making treatment decisions in conjunction with patients and parents, and produce treatment plans which account for their needs and preferences. Work with other health professionals to develop effective treatment plans and provide high-quality, safe, and patient-centered care. Write consultation and referral letters. Advise patients on preventive methods. Manage emergencies and traumatic injuries. Master skills required for all restorative procedures (pulp therapy, behavior guidance, removable and fixed appliances, interceptive orthodontics, and space maintainers). Provide restorative, conservative, and esthetic treatment using different materials and techniques. Formulate and implement an appropriate gingival and periodontal treatment plan. Diagnose significant occlusal conditions and disorders. Provide full mouth rehabilitation treatment in accordance with the recommended steps. Provide comprehensive care for a pediatric patient, with an emphasis on dental trauma. Provide comprehensive care for a pediatric patient, with an emphasis on periodontal therapy.	✓ **Dental Expert** ✓ **Communicator** ✓ **Collaborator** ✓ **Scholar** ✓ **Health advocate** ✓ **Professional**

	Provide comprehensive care for a pediatric patient, with an emphasis on orthodontic therapy. Provide comprehensive care for a pediatric patient, with an emphasis on restorative therapy using sedation or GA for patient management. Provide comprehensive care for CSHCN, with an emphasis on restorative therapy. Provide comprehensive care for a pediatric patient, with an emphasis on restorative therapy without the use of sedation or GA. Liaise appropriately with dental technicians, with respect to necessary laboratory requirements. Use conscious sedation techniques. Recognize the importance of working with a team of health professionals in patient management. Apply ethical and humanistic principles in clinical care. Supervise junior residents or undergraduate students (for seniors). Improve collaboration skills by receiving instructions and feedback from supervisors or colleagues.	

Presentation of advanced cases

Formal patient case conferences will be held every month for the discussion of diagnostic problems, treatment planning, case presentation, review, and follow-up. Comprehensive case(s) are to be presented by all R1 (1 case), R2 (2 cases), and R3 (2 cases) residents. Attendance is mandatory, and all non-presenting residents are expected to contribute to the discussions. Each resident will be assessed by at least three consultants who will complete a special assessment form.

Methods of Teaching

Assessment:

CBD, Scientific Case Presentation

Activity	Objectives	CanMEDS competencies
Presentation of advanced cases	- Present a comprehensive case with a detailed history, examination, and description of the investigation tools used. - Recognize social, systemic, and oral factors that influence the treatment plan and prognosis. - Present the consultation reports and outline their influence on the treatment strategy.	✓ **Dental Expert** ✓ **Scholar**

	- Formulate an appropriate differential diagnosis and alternative treatment plans. - Demonstrate the use of evidence-based research in the formulation of the treatment plan, selection of techniques and dental materials. - Follow the ideal sequence in patient management. - Document comprehensive cases following the recommended format. - Present a follow-up of a patient's case. - Expose other residents to different cases and treatment modalities. - Improve presentation skills by regularly seeking feedback on presentation.	

Treatment plan sessions or case-based learning

All treatment plans for comprehensive and special cases should be presented and discussed locally in the training center, and in the presence of the clinical supervisors and other residents.

Case-based teaching sessions are conducted as an alternative interactive teaching method. Faculty-based cases with complex problems are written to stimulate discussion and collaborative analysis.

Methods of Teaching

Assessment:

OSCE, scientific case presentation

Activity	Objectives	CanMEDS competencies
Treatment plan sessions	- Become proficient in giving short presentations on comprehensive cases. - Formulate a correct diagnosis based on history, clinical examination, investigations, and consultation. - Develop an optimal treatment strategy after discussing a case with supervisors. - Expose other residents to dental cases with different problems and treatment strategies.	✓ Dental Expert ✓ Scholar
Case-based learning	- Develop skills in analytical thinking and reflective judgment by reading and discussing complex, real-life scenarios. - Formulate a correct diagnosis based on patient history and clinical investigations.	✓ Dental Expert ✓ Scholar ✓ Leader ✓ Collaborative

	- Develop an optimal treatment strategy after discussing a case. - Interact with other residents in team projects. - Explore educational resources beyond the required textbooks.	

Literature review in Pediatric Dentistry and the Journal Club

Classical and current dental literature on different topics in pediatric dentistry will be prepared and discussed in the form of a seminar by residents, in the presence of training staff.

Assessment

Residents will be evaluated weekly by the tutor at the end of each session.

EYPT

Activity	Objectives	CanMEDS competencies
Literature review in Pediatric Dentistry and the Journal Club	Present the summarized assigned or selected articles to other residents and consultants. Review literature related to pediatric dentistry to improve decision-making and patient care. Acquire knowledge of the different types of studies and methodologies. Critically appraise the published articles. Keep up to date with the literature. Identify classical and current published articles and case reports which have impact on the practice of pediatric dentistry. Identify areas of controversy in the pediatric dentistry discipline.	✓ **Scholar** ✓ **Dental Expert** ✓ **Health advocate**

Self-directed learning

Self-directed learning is an educational experience that is planned and organized by the resident with or without the help of others. It is used to further learning in a particular area, or to meet a learning objective. This kind of learning can take place in multiple ways throughout the residency program.

Assessment:

Formative evaluation.

Activity	Objectives	CanMEDS competencies
Self-directed learning	***Diagnosis and treatment planning*** **Self-reading** Dental home. Role of dental prophylaxis in pediatric dentistry. Guideline on prescribing dental radiographs for infants, children, adolescents, and persons with special health care needs. Perinatal oral health care. Dietary recommendations for infants, children, and adolescents. Speech and language milestones. Caries-risk assessment and management for infants, children, and adolescents. Periodontal diseases of children and adolescents. Guideline for periodontal therapy. Treatment of plaque-induced gingivitis, chronic periodontitis, and other clinical conditions. ***Prevention*** **Self-reading** Periodicity of examination, preventive dental services, anticipatory guidance, and oral treatment for infants, children, and adolescents. Evidence-based clinical practice guideline for the use of pit-and-fissure sealants. Use of xylitol. Use of fluoride. Fluoride therapy. ECC: Classifications, consequences, and preventive strategies. ECC: Unique challenges and treatment options. ***Restorative dentistry*** **Self-reading** Restorative dentistry. ITR. Use of local anesthesia for pediatric dental patients. Use of dental bleaching for child and adolescent patients. Use of lasers for pediatric dental patients.	✓ **Dental Expert** ✓ **Scholar** ✓ **Professional**

	Restorative dentistry **Self-reading** Restorative dentistry. ITR. Use of local anesthesia for pediatric dental patients. Use of dental bleaching for child and adolescent patients. Use of lasers for pediatric dental patients. ***Behavior guidance*** **Self-reading** Behavior guidance for pediatric dental patients. Protective stabilization for pediatric dental patients. Pediatric pain management. ***Special care for special patients*** **Self-reading** Management of dental patients with special health care needs. Dental management of pediatric patients receiving chemotherapy, hematopoietic cell transplantation, and/or radiation therapy. Obstructive sleep apnea. Oral and dental aspects of child abuse and neglect. Management considerations for pediatric oral surgery and oral pathology. Useful medications for oral conditions. Dental management of heritable dental developmental anomalies. Policy for the management of patients with cleft lip/palate and other craniofacial anomalies. Antibiotic prophylaxis for dental patients at risk for infection. Use of antibiotic therapy for pediatric dental patients. ***Sedation and GA*** **Self-reading** Monitoring and management of pediatric patients during and after sedation for diagnostic and therapeutic procedures: Update 2016.	

	Use of anesthesia personnel in the administration of office-based deep sedation/GA to the pediatric dental patient. Minimizing occupational health hazards associated with nitrous oxide. Use of nitrous oxide in pediatric dental patients. Management of medical emergencies. ***Growth and development and orthodontics*** **Self-reading** Acquired temporomandibular disorders in infants, children, and adolescents. Management of the developing dentition and occlusion in pediatric dentistry. ***Pulp therapy*** **Self-reading** Pulp therapy for primary and immature permanent teeth. ***Trauma*** **Self-reading** Guidelines for the management of traumatic injuries: Fractures and luxations of the permanent teeth. Guidelines for the management of traumatic injuries: Avulsion of permanent teeth. Guidelines for the management of traumatic injuries: Injuries in the primary dentition. Prevention of sports-related orofacial injuries.	

Volunteering (Community service)

Residents have the opportunity to learn in groups via community service. The most important aspect of this service is helping patients to improve their oral health. The aim of these activities is to assist residents in identifying and meeting dental health and social needs in the community. This service can be done in several ways: volunteering at hospitals or nursing homes; providing dental health education programs in schools; participating in programs run by dental or medical societies; or participating in awareness activities.

Activity	Objective	CanMEDS competencies
Community service	Participate in local organizations that benefit the entire community. Demonstrate respect for all people regardless of culture and socioeconomic background. Develop experience in volunteering activities.	✓ **Dental Expert** ✓ **Communicator** ✓ **Collaborator** ✓ **Health advocate**

	Encourage residents to interact with each other in a community project. Become active members of the community when they have their own practices. Assess the needs of a community.	✓ **Professional** ✓ **Leader**

Elective (special interest) module

Towards the end of training in the program, and once the majority of learning objectives have been achieved, senior SBPD residents may choose to undertake special interest modules, with the approval of the Regional Local Committee and SBPD Scientific Committee. These elective modules include:

Attachment to an overseas institution recognized within the specialty as providing superior additional experience within the sphere of interest of the trainee;

National attachment to an institution recognized within the specialty as providing superior additional experience within the sphere of interest of the trainee; and

Locum part-time trainee opportunities within or outside the training unit.

Assessment

Formative evaluation

Activity	Objectives	CanMEDS competencies
Elective (special interest) module	Select modules which are of interest, and which encourage intrinsic motivation and a deep approach to learning. Gain additional experience, within the sphere of interest of the trainee, from units and staff locally or abroad.	✓ **Dental Expert** ✓ **Communicator** ✓ **Collaborator** ✓ **Professional**

Supplementary courses and workshops

Frequent seminars, workshops, and demonstrations of dental procedures will be conducted throughout the program. This includes hands-on training in new dental materials, new dental technologies, modern clinical procedures, and the improvement of clinical skills.

Assessment

DOPS, OSCE

Activity	Objective	CanMEDS competencies
Supplementary courses, workshops, and guest speakers	Keep up to date with the latest advances in restorative dentistry materials and techniques.	**Dental Expert** **Scholar**

	Identify and practice modern clinical procedures. Benefit from the experience and knowledge of local and international speakers. Acquire knowledge and skills in advanced areas of pediatric dentistry.	

4.3.1 Knowledge

This section will address knowledge topics that are related to "health," "disease," and "preventive" aspects of the specialty that are not generally covered under practice-based teaching. General problems/issues that may be relevant are listed below.

Health maintenance
Preventive medicine
Mental health
Nutrition
Disease state
- Epidemiology
- Pathophysiology
- Clinical presentation
- Investigations
- Management and therapeutics

4.3.2 Skills

Procedure list

The relevant procedures are divided into three categories

Category I Assumed competent

These are procedures assumed to be previously learned. Category I procedures may include OH instruction, fluoride application, restoration of teeth, etc.

Category II Foundational core specialty procedures

These are specialty foundational procedures that are required to be learned and practiced under supervision during the training. Category II procedures are expected to be completed during the junior level of training.

Category III Mastery level procedures

These are core specialty procedures that are expected to be performed competently by trainees without supervision, by the end of training.

For Category II and III procedures, the following must be specified:

Number of procedures observed/participated, performed under supervision, and certified by the supervisor to have been performed with full competency.

Each trainee needs to maintain a logbook documenting the procedures observed, performed under supervision, and performed independently.

Trainees need to declare their competency in Category I procedures. If for any reason, a trainee is not competent in a given Category I procedure, he/she should be provided with extended supervised training.

4.3.3 Attitude

List of behavioral/communication skills

Behavioral/communication skills are divided into two categories.

Category I: Assumed or universal

This category includes previously learned behavioral and communication skills, and skills that are universal in nature (e.g., breaking bad news, such as positive results for leukemia and oral cancer).

Category II: Core specialty

This category includes specialty-specific behavioral and communication skills (e.g., informed consent for a given procedure, protective stabilization).

ASSESSMENT OF LEARNING

1. Purpose of Assessment

Assessment plays a vital role in the success of PG training by guiding trainees and trainers to achieve targeted learning objectives. It provides an excellent means of improving training by informing curriculum development, teaching methods, and the quality of the learning environment. Assessment can be divided into three types:

a. **Assessment for learning**: Trainers monitor the trainees' performance, and provide specific feedback that facilitates trainees in making adjustments to their learning.
b. **Assessment as learning**: Trainees use self-assessments to monitor their own learning, which allows them to reflect on their learning and make necessary improvements to achieve a deeper understanding.
c. **Assessment of learning**: This is a quality metric that provides information on trainee achievement.

Assessment for learning" is often referred to as "Formative assessment," while "Assessment of learning" is often referred to as "Summative assessment." A combination of valid and reliable tools for assessment for and of learning will be used in order to provide a balance between summative and formative assessment.

Assessment tools in dental education programs are evolving towards the use of a more focused and objective approach. Assessments need to focus on holistic assessment programs or systems, rather than on individual tools. Furthermore, these systems 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, assessments should be educational and informative, and residents should learn from tests and receive feedback which allow them to build upon their existing knowledge and skills. Pragmatically, assessments are the most appropriate instruments by which to review the effectiveness of a curriculum. Additionally, with an increasing focus on the performance of oral healthcare providers, and on public demand for assurance that they are competent, assessments also require a summative component to validate the knowledge, skills and experience for delivering safe and quality patient outcomes.

2. Formative Assessment

2.1 General Principles

Trainees, as adult learners, should strive for feedback throughout their journey of competency development, from "novice" to "mastery" levels. *Formative assessment* (also referred to as continuous assessment) is distributed throughout the academic year, and aims primarily to provide trainees with effective feedback. Input from the overall formative assessment tools will be utilized at the end of the year to inform the decision to promote each individual trainee to the subsequent training level. Formative assessment will be defined based on the scientific Council of the SPDB recommendations, which are usually updated and announced for each individual program at the start of the academic year. According to the executive policy on continuous assessment (available online: www.scfhs.org), formative assessment will have the following features:

a. Multisource: a minimum of six tools.
b. Comprehensive: covers all learning domains (knowledge, skills, and attitudes).

c. Relevant: focuses on workplace-based observations.
d. Competency milestone oriented: reflects each trainee's expected competencies, which in turn correspond to their developmental level.

Trainees should play an active role in seeking feedback during their training. On the other hand, trainers are expected to provide timely and formative assessment. SCFHS will provide an e-portfolio system to enhance communication and analysis of data arising from formative assessment.

2.2 Formative Assessment Tools

The formative assessment plan of the pediatric dentistry program is formulated in accordance with the SCFHS's training and examination rules and regulations (See Appendix).

2.2.1 Scientific case presentation

Residents will be evaluated based on an oral presentation (at least two oral presentations per academic training year), as part of their annual promotion. Trainers should provide timely and specific feedback to the trainee after each presentation.

2.2.2 Case-based discussion

Trainees will be assessed on the presentation of a case; this will include a description of the history-taking, diagnostic tools used, diagnosis, prognosis, formulation of an integrated treatment plan, and identification of alternative plans. The presentation must follow an evidence-based approach to support the diagnosis, prognosis, and treatment options. As a completed case is not mandatory at the junior level (R1), residents can present a case which is in progress. However, senior-level residents are expected to present completed cases and/or cases with an innovative approach to treatment.

2.2.3 End-of-year progress test (EYPT-local)

The end-of-year examination will be limited to R1 and R2 residents. The number of examination items, eligibility, and passing score will be in accordance with the SCFHS's training and examination rules and regulations. Residents will not need to take this end-of-year examination in R1 if they have obtained a passing grade in the Part I examination during R1. Examination details and blueprints are published on the commission website: www.scfhs.org.sa

An example of the ***EYPT-local*** blueprint is shown in the following table*:

PEDIATRIC DENTISTRY EXAMINATION BLUEPRINT R2		
Section		**Percentage (%)**
1	**Pharmacology**	10
2	**Dental biomaterials**	20
3	**Evidence-based dentistry/Journal Club**	15
4	**Prevention and anticipatory guidance**	5
5	**Preventive and interceptive orthodontics**	5
6	**Restorative dentistry**	5
7	**Orofacial trauma and pulp therapy**	10

8	**Oral diagnosis, oral pathology, and oral medicine**	5
9	**Research and scientific writing**	15
10	**Patient safety and ethics**	10
	Total	100

Trainees are advised to refer to the most updated blueprint approved by the scientific council of the SBPD on a yearly basis.

2.2.4 The objective structured clinical examination and objective structured practical examination

This assessment evaluates a broad range of high-level clinical skills, including gathering of data, diagnosis, patient management, communication, and counseling. The examination is held once a year. The passing score will be in accordance with the SCFHS's training and examination rules and regulations. Examination details and blueprints are published on the commission website: www.scfhs.org.sa. The multi-station clinical examination will include the task-based OSCE and OSPE. The OSCE stations (a minimum of 3) examine a candidate's ability in a range of clinical tasks, while the OSPE stations (a minimum of 3) are in the form of cases which assess the practical aspects of the curriculum.

2.2.5 Logbook

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

2.2.6 Research

Residents are required to conduct a research project, as an integral part of the pediatric dentistry training program. Each resident should select a research supervisor and a research proposal in the first year of the training program. Upon approval of the research proposal, residents are required to do the first presentation of their proposal by the beginning of the second year.

Residents must conduct the research project in the second and third years, and dedicate two or more sessions per week to it. At the beginning of the third year, residents are required to do a second presentation, which is similar to the first presentation, 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. Residents are encouraged to publish their research project and present it in conferences nationally or internationally.

Residency year	Year	Clinical sessions	Research sessions	Remarks
R1	**1st part**	**6–8**	**0**	
	2nd part	**6–8**	**0**	Selection of mentor Selection of research project

R2	**1st part**	**6–8**	**0**	**1st Research project presentation *(Proposal)*** Conduct research
	2nd part		**2**	Conduct research
R3	**1st part**	**4–6**	**2**	**2nd Research project presentation *(Final)*** Conduct research
	2nd part	**4–6**	**2**	Submission of research project

2.2.7 Direct observation of procedural skills

This assessment comprises a 10–20-minute direct observation of procedures performed on children involving trainee-patient-parent interaction. Trainers are encouraged to perform at least four assessments per academic training year, preferably two every 6 months. This tool is important in assessing the performance of specific child care competencies, which include diagnostic, therapeutic, and communication procedural skills, as well as the demonstration of a positive professional attitude toward patients and their families. Timely and specific feedback for the trainee after each procedure is mandatory.

2.2.8 Volunteering

Community work and volunteering are an integral part of the role of all pediatric dental professionals. Trainees are encouraged to be involved in community dental awareness activities and education to promote healthy smiles.

2.2.9 End-of-year in-training evaluation (ITER)

This evaluation report is prepared for each resident at the end of each year, and is based on the quarterly ITER, treatment plan oral presentation, academic assignments, oral clinical examination, OSPE, as well as the successful completion of additional clinical and academic requirements relevant to the level of training. These requirements are documented by an electronic tracking system on an annual basis. Evaluations will be based on achieving the minimum requirements for each designated procedure and clinical skill.

It is important to note that the failure to achieve minimum requirements for a clinical competency level will necessitate the submission of an action plan by the program director; this assesses the resident's current status, expected progress, and needed resources. This plan should be submitted to the regional committee chairman for further action and approval by the Scientific Council Chairman.

2.2.10 Promotion Decision Mechanism:

The trainee's performance is assessed in each of the evaluation formulas according to the following scoring system:

Score	**Less than 50%**	**50% – 59.4%**	**60% – 69.4%**	**More than 70%**
Description	Clear Fail	Borderline Fail	Borderline Pass	Clear Pass

1. To upgrade the trainee from a training level to the next level, She/he must obtain at least a **Borderline Pass** in each evaluation form.

2. The program director may recommend to the local supervision committee to request the promotion of the trainee who did not meet the previous promotion requirement according to the following:
   A. In case that the trainee gets a **borderline Fail** result in **one** of the evaluation forms, the remaining evaluation forms must be passed with **Clear Pass** in at least **one** of them.
   B. In case that the trainee gets a **borderline Fail** result in **two** of the evaluation forms to a maximum, provided they do not fall under the same theme (Knowledge, Attitude, Skills). The remaining evaluation forms must be passed with **Clear Pass** in at least **two** of them.
   C. The promotion must be approved in this case by the scientific council for the specialization.

3. Summative Assessment

3.1 General Principles

Summative assessment facilitates the making of informed decisions based on a trainee's competency. In comparison to formative assessment, summative assessment does not aim to provide constructive feedback. For further details on this section, please refer to the general bylaws and executive policy pertaining to assessment (available online: www.scfhs.org). To be eligible to attempt the final exams, a trainee should be granted a "certification of training completion."

3.2 First Part Examination

This is a written exam with a MCQ format, and is held at least once a year; successful completion is required for trainee promotion from the "junior" to "senior" level of training. Each MCQ has a single best answer, and the minimum number of MCQs is 150. Most MCQs will be scenario-based, and will not merely test knowledge recall. For further details on the first part examination, please refer to the general bylaws and executive policy pertaining to assessment (available online: www.scfhs.org).

Example Blueprint of the first part exam:

No.	Sections	Percentage (%)
1	Basic sciences	20
2	Infection control guidelines	5
3	Oral and maxillofacial radiology	5
4	Pediatric medicine	5
5	Oral diagnosis/oral pathology/oral medicine	15
6	Prevention and anticipatory guidance	10
7	Child development, psychology, and behavior guidance	10
8	Analgesia/anxiolysis nitrous oxide inhalation	5
9	Restorative dentistry	5
10	Pulp therapy	5
11	Orofacial trauma	5

12	Research, ethics, professionalism, and patient safety	10
Total		100%

Note: Blueprint distributions of the examination may differ by up to +/-3% in each category

3.3 Certification of Training Completion

In order to be eligible to attempt the final specialty examinations, each trainee is required to obtain a "certification of training completion." This certification is based on existing training bylaws and executive policy (please refer to www.scfhs.org), and will be granted upon the fulfillment of the following criteria:

- successful completion of all training rotations;
- completion of training requirements
- clearance from SCFHS training affairs, which entails compliance with tuition payment and completion of universal topics.

The "certification of training completion" will only be issued upon the resident's successful completion of all program requirements, and approval will be granted by the local supervisory committee, or its equivalent, according to SCFHS policies. Candidates passing all components of the final specialty examination will be awarded the Saudi Board in Pediatric Dentistry certificate.

3.4 Final Specialty Examinations

The final specialty examinations are summative assessments that grant trainees certification in the specialty. It has two elements:

1. Final written exam. To be eligible for this exam, trainees are required to have a "certification of training completion." The final exam is composed of two papers, which are both based on MCQs with a single best answer; there is a minimum of 100 MCQs in each paper. The majority of the MCQs will be scenario-based. Please refer to the general bylaws and executive policy pertaining to assessment (available online: www.scfhs.org).
2. Final clinical exam. Trainees will be required to pass the final written exam to be eligible to attempt the final clinical exam. This will be a multi-station examination in the OSCE/SOE format, with a minimum of 8–12 stations. Please refer to the general bylaws and executive policy of assessment (available online: www.scfhs.org).

Example Blueprint of the final written exam

No.	Sections	Percentage (%)
1	Microbiology of oral disease	10
2	Prevention and anticipatory guidance	15
3	Craniofacial growth and developing occlusion	10
4	Restorative dentistry and oral rehabilitation	10
5	Oral diagnosis/oral pathology/oral medicine	12
6	Child development/behavior guidance	15
7	Pulp therapy/orofacial trauma	13
8	Special health care needs	10
9	Research, ethics, professionalism, and patient safety	5
Total		100%

Note: Blueprint distributions of the examination may differ by up to +/-3% in each category.

An example of the final clinical exam blueprint (for the Saudi Board final exam in Pediatric Dentistry, it is suggested that trainees check the published exam blueprint, which is updated annually on the SCFHS website):

	DIMENSIONS OF CARE				
	Health Promotion & Illness Prevention 1±1 station(s)	**Acute** 5±1 station(s)	**Chronic** 3±1 station(s)	**Psycological Aspects** 1±1 station(s)	**No. of station(s)**
Patient Care 7±1 station(s)	2	4	2		8
Patient Safety & Procedural Skills 1±1 station(s)		1			1
Communicatio n & Interpersonal Skills 2±1 station(s)			1	1	2
Professional Behaviors 0±1 station(s)				1	1
Total Stations	2	5	3	2	12

*Main blueprint framework adapted from the Medical Council of Canada Blueprint Project.

For further details on final exams, please refer to the general bylaws and executive policy pertaining to assessment (available online: www.scfhs.org).

APPENDICES

A. Junior-level Competency Matrix
B. Senior-level Competency Matrix
C. Universal Topics Modules
D. Top Conditions and Procedures in the Specialty
E. Formative Assessment Tools
F. Glossary
G. Forms- In-training evaluation (ITER), Case Presentation Evaluation form

Appendix A

Junior-level competency matrix: Mapping of competencies, learning domains, and milestones

Training Year Level		**Professional Activities Related to the Specialty** ***Competency Roles*** (with annotation of the learning domains involved: **K**, knowledge; **S**, skills; **A**, attitude)					
SCHEDULE		**OCT–FEB**	**OCT–JAN**	**OCT–JAN**	**JAN–SEPT** **6-8 Sessions/ Week**	**JAN–SEPT** **6-8 Sessions/ Week**	**OCT–JULY** **Pediatric Medicine one month** **Oral maxillofacial: one month** **Anaesthesia: one month**
R1	**Dental Expert**	**BASIC SCIENCE-CRASH COURSE** 1. Advanced oral and maxillofacial radiology **(K)** 2. Infection control guidelines **(K)** 3. Nitrous oxide inhalation (N_2O) **(K)** 4. Procedural sedation **(K)** 5. Applied head and neck anatomy **(K)**	**BOOK REVIEW** 1. Examination of the mouth and other relevant structures **(K)** 2. Radiographic techniques **(K)** 3. Anomalies of the developing dentition **(K)** 4. Dental caries in the child and adolescent **(K)** 5. Restorative dentistry **(K)**	**PRE-CLINICAL** 1. Morphology of primary teeth: Timing, sequence, morphological differences, and clinical significance **(S)** 2. Rubber dam application **(S)** 3. Glossary of restorative terminology **(S)**	**CLINICAL DOCUMENTED CASES case based discussion (CBD)** 1. Treatment plan and diagnosis approval-2 **(K, S, A)** 2. Diet analysis-2 **(K, S, A)**	**CLINICAL REQUIRED CASES** 1. Treatment plan and diagnosis approval **(K, S, A)-15** 2. Diet analysis **(K, S, A)-15**	**ROTATION** **1.** Pediatric medicine **(K, S, A)** **2.** Oral and maxillofacial surgery **(K, S, A)** **3.** Anaesthesia **(K, S, A)**

		6. Advanced oral biology **(K)** 7. Clinical photography **(K)** 8. Oral medicine diagnosis **(K)** 9. Oral pathology **(K)** 10. Dental ethics **(K)** 11. Oral microbiology and immunology **(K)** 12. Child psychology **(K)** 13. Craniofacial development and growth **(K)**	6. Pit-and-fissure sealants and preventive resin restorations **(K)** 7. Dental materials **(K)** 8. Treatment of deep caries, vital pulp exposure, and pulpless teeth **(K)** 9. Gingivitis and periodontal disease **(K)** 10. Local anesthesia and pain control for the child and adolescent **(K)** 11. Nonpharmacologic management of children's behaviors **(K)** 12. Pharmacologic management of patient behavior **(K)**	4. Principles of cavity preparation and restoration **(S)** 5. Class I cavity preparation **(S)** 6. Class II cavity preparation **(S)** 7. Class III cavity preparation **(S)** 8. Fissure sealant **(S)** 9. Celluloid crown preparation **(S)** 10. Class V cavity preparation **(S)** 11. Stainless steel crown restoration **(S)** 12. Pulp therapy **(S)** 13. Space maintenance (band and loop) **(S)** 14. Arch length and model analysis **(S)**	3. Caries assessment-2 **(K, S, A)**	3. Caries assessment - **(K, S, A)-15**	

			13. Hospital dental services for children and the use of GA **(K)** 14. Eruption of the teeth: Local, systemic, and congenital factors that influence the process **(K)** 15. Dental problems of CSHCN **(K)** 16. Management of the medically compromised patient: Hematologic disorders, cancer, hepatitis, and AIDS **(K)** 17. Management of trauma to the teeth and supporting tissues **(K)**				

			18. Tumors of the oral soft tissues and cysts and tumors of the bone **(K)** 19. Oral surgery for the pediatric patient **(K)** 20. Antimicrobials in pediatric dentistry **(K)**				

	Communicator	1. Establish professional and therapeutic relationships with patients and their families 1.1 Communicate using a patient-centered approach that encourages patients' trust and autonomy, and is characterized by empathy, respect, and compassion **(A)** *1.1.1 Apply psychological and behavioral principles in patient-centered communication* **(K, S, A)** *1.1.2 Take time to talk and listen to dental patients to understand*	2. Elicit and synthesize accurate and relevant information, incorporating the perspectives of patients and their families 2.1 Use patient-centered interviewing skills to gather relevant biomedical, dental, and psychological information **(K, A)** *2.1.1 Encourage and facilitate the dental patient to take the conversational lead, initiating topics of*	3. Share dental health care information and plans with patients and their families 3.1 Share information and explanations that are clear, accurate, and timely, while checking for patient and family understanding **(A)** *3.1.1 Use language that is easily comprehended and matches the patient's requirements and expectations* **(A)**	4. Engage patients and their families in developing plans that reflect the patient's dental health care needs and goals 4.1 Facilitate discussion with patients and their families in a way that is respectful, non-judgmental, and culturally safe **(S, A)** 4.2 Assist patients and their families to identify, access, and make use of information and	5. Document and share written and electronic information about the clinical encounter 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 **(S, A)** 5.2 Communicate effectively using a written	

		them better and improve the clinical relationship **(A)** *1.1.3 Provide direct and close contact with patients; this should be characterized by honesty and empathy to create a therapeutic alliance based on trust and respect* **(A)** 1.2 Optimize the physical environment for the patient's comfort, dignity, privacy, engagement, and safety **(A)** *1.2.1 Show concern about patient privacy and comfort* **(A)**	*their complaints, symptoms, experience, worries, values, and preferences* **(K, A)** 2.2 Provide a clear structure for and manage the flow of an entire patient encounter **(A)** 2.3 Seek and synthesize relevant information from other sources, including the patient's family, with the patient's consent **(K, S, A)**	*3.1.2 Utilize new technology to facilitate understanding of information and explain dental treatment plans* **(K, A)** 3.2 Disclose harmful patient safety incidents to patients and their families accurately and appropriately **(A)**	communication technologies to support and manage their treatment plan and dental care **(S, A)** 4.3 Use communication skills and strategies that help patients and their families to make informed decisions regarding their dental health **(A)**	dental and medical health record, electronic dental and medical record, or other digital technology **(S, A)** 5.3 Share information with patients and others in a manner that respects patient privacy and confidentiality, and enhances understanding **(S, A)**	

		1.2.2 Apply all required safety standards **(A)** 1.3 Recognize when the values, biases, or perspectives of patients, dentists, or other dental health care professionals may have an impact on the quality of care, and modify the treatment approach accordingly **(A)** 1.4 Respond to a patient's non-verbal behaviors to enhance communication **(K, S, A)** *1.4.1 Recognize and appropriately manage anxious or fearful dental patients* **(K, S, A)**	*2.3.1 Collect the relevant necessary information from the patient's family, previous general dentist (or dental specialist), physician (if related to a medical issue), and other professionals, with the patient's permission* **(K, A)** *2.3.2 Act professionally when screening for sensitive information* **(K, S, A)**				

		1.4.2 Recognize and respect the dental patient's need for privacy **(A)** 1.5 Manage disagreements and emotionally charged conversations **(A)** *1.5.1 Respect each patient's perspectives, situation, concerns, and values, and give alternative treatment plans* **(A)** *1.5.2 Break bad news in an empathic manner* **(A)** 1.6 Adapt to the unique needs and preferences of each patient and to his/her clinical condition and circumstances **(A)**					

	Collaborator	1. Work effectively with dentists, physicians, and other colleagues in the dental health care professions 1.1 Establish and maintain a positive relationship with dentists, physicians, and other colleagues in the dental health care professions to support relationship-centered collaborative care **(A)** *1.1.1 Participate in intraprofessional (among dental colleagues) and interprofessional (among other dental and medical health care professionals) relationships and teamwork* **(A)**	2. Work with dentists, and other colleagues in the dental health care professions to promote understanding, manage differences, and resolve conflicts 2.1 Show respect toward collaborators **(A)** *2.1.1 Encourage the opinions and ideas of other interprofessional and intraprofessional dental health care team members* **(A)** 2.2 *Respect the roles and limitations of other professionals* **(A)**	3. Hand over the care of dental patients to another dental health care professional when necessary to facilitate continuity of safe patient care 3.1 Determine when care should be transferred to another dentist or dental health care professional **(A)** *3.1.1 Recognize one's own limitations and know when to seek help from others* **(A)** 3.2 Demonstrate handover of care, using both verbal and written communication,			

		1.1.2 Work with other health care professionals and dental specialists to integrate care at the individual and community levels **(A)** *1.1.3 Apply the principles of team dynamics* **(K, A)** *1.1.4 Engage in continuous intraprofessional and interprofessional development to enhance team performance* **(A)** 1.2 Negotiate overlapping and shared responsibilities with dentists and other health care professionals during episodic and ongoing care **(A)**		during a patient's transition to a different dental health care professional, setting, or stage of care **(A)** *3.2.1 Write appropriate referral and consultation request forms* **(K, S, A)**			

		1.2.1 Recognize one's own professional role and responsibilities and those of others, including dental assistants, laboratory technicians, radiologists, hygienists, and staff in other dental and medical specialties. **(K, S, A)** 1.3 Engage in respectful shared decision-making with dentists and other colleagues in the dental health care professions **(A)**					

	Advocate	1. Respond to an individual patient's dental health needs by advocating for the patient within and beyond the clinical environment **(K, A)** 1.1 Work with patients to address determinants of dental health that affect them and their access to necessary dental health services or resources **(K, A)** 1.2 Work with patients and their families to increase opportunities to adopt healthy dental behaviors **(K, A)** 1.3 Incorporate prevention, promotion, and surveillance of oral health into interactions with individual patients **(K, S, A)**					

	Leader	1. Contribute to the improved delivery of dental health care in teams, organizations, and systems 1.1 Contribute to a culture that promotes patient safety **(A)** 1.2 Analyze patient safety incidents to enhance systems of care **(K, S, A)** 1.3 Use health informatics to improve the quality of patient care and optimize patient safety **(K, S, A)**	2. Engage in the stewardship of dental care resources 2.1 Allocate dental care resources for optimal patient care **(K, A)**	3. Demonstrate leadership in professional practice 3.1 Demonstrate leadership skills to enhance dental care **(A)**	4. Manage career planning, finances, and human resources in a dental practice 4.1 Set priorities and manage time to integrate practice and personal life **(K, S, A)** 4.2 Manage a career and a practice **(S, A)**		

	Scholar	**1. *LIFELONG LEARNING*** **Engage in continuous enhancement of professional activities through ongoing learning** 1.1 Develop, implement, monitor, and revise a personal learning plan to enhance professional practice **(K, A)** 1.2 Identify opportunities for learning and improvement by regularly reflecting on and assessing personal performance using various internal and external data sources **(K, A)**	**2. *TEACHER*** **Teach students, residents, the public, and other health care professionals** 2.1 Promote a safe learning environment **(K, S, A)** 2.2 Ensure patient safety is maintained when learners are involved **(K, A)**	**3. *EVIDENCE-INFORMED DECISION-MAKING*** **Integrate best available evidence into practice** 3.1 Identify, select, and navigate pre-appraised resources **(A)** 3.2 Critically evaluate the integrity, reliability, and applicability of health-related research and literature **(A)** 3.3 Integrate evidence into decision-making in clinical practice **(A)**	**4. *RESEARCH*** **Contribute to the creation and dissemination of knowledge and practices applicable to health** 4.1 Demonstrate an understanding of the scientific principles of research and scholarly inquiry, and the role of research evidence in health care **(K, S, A)** 4.2 Identify ethical principles relevant to research, and how they relate to the informed consent process, as		

		1.3 Engage in collaborative learning to improve personal practice and contribute to collective improvements in practice in an ongoing way **(K, A)** *1.3.1 Learn from and make use of the expertise of other dentists or dental health care professionals* **(K, A)**			well as the consideration of vulnerable populations, and the potential harms and benefits of study participation **(K, A)** 4.3 Contribute to the work of a research program **(K, A)** 4.4 Pose questions amenable to scholarly inquiry and select appropriate methods to address them **(K, A)**		

					4.5 Summarize and communicate to professional and lay audiences, including patients and their families, the findings of relevant research and scholarly inquiry **(K, A)**		

	Professional	**1. COMMITMENT TO PATIENTS** **Demonstrate a commitment to patients by applying best practices and adhering to high ethical standards** 1.1 Exhibit appropriate professional behavior and relationships in all aspects of practice by demonstrating honesty, integrity, humility, commitment, compassion, respect, altruism, respect for diversity, and maintenance of confidentiality **(S, A)** *1.1.1 Put patients' interests before their own or those of any colleague,*	**2. COMMITMENT TO SOCIETY** **Demonstrate a commitment to society by recognizing and responding to societal expectations in oral health care** 2.1 Demonstrate accountability to patients, society, and the profession by meeting their expectations **(S, A)** 2.2 Demonstrate a commitment to patient safety and quality improvement **(S, A)**	**3. COMMITMENT TO PROFESSION** **Demonstrate a commitment to the profession by adhering to standards and participating in dentist-led regulation** 3.1 Fulfill and adhere to the professional and ethical codes, standards of practice, and laws governing dental practice **(S, A)** *3.1.1 Recognize and follow laws and regulations that affect a dentist's work, premises, equipment, and business* **(S, A)** 3.2 Recognize and respond to unprofessional and unethical behaviors in dentists and other colleagues in the health care professions **(S, A)**	**4. COMMITMENT TO SELF** **Demonstrate a commitment to dental health and well-being by fostering optimal patient care** 4.1 Display self-awareness and manage influences on personal well-being and professional performance **(S, A)** 4.2 Manage personal and professional demands for a sustainable practice throughout life **(S, A)** 4.3 Promote a culture that recognizes, supports, and responds		

		organization, or business **(S, A)** *1.1.2 Maintain the confidentiality of patient information and use it for the purposes for which it is given* **(S, A)** *1.1.3 Keep patient information secure at all times* **(S, A)** *1.1.4 In special cases, it may be justified to make confidential patient information known without consent if it is in the public interest or the patient's interest* **(S, A)** *1.1.5 Maintain appropriate boundaries in relationships with patients, without abusing those*		*3.2.1 Treat all team members and other colleagues fairly and in line with the law, without discrimination* **(S, A)**	effectively to colleagues in need **(S, A)**		

		relationships **(S, A)** 1.2 Demonstrate a commitment to excellence in all aspects of practice **(S, A)** 1.3 Recognize and respond to ethical issues encountered in practice **(S, A)** *1.3.1 Reject politely any payment, gift, hospitality, or request to make or accept any referral that may affect professional judgment* **(S, A)** *1.3.2 Treat patients politely and with respect, by recognizing their dignity and rights as individuals* **(S, A)**					

		1.3.3 Recognize and make patients aware of their responsibility and right to make decisions about their own oral and dental treatment **(S, A)** *1.3.4 Treat patients fairly and in line with the law* **(S, A)** 1.4 Recognize and manage conflicts of interest **(S, A)** 1.5 Display professional behavior in the use of technology-enabled communication **(S, A)**					

Training Year level		Professional Activities Related to the Specialty ***Competency Roles*** (with annotation of the learning domains involved: **K**, knowledge; **S**, Skills; **A**, Attitude)				
SCHEDULE						
R2	**Dental Expert**	**BASIC SCIENCE-CRASH COURSE** 1. Craniofacial development and growth **(K)** 2. Research design and scientific writing **(K)** 3. Dental biomaterials **(K)** 4. Orthodontic appliances **(K)** 5. Biostatistics in dentistry **(K)** 6. Evidence-based dentistry **(K)** 7. Pharmacology **(K)**	**JOURNAL CLUB** ***Diagnosis and Treatment Planning*** 1. Periodicity of examination, preventive dental services, anticipatory guidance, and oral treatment for infants, children, and adolescents **(K)** 2. Dental home (self-reading) **(K)** 3. Chart on recommendations for pediatric oral health assessment, preventive services, and anticipatory guidance/counseling (self-reading) **(K)**	**CLINICAL DOCUMENTED CASES** **1.** Treatment plan and diagnosis approval-2 **(K, S, A)** **2.** Diet analysis-2 **(K, S, A)** **3.** Caries assessment-2 **(K, S, A)**	**CLINICAL REQUIRED CASES** **1.** Treatment plan and diagnosis approval-30 **(K, S, A)** **2.** Diet analysis-30 **(K, S, A)** **3.** Caries assessment-30 **(K, S, A)**	**ROTATION** 1. Hospital operating room **(K, S, A)** 2. **Children with craniofacial anomalies and/cleft lip and palate (K, S, A)** 3. **Children with Special Medical Healthcare Needs(K,S,A)**

			4. Prescribing dental radiographs for infants, children, adolescents, and individuals with special health care needs **(K)** 5. Dietary recommendations for infants, children, and adolescents **(K)** 6. Caries-risk assessment and management for infants, children, and adolescents 7. Speech and language milestones **(K)** 8. Periodontal diseases of children and adolescents **(K)** 9. *Guideline for periodontal therapy **(K)** 10. *Treatment of plaque-induced gingivitis, chronic periodontitis, and other clinical conditions **(K)**			

			Prevention: 11. ECC: Classifications, consequences, and preventive strategies **(K)** 12. ECC: Unique challenges and treatment options **(K)** 13. Oral health care programs for infants, children, and adolescents **(K)** 14. Perinatal and infant oral health care **(K)** 15. Use of silver diamine fluoride for pediatric dental patients **(K)** 16. Use of silver diamine fluoride for dental caries management in children and adolescents, including those with special health care needs **(K)**			

			17. Chairside guide: Silver diamine fluoride for the management of dental caries lesions **(K)** 18. Role of dental prophylaxis in pediatric dentistry **(K)** 19. Interim therapeutic restorations (ITR) (K) 20. Use of fluoride **(K)** 21. Fluoride therapy **(K)** 22. Use of pit-and-fissure sealants **(K)** 23. Use of xylitol **(K)** ***Growth and Development and Orthodontics*** 24. Management of the developing dentition and occlusion in pediatric dentistry **(K)** 25. Dental growth and development **(K)**			

			26. Policy on the management of patients with cleft lip/palate and other craniofacial anomalies **(K)** 27.Acquired temporomandibular disorders in infants, children, and adolescents **(K)** ***Restorative Dentistry*** 28. Pediatric restorative dentistry **(K)** 29. Use of dental bleaching for child and adolescent patients **(K)** 30. Use of local anesthesia for pediatric dental patients **(K)** 31. Use of lasers for pediatric dental patients **(K)**			

			Pulp Therapy 32. Pulp therapy for primary and immature permanent teeth **(K)** 33. Use of vital pulp therapies in primary teeth with deep carious lesions **(K)**			

	Communicator	1. Establish professional and therapeutic relationships with patients and their families 1.1 Communicate using a patient-centered approach that encourages patients' trust and autonomy, and is characterized by empathy, respect, and compassion **(A)** *1.1.1 Apply psychological and behavioral principles in patient-centered communication* **(K, S, A)**	2. Elicit and synthesize accurate and relevant information, incorporating the perspectives of patients and their families 2.1 Use patient-centered interviewing skills to gather relevant biomedical, dental, and psychological information **(K, A)** *2.1.1 Encourage and facilitate the dental patient to take the conversational lead, initiating topics of their complaints, symptoms, experience, worries, values, and preferences* **(A)**	3. Share dental health care information and plans with patients and their families 3.1 Share information and explanations that are clear, accurate, and timely, while checking for patient and family understanding **(A)** *3.1.1 Use language that is easily comprehended and matches the patient's requirements and expectations* **(A)** *3.1.2 Utilize new technology to facilitate understanding of information and explain dental treatment plans* **(K, A)**	4. Engage patients and their families in developing plans that reflect the patient's dental health care needs and goals 4.1 Facilitate discussion with patients and their families in a way that is respectful, non-judgmental, and culturally safe **(S, A)** 4.2 Assist patients and their families to identify, access, and make use of information and	5. Document and share written and electronic information about the clinical encounter 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 **(A)** 5.2 Communicate effectively using a written dental and medical health record, electronic dental and

		1.1.2 Take time to talk and listen to dental patients to understand them better and improve the clinical relationship **(A)** *1.1.3 Provide direct and close contact with patients; this should be characterized by honesty and empathy to create a therapeutic alliance based on trust and respect* **(A)** 1.2 Optimize the physical environment for the patient's comfort, dignity,	2.2 Provide a clear structure for and manage the flow of an entire patient encounter **(A)** 2.3 Seek and synthesize relevant information from other sources, including the patient's family, with the patient's consent **(K, S, A)** *2.3.1 Collect the relevant necessary information from the patient's family, previous general dentist (or dental specialist), physician (if related to a medical issue), and other professionals,*	3.2 Disclose harmful patient safety incidents to patients and their families accurately and appropriately **(A)**	communication technologies to support and manage their treatment plan and dental care **(S, A)** 4.3 Use communication skills and strategies that help patients and their families to make informed decisions regarding their dental health **(A)**	medical record, or other digital technology **(S, A)** 5.3 Share information with patients and in a manner that respects patient privacy and confidentiality, and enhances understanding **(S,A)**

		privacy, engagement, and safety **(A)** *1.2.1 Show concern about patient privacy and comfort* **(A)** *1.2.2 Apply all required safety standards* **(A)** 1.3 Recognize when the values, biases, or perspectives of patients, dentists, or other dental health care professionals may have an impact on the quality of care, and modify the treatment approach accordingly **(A)**	*with the patient's permission* **(K, A)** *2.3.2 Act professionally when screening for sensitive information* **(K, S, A)**			

		1.4 Respond to a patient's non-verbal behaviors to enhance communication **(K, S, A)** *1.4.1 Recognize and appropriately manage anxious or fearful dental patients* **(K, S, A)** *1.4.2 Recognize and respect the dental patient's need for privacy* **(A)** 1.5 Manage disagreements and emotionally charged conversations **(A)**				

		1.5.1 Respect each patient's perspectives, situation, concerns, and values, and give alternative treatment plans **(A)** *1.5.2 Break bad news in an empathic manner* **(A)** 1.6 Adapt to the unique needs and preferences of each patient and to his/her clinical condition and circumstances **(A)**				

	Collaborator	1. Work effectively with dentists, physicians, and other colleagues in the dental health care professions 1.1 Establish and maintain a positive relationship with dentists, physicians, and other colleagues in the dental health care professions to support relationship-centered collaborative care **(A)** *1.1.1 Participate in intraprofessional (among dental colleagues) and interprofessional*	2. Work with dentists, and other colleagues in the dental health care professions to promote understanding, manage differences, and resolve conflicts 2.1 Show respect toward collaborators **(A)** *2.1.1 Encourage the opinions and ideas of other interprofessional and intraprofessional dental health care team members* **(A)** *2.1.2 Respect the roles and limitations of other professionals* **(A)**	3. Hand over the care of dental patients to another dental health care professional when necessary to facilitate continuity of safe patient care 3.1 Determine when care should be transferred to another dentist or dental health care professional **(A)** *3.1.1 Recognize one's own limitations and know when to seek help from others* **(A)** 3.2 Demonstrate handover of care, using both verbal and written communication, during a patient's transition to a different dental		

		(among other dental and medical health care professionals) relationships and teamwork **(A)** *1.1.2 Work with other health care professionals and dental specialists to integrate care at the individual and community levels* **(A)** *1.1.3 Apply the principles of team dynamics* **(K, A)** *1.1.4 Engage in continuous intraprofessional and interprofessional development to enhance team performance* **(A)**		health care professional, setting, or stage of care **(A)** *3.2.1 Write appropriate referral and consultation request forms* **(K, S, A)**		

		1.2 Negotiate overlapping and shared responsibilities with dentists and other health care professionals during episodic and ongoing care **(A)** *1.2.1 Recognize one's own professional role and responsibilities and those of others, including dental assistants, laboratory technicians, radiologists, hygienists, and staff in other dental and medical specialties* **(K, S, A)**				

		1.3 Engage in respectful shared decision-making with dentists and other colleagues in the dental health care professions **(A)**				

	Advocate	1. Respond to an individual patient's dental health needs by advocating for the patient within and beyond the clinical environment **(K, A)** 1.1 Work with patients to address determinants of dental health that affect them and their access to necessary dental health services or resources **(K, A)** 1.2 Work with patients and their families to increase opportunities to adopt healthy dental behaviors **(K, A)** 1.3 Incorporate prevention, promotion, and surveillance of oral health into interactions with individual patients **(K, S, A)**				

	Leader	1. Contribute to the improved delivery of dental health care in teams, organizations, and systems 1.1 Contribute to a culture that promotes patient safety **(A)** 1.2 Analyze patient safety incidents to enhance systems of care **(K, S, A)** 1.3 Use health informatics to improve the quality of patient care and optimize patient safety **(K, S, A)**	2. Engage in the stewardship of dental care resources 2.1 Allocate dental care resources for optimal patient care **(K, A)**	3. Demonstrate leadership in professional practice 3.1 Demonstrate leadership skills to enhance dental care **(A)**	4. Manage career planning, finances, and human resources in a dental practice 4.1 Set priorities and manage time to integrate practice and personal life **(K, S, A)** 4.2 Manage a career and a practice **(S, A)**	

	Scholar	**1. *LIFELONG LEARNING*** **Engage in continuous enhancement of professional activities through ongoing learning** 1.1 Develop, implement, monitor, and revise a personal learning plan to enhance professional practice **(K)** 1.2 Identify opportunities for learning and improvement by regularly reflecting on and assessing personal performance using various internal and external data sources **(K)**	**2. *TEACHER*** **Teach students, residents, the public, and other health care professionals** 2.1 Promote a safe learning environment **(K)** 2.2 Ensure patient safety is maintained when learners are involved **(K)**	**3. *EVIDENCE-INFORMED DECISION-MAKING*** **Integrate best available evidence into practice** 3.1 Identify, select, and navigate pre-appraised resources **(K)** 3.2 Critically evaluate the integrity, reliability, and applicability of health-related research and literature **(K)** 3.3 Integrate evidence into decision-making in clinical practice **(K)**	**4. *RESEARCH*** **Contribute to the creation and dissemination of knowledge and practices applicable to health** 4.1 Demonstrate an understanding of the scientific principles of research and scholarly inquiry and the role of research evidence in health care **(K, S, A)** 4.2 Identify ethical principles relevant to research, and how they relate to the informed consent process, as well as the consideration of vulnerable	

		1.3 Engage in collaborative learning to improve personal practice and contribute to collective improvements in practice in an ongoing way **(K)** *1.3.1 Learn from and make use of the expertise of other dentists or dental health care professionals* **(K)**			populations, and the potential harms and benefits of study participation **(K, A)** 4.3 Contribute to the work of a research program **(K)** 4.4 Pose questions amenable to scholarly inquiry and select appropriate methods to address them **(K, A)** 4.5 Summarize and communicate to professional and lay audiences, including patients and their families, the findings of relevant research and scholarly inquiry **(K, A)**	

	Professional	**1. COMMITMENT TO PATIENTS** **Demonstrate a commitment to patients by applying best practices and adhering to high ethical standards** 1.1 Exhibit appropriate professional behavior and relationships in all aspects of practice by demonstrating honesty, integrity, humility, commitment, compassion, respect, altruism, respect for diversity, and maintenance of confidentiality **(S, A)**	**2. COMMITMENT TO SOCIETY** **Demonstrate a commitment to society by recognizing and responding to societal expectations in oral health care** 2.1 Demonstrate accountability to patients, society, and the profession by meeting their expectations **(S, A)** 2.2 Demonstrate a commitment to patient safety and quality improvement **(S, A)**	**3. COMMITMENT TO PROFESSION** **Demonstrate a commitment to the profession by adhering to standards and participating in dentist-led regulation** 3.1 Fulfill and adhere to the professional and ethical codes, standards of practice, and laws governing dental practice **(S, A)** *3.1.1 Recognize and follow laws and regulations that affect a dentist's work, premises, equipment, and business* **(S, A)** 3.2 Recognize and respond to	**4. COMMITMENT TO SELF** **Demonstrate a commitment to dental health and well-being by fostering optimal patient care** 4.1 Display self-awareness and manage influences on personal well-being and professional performance **(S, A)** 4.2 Manage personal and professional demands for a sustainable practice throughout life **(S, A)** 4.3 Promote a culture that recognizes,	

		1.1.1 Put patients' interests before their own or those of any colleague, organization, or business **(S, A)** *1.1.2 Maintain the confidentiality of patient information and use it for the purposes for which it is given* **(S, A)** *1.1.3 Keep patient information secure at all times* **(S, A)** *1.1.4 In special cases, it may be justified to make confidential patient information known without consent if it is in the public*		unprofessional and unethical behaviors in dentists and other colleagues in the health care professions **(S, A)** *3.2.1 Treat all team members and other colleagues fairly and in line with the law, without discrimination* **(S, A)**	supports, and responds effectively to colleagues in need **(S, A)**	

		interest or the patient's interest **(S, A)** *1.1.5 Maintain appropriate boundaries in reationships with patients, without abusing those relationships* **(S, A)** 1.2 Recognize and respond to ethical issues encountered in practice **(S, A)** *1.2.1 Reject politely any payment, gift, hospitality, or request to make or accept any referral that may affect professional judgment* **(S, A)** *1.2.2 Treat patients politely and with*				

		respect, by recognizing their dignity and rights as individuals **(S, A)** *1.2.3 Recognize and promote the patient's responsibility for making decisions about oral and dental treatment* **(S, A)** *1.2.4 Treat patients fairly and in line with the law* **(S, A)** 1.3 Recognize and manage conflicts of interest **(S, A)** 1.4 Display professional behavior in the use of technology-enabled communication **(S, A)**				

Appendix B

Senior-level Competency Matrix: Mapping of competencies, learning domains, and milestones

Training Year level		**Professional Activities Related to the Specialty**				
		Competency Roles (with annotation of learning domains involved: **K**, knowledge; **S**, Skills; **A**, Attitude)				
SCHEDULE						
R3	**Dental Expert**	**BASIC SCIENCE-CRASH COURSE** 1. Pharmacology **(K)** 2. Public health **(K)** 3. Educational methods **(K)** 4. Genetics **(K)** 5. Moderate sedation **(K)**	**CLINICAL DOCUMENTED CASES** **1.** Treatment plan and diagnosis approval-2 **(K, S, A)** **2.** Diet analysis-2 **(K, S, A)** **3.** Caries assessment-2 **(K, S, A)**	**CLINICAL REQUIRED CASES** **1.** Treatment plan and diagnosis approval-40**(K, S, A)** **2.** Diet analysis-40 **(K, S, A)** **3.** Caries assessment 40- **(K, S, A)**	**ROTATION** **1.** Hospital Operating Room **(K, S, A)** **2. Craniofacial anomalies and/cleft lip and palate(K,S,A)** **3. Children with special medical healthcare need(K,S,A)**	

	Communicator	1. Establish professional and therapeutic relationships with patients and their families 1.1 Communicate using a patient-centered approach that encourages patients' trust and autonomy, and is characterized by empathy, respect, and compassion **(A)** *1.1.1 Apply psychological and behavioral principles in patient centered communication* **(K, S, A)** *1.1.2 Take time to talk and listen to dental patients to understand them better and improve the*	2. Elicit and synthesize accurate and relevant information, incorporating the perspectives of patients and their families 2.1 Use patient-centered interviewing skills to gather relevant biomedical, dental, and psychological information **(K, A)** *2.1.1 Encourage and facilitate the dental patient to take the conversational lead, initiating topics of their complaints, symptoms, experience, worries, values, and preferences* **(K, A)**	3. Share dental health care information and plans with patients and their families 3.1 Share information and explanations that are clear, accurate, and timely, while checking for patient and family understanding **(A)** *3.1.1 Use language that is easily comprehended and matches the patient's requirements and expectations* **(A)** *3.1.2 Utilize new technology to facilitate understanding of information and explain dental treatment plans* **(K, A)**	4. Engage patients and their families in developing plans that reflect the patient's dental health care needs and goals 4.1 Facilitate discussion with patients and their families in a way that is respectful, non-judgmental, and culturally safe **(S, A)** 4.2 Assist patients and their families to identify, access, and make use of information and communication technologies to support and manage their treatment plan and dental care **(S, A)**	5. Document and share written and electronic information about the clinical encounter 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 **(S, A)** 5.2 Communicate effectively using a written dental and medical health record, electronic dental and medical record,

		clinical relationship **(A)** *1.1.3 Provide direct and close contact with patients; this should be characterized by honesty and empathy to create a therapeutic alliance based on trust and respect* **(A)** 1.2 Optimize the physical environment for the patient's comfort, dignity, privacy, engagement, and safety **(A)** *1.2.1 Show concern about patient privacy and comfort* **(A)** *1.2.2 Apply all required safety standards* **(A)**	2.2 Provide a clear structure for and manage the flow of an entire patient encounter **(A)** 2.3 Seek and synthesize relevant information from other sources, including the patient's family, with the patient's consent **(K, S, A)** *2.3.1 Collect the relevant necessary information from the patient's family, previous general dentist (or dental specialist), physician (if related to a medical issue), and other professionals, with the patient's permission* **(K, A)**	3.2 Disclose harmful patient safety incidents to patients and their families accurately and appropriately **(A)**	4.3 Use communication skills and strategies that help patients and their families to make informed decisions regarding their dental health **(A)**	5.3 Share information with patients and others in a manner that respects patient privacy and confidentiality, and enhances understanding **(S, A)**

		1.3 Recognize when the values, biases, or perspectives of patients, dentists, or other dental health care professionals may have an impact on the quality of care, and modify the treatment approach accordingly **(A)** 1.4 Respond to a patient's non-verbal behaviors to enhance communication **(K, S, A)** *1.4.1 Recognize and appropriately manage anxious or fearful dental patients* **(K, S, A)** *1.4.2 Recognize and respect the dental patient's need for privacy* **(A)**	*2.3.2 Act professionally when screening for sensitive information* **(K, S, A)**			

		1.5 Manage dis-agreements and emotionally charged conversations **(A)** *1.5.1 Respect each patient's perspectives, situation, concerns, and values, and give alternative treatment plans* **(A)** *1.5.2 Break bad news in an empathic manner* **(A)** 1.6 Adapt to the unique needs and preferences of each patient and to his/her clinical condition and circumstances **(A)**				

	Collaborator	1. Work effectively with dentists, physicians, and other colleagues in the dental health care professions 1.1 Establish and maintain a positive relationship with dentists, physicians, and other colleagues in the dental health care professions to support relationship-centered collaborative care **(A)** *1.1.1 Participate in intraprofessional (among dental colleagues) and interprofessional (among other dental and medical health care professionals) relationships and teamwork* **(A)** *1.1.2 Work with other health care professionals and dental specialists to integrate care at the individual and community levels* **(A)**	2. Work with dentists, and other colleagues in the dental health care professions to promote understanding, manage differences, and resolve conflicts 2.1 Show respect toward collaborators **(A)** *2.1.1 Encourage the opinions and ideas of other interprofessional and intraprofessional dental health care team members* **(A)** *2.1.2 Respect the roles and limitations of other professionals* **(A)** 2.2 Implement strategies to promote understanding, manage differences, and resolve conflicts in a manner that supports a collaborative culture **(A)**	3. Hand over the care of dental patients to another dental health care professional when necessary to facilitate continuity of safe patient care 3.1 Determine when care should be transferred to another dentist or dental health care professional **(A)** *3.1.1 Recognize one's own limitations and know when to seek help from others* **(A)** 3.2 Demonstrate handover of care, using both verbal and written communication, during a patient's transition to a different dental health care professional, setting, or stage of care **(A)** *3.2.1 Write appropriate referral and consultation request forms* **(K, S, A)**		

		1.1.3 Apply the principles of team dynamics **(K, A)** *1.1.4 Engage in continuous intra-professional and interprofessional development to enhance team performance* **(A)** 1.2 Negotiate overlapping and shared responsibilities with dentists and other health care professionals during episodic and ongoing care **(A)** *1.2.1 Recognize one's own professional role and responsibilities and those of others, including dental assistants, laboratory technicians, radiologists, hygienists, and staff in other dental and medical specialties* **(K, S, A)**	*2.2.1 Value diversity among dental professionals* **(A)** *2.2.2 Use constructive negotiation* **(A)** *2.2.3 Describe strategies for conflict resolution in the team* **(A)** *2.2.4 Give timely, sensitive, and instructive feedback to others, and respond respectfully and professionally to feedback from others* **(A)**			

		1.3 Engage in respectful shared decision-making with dentists and other colleagues in the dental health care professions **(A)**				

	Advocate	1. Respond to an individual patient's dental health needs by advocating for the patient within and beyond the clinical environment **(K, A)** 1.1 Work with patients to address determinants of dental health that affect them and their access to necessary dental health services or resources **(K, A)** 1.2 Work with patients and their families to increase opportunities to adopt healthy dental behaviors **(K, A)** 1.3 Incorporate prevention, promotion, and surveillance of oral health into interactions with individual patients **(K, S, A)**	2. Respond to the needs of the communities or populations served by advocating for system level change in a socially accountable manner 2.1 Work with a community or population to identify the determinants of oral health that affect its members **(A)** 2.2 Improve clinical practice by applying a process of continuous quality improvement in preventive care, and the promotion and surveillance of oral health **(A)** 2.3 Contribute to the process of improving oral health in the community or population served **(A)**			

	Leader	1. Contribute to the improved delivery of dental health care in teams, organizations, and systems 1.1 Apply the science of quality improvement to systems of patient care **(A)** 1.2 Contribute to a culture that promotes patient safety **(A)** 1.3 Analyze patient safety incidents to enhance systems of care **(K, S, A)** 1.4 Use health informatics to improve the quality of patient care and optimize patient safety **(K, S, A)**	2. Engage in the stewardship of dental care resources 2.1 Allocate dental care resources for optimal patient care **(K, A)** 2.2 Apply evidence and management processes to achieve cost-appropriate care **(A)**	3. Demonstrate leadership in professional practice 3.1 Demonstrate leadership skills to enhance dental care **(A)** 3.2 Facilitate change in dental health care to enhance services and outcomes **(A)**	4. Manage career planning, finances, and human resources in a dental practice 4.1 Set priorities and manage time to integrate practice and personal life **(K, S, A)** 4.2 Manage a career and a practice **(K, S, A)** 4.3 Implement processes to ensure improvement in personal practice **(S, A)**	

	Scholar	**1. *LIFELONG LEARNING*** **Engage in continuous enhancement of professional activities through ongoing learning** 1.1 Develop, implement, monitor, and revise a personal learning plan to enhance professional practice **(K)** 1.2 Identify opportunities for learning and improvement by regularly reflecting on and assessing personal performance using various internal and external data sources **(K)** 1.3 Engage in collaborative learning to improve personal practice and contribute to collective	**2. *TEACHER*** **Teach students, residents, the public, and other health care professionals** 2.1 Recognize the influence of role modeling and the impact of the formal, informal, and hidden curriculum on learners **(K)** *2.1.1 Participate in teaching with dental students, interns, residents, or colleagues* **(K)** 2.2 Promote a safe learning environment **(K)** 2.3 Ensure patient safety is maintained when learners are involved **(K)** 2.4 Plan and deliver a learning activity **(K)**	**3. *EVIDENCE-INFORMED DECISION-MAKING*** **Integrate best available evidence into practice** 3.1 Recognize uncertainty in clinical practice and knowledge gaps in clinical and other professional encounters, and generate focused questions that address them **(K)** 3.2 Identify, select, and navigate pre-appraised resources **(K)** 3.3 Critically evaluate the integrity, reliability, and applicability of health-related research and literature **(K)**	**4. *RESEARCH*** **Contribute to the creation and dissemination of knowledge and practices applicable to health** 4.1 Demonstrate an understanding of the scientific principles of research and scholarly inquiry, and the role of research evidence in health care **(K, S, A)** 4.2 Identify ethical principles relevant to research, and how they relate to the informed consent process, as well as the consideration of vulnerable populations, and the potential harms and benefits of study participation **(K, A)**	

		improvements in practice in an ongoing way **(K)** *1.3.1 Learn from and make use of the expertise of other dentists or dental health care professionals* **(K)**	2.5 Provide feedback to enhance learning and performance **(K)** 2.6 Assess and evaluate learners, teachers, and programs in an educationally appropriate manner **(K)**	3.4 Integrate evidence into decision-making in clinical practice **(K)**	4.3 Contribute to the work of a research program **(K, A)** 4.4 Pose questions amenable to scholarly inquiry and select appropriate methods to address them **(K, A)** 4.5 Summarize and communicate to professional and lay audiences, including patients and their families, the findings of relevant research and scholarly inquiry **(K, A)**	

	Professional	**1. COMMITMENT TO PATIENTS** **Demonstrate a commitment to patients by applying best practices and adhering to high ethical standards** 1.1 Exhibit appropriate professional behavior and relationships in all aspects of practice by demonstrating honesty, integrity, humility, commitment, compassion, respect, altruism, respect for diversity, and maintenance of confidentiality **(S, A)** *1.1.1 Put patients' interests before their own or those of any colleague, organization, or business* **(S, A)** *1.1.2 Maintain the confidentiality of patient information and use it for the*	**2. COMMITMENT TO SOCIETY** **Demonstrate a commitment to society by recognizing and responding to societal expectations in oral health care** 2.1 Demonstrate accountability to patients, society, and the profession by meeting their expectations **(S, A)** 2.2 Demonstrate a commitment to patient safety and quality improvement **(S, A)**	**3. COMMITMENT TO PROFESSION** **Demonstrate a commitment to the profession by adhering to standards and participating in dentist-led regulation** 3.1 Fulfill and adhere to the professional and ethical codes, standards of practice, and laws governing dental practice **(S, A)** *3.1.1 Recognize and follow laws and regulations that affect a dentist's work, premises, equipment, and business* **(S, A)** 3.2 Recognize and respond to unprofessional and unethical behaviors in dentists and other colleagues in the health care professions **(S, A)**	**4. COMMITMENT TO SELF** **Demonstrate a commitment to dental health and well-being by fostering optimal patient care.** 4.1 Display self-awareness and manage influences on personal well-being and professional performance **(S, A)** 4.2 Manage personal and professional demands for a sustainable practice throughout life **(S, A)** 4.3 Promote a culture that recognizes, supports, and responds effectively to colleagues in need **(S, A)**	

		purposes for which it is given **(S, A)** *1.1.3 Keep patient information secure at all times* **(S, A)** *1.1.4 In special cases, it may be justified to make confidential patient information known without consent if it is in the public interest or the patient's interest* **(S, A)** *1.1.5 Maintain appropriate boundaries in relationships with patients, without abusing those relationships* **(S, A)** 1.2 Demonstrate a commitment to excellence in all aspects of practice **(S, A)** 1.3 Recognize and respond to ethical issues encountered in practice **(S, A)**		*3.2.1 Treat all team members and other colleagues fairly and in line with the law, without discrimination* **(S, A)** 3.3 Participate in peer assessment and setting of standards **(S, A)** *3.3.1 Share knowledge and skills effectively with other team members and colleagues in the interests of patients* **(S, A)**		

		1.3.1 Reject politely any payment, gift, hospitality, or request to make or accept any referral that may affect professional judgment **(S, A)** *1.3.2 Treat patients politely and with respect, by recognizing their dignity and rights as individuals* **(S, A)** *1.3.3 Recognize and promote the patient's responsibility for making decisions about oral and dental treatment* **(S, A)** *1.3.4 Treat patients fairly and in line with the law* **(S, A)** 1.4 Recognize and manage conflicts of interest **(S, A)** 1.5 Display professional behavior in the use of technology-enabled communication **(S, A)**				

Appendix C

Universal Topics

Intent:

Universal topics are interdisciplinary in nature, and are 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, and meet one or more of the following criteria:

1. Impactful: They address conditions that are common or life-threatening.
2. Interdisciplinary: They have importance across a range of disciplines; therefore the teaching of these topics cannot be restricted to a single discipline.
3. Orphan: They are poorly represented in the undergraduate curriculum.
4. Practical: They address issues and situations that trainees will encounter in hospital practice.

Development and delivery: Core topics for the PG curriculum will be developed and delivered centrally by the SCFHS through an e-learning platform. A set of preliminary learning outcomes for each topic will be developed. Content experts, in collaboration with the central team, may modify the learning outcomes.
The topics will be didactic in nature, with a focus on the practical aspects of care. They will be more content-heavy, as compared to workshops and other planned face-to-face interactive sessions. The suggested duration of each topic is 1.30 hours.

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 a minimum level of competency in the summative assessment. Alternatively, these topics can be assessed in a summative manner along with the specialty examination.
Some ideas: The assessment may also include case studies, high quality images, worked examples of prescribing drugs in disease states, and internet resources.

Module 1: Introduction

1. Safe drug prescribing
2. Hospital-acquired infections
3. Sepsis, SIRS, and DIVC
4. Antibiotic stewardship
5. Blood transfusion

Safe drug prescribing

At the end of the learning unit residents should be able to:

a) Recognize the importance of safe drug prescribing in health care.
b) Describe various adverse drug reactions caused by commonly prescribed drugs.
c) Apply the principles of drug-drug, drug-disease, and drug-food interactions to commonly encountered clinical scenarios.

d) Apply the principles of prescribing drugs in special situations to conditions such as renal failure and liver failure.
e) Apply the principles of prescribing drugs in geriatric and pediatric patients, as well as during pregnancy and lactation.
f) Promote the evidence-based and cost-effective prescribing of drugs.
G) Discuss the ethical and legal framework governing safe-drug prescribing in Saudi Arabia.

Hospital-acquired infection (HAI)

At the end of the learning unit, residents should be able to:
a) Discuss the epidemiology of HAI with special reference to Saudi Arabia.
b) Recognize HAI as one of the major emerging threats in health care.
c) Identify the common sources and reservoirs of HAI.
d) Describe common HAIs such as ventilator-associated pneumonia, Methicillin-resistant *Staphylococcus aureus* (MRSA), Central line-associated bloodstream infection (CLABSI), and vancomycin-resistant *Enterococcus* (VRE) and their risk factors.
e) Identify the role of health care workers in the prevention of HAI.
f) Determine appropriate pharmacological (e.g., antibiotic) and non-pharmacological (e.g., removal of indwelling catheter) measures in the treatment of HAI.
g) Propose a plan to prevent HAI in the workplace.

Sepsis, Systemic inflammatory response syndrome (**SIRS),** Disseminated intravascular coagulation (**DIVC)**

At the end of the learning unit, residents should be able to:
a) Explain the pathogenesis of sepsis, SIRS, and DIVC.
b) Identify patient-related and non-patient-related predisposing factors for sepsis, SIRS, and DIVC.
c) Recognize a patient at risk of developing sepsis, SIRS, or DIVC.
d) Describe the complications of sepsis, SIRS, and DIVC.
e) Apply the principles of management for patients with sepsis, SIRS, and DIVC.
f) Describe the prognosis of sepsis, SIRS, and DIVC.

Antibiotic stewardship

At the end of the learning unit, you should be able to:
a) Recognize antibiotic resistance as one of the most pressing public health threats globally.
b) Describe the mechanism of antibiotic resistance.
c) Determine the appropriate and inappropriate use of antibiotics.
d) Develop a safe and proper antibiotic usage plan, which correctly outlines the indications for treatment, as well as the selection of antibiotic type, duration of administration, and criteria for discontinuation.
e) Appraise local guidelines for antibiotic administration, and their effectiveness in the prevention of antibiotic resistance.

Blood transfusion

At the end of the learning unit, you should be able to:
a) Review the different components of blood products available for transfusion.
b) Recognize the indications and contraindications of blood product transfusion.

c) Discuss the benefits, risks, and alternatives to transfusion.
d) Obtain consent for specific blood product transfusion.
e) Perform steps necessary for safe transfusion.
f) Develop an understanding of the special precautions and procedures necessary during massive transfusions.
g) Recognize transfusion-associated reactions and provide immediate management.

Module 2: Cancer

6. Principles of management of cancer
7. Side effects of chemotherapy and radiation therapy
8. Oncologic emergencies
9. Cancer prevention
10. Surveillance follow-up of cancer patients

Principles of management of cancer

At the end of the learning unit, you should be able to:
a) Discuss the basic principles of staging and grading of cancers.
b) Enumerate the basic principles (e.g., indications, mechanisms, types) of
    a. Cancer surgery
    b. Chemotherapy
    c. Radiotherapy
    d. Immunotherapy
    e. Hormone therapy

Side effects of chemotherapy and radiation therapy

At the end of the learning unit, you should be able to:
a) Describe important (e.g., frequent and life/organ-threatening) side effects of common chemotherapy drugs.
b) Explain the principles of monitoring side-effects in patients undergoing chemotherapy.
c) Describe measures (pharmacological and non-pharmacological) available to ameliorate side-effects of commonly prescribed chemotherapy drugs.
d) Describe important (e.g., common and life-threatening) side effects of radiation therapy.
e) Describe measures (pharmacological and non-pharmacological) available to ameliorate side-effects of radiotherapy.

Oncologic emergencies

At the end of the learning unit, you should be able to:
a) Enumerate important oncologic emergencies encountered both in hospital and ambulatory settings.
b) Discuss the pathogenesis of important oncologic emergencies.
c) Recognize oncologic emergencies.
d) Institute immediate measures when treating a patient with oncologic emergencies.
e) Counsel patients in an anticipatory manner to recognize and prevent oncologic emergencies.

Cancer prevention

At the end of the learning unit, you should be able to:
a) Conclude that many major cancers are preventable.
b) Identify the importance of smoking prevention and lifestyle modifications as major preventive measures.
c) Recognize the types of cancers that are preventable.
d) Discuss the major cancer prevention strategies at the individual as well as the national level.
e) Counsel patients and families in a proactive manner regarding cancer screening and prevention.

Surveillance and follow-up of cancer patients

At the end of the learning unit, you should be able to:
a) Describe the principles of surveillance and follow-up in patients with cancer.
b) Explain the surveillance and follow-up plan for common forms of cancer.
c) Describe the role of primary care physicians, family physicians, and other health care staff in the surveillance and follow-up of patients with cancer.
d) Liaise with oncologists to provide surveillance and follow-up for patients with cancer.

Module 3: Diabetes and metabolic disorders

11. Recognition and management of diabetic emergencies
12. Management of diabetic complications
13. Comorbidities of obesity
14. Abnormal ECG

Recognition and management of diabetic emergencies

At the end of the learning unit, you should be able to:
a) Describe the pathogenesis of common diabetic emergencies and their complications.
b) Identify risk factors and groups of patients who are vulnerable to diabetic emergencies.
c) Recognize a patient presenting with diabetic emergencies.
d) Institute immediate management.
e) Appropriately refer a patient to the next level of care.
f) Counsel patients and their families to prevent diabetic emergencies.

Management of diabetic complications

At the end of the learning unit, you should be able to:
a) Describe the pathogenesis of important complications of Type 2 diabetes mellitus.
b) Screen patients for diabetic complications.
c) Provide preventive measures for diabetic complications.
d) Treat diabetic complications.
e) Counsel patients and their families on the prevention of diabetic complications.

Comorbidities of obesity

At the end of the learning unit, you should be able to:
a) Screen patients for the presence of common and important comorbidities of obesity.

b) Manage obesity-related comorbidities.
c) Provide dietary and lifestyle advice for the prevention and management of obesity.

Abnormal Electrocardiogram (ECG)

At the end of the learning unit, you should be able to:
a) Recognize common and important ECG abnormalities.
b) Institute immediate management, if necessary.

Module 4: Medical and surgical emergencies

15. Management of acute chest pain
16. Management of acute breathlessness
17. Management of altered sensation
18. Management of hypotension and hypertension
19. Management of upper GI bleeding
20. Management of lower GI bleeding

At the end of the learning unit, you should be able to:
a) Triage and categorize patients.
b) Identify patients who need prompt medical and surgical attention.
c) Generate preliminary diagnoses based on history and physical examination.
d) Order and interpret urgent investigations.
e) Provide appropriate and immediate management to patients.
f) Refer patients to the next level of care, if needed.

Module 5: Acute care

21. Pre-operative assessment
22. Post-operative care
23. Acute pain management
24. Chronic pain management
25. Management of fluid in the hospitalized patient
26. Management of electrolyte imbalances

Pre-operative assessment

At the end of the learning unit, you should be able to:
a) Describe the basic principles of pre-operative assessment.
b) Perform a pre-operative assessment in an uncomplicated case, with a special emphasis on five aspects.
    i. General health assessment
    ii. Cardiorespiratory assessment
    iii. Medications and medical device assessment
    iv. Drug allergy
    v. Pain relief needs
c) Categorize patients according to risks.

Post-operative care

At the end of the learning unit, you should be able to:
a) Devise a post-operative care plan which includes monitoring of vitals, pain management, fluid management, medications, and laboratory investigations.
b) Transfer patients properly to appropriate facilities.
c) Describe the process of post-operative recovery in a patient.
d) Identify common post-operative complications.
e) Monitor patients for possible post-operative complications.
f) Institute immediate management for post-operative complications.

Acute pain management

At the end of the learning unit, you should be able to:
a) Review the physiological basis of pain perception.
b) Proactively identify patients who might be in acute pain.
c) Assess a patient with acute pain.
d) Apply various pharmacological and non-pharmacological modalities available for acute pain management.
e) Provide adequate relief for acute pain in uncomplicated cases.
f) Identify and refer patients with acute pain who may benefit from specialized pain services.

Chronic pain management

At the end of the learning unit, you should be able to:
a) Review the biopsychosocial and physiological basis of chronic pain perception.
b) Discuss various pharmacological and non-pharmacological options available for chronic pain management.
c) Provide adequate relief for chronic pain in uncomplicated cases.
d) Identify and refer patients with chronic pain who may benefit from specialized pain services.

Management of fluid in hospitalized patients

At the end of the learning unit, you should be able to:
a) Review the physiological basis of water balance in the body.
b) Assess the hydration status of a patient.
c) Recognize when a patient is over- or under-hydrated.
d) Order fluid therapy (oral or IV) for a hospitalized patient.
e) Monitor fluid status and response to therapy through history, physical examination, and selected laboratory investigations.

Management of acid-base electrolyte imbalances

At the end of the learning unit, residents should be able to:
a) Review the physiological basis of electrolyte and acid-base balance in the body.
b) Identify diseases and conditions that are likely to cause, or be associated with, acid-base and electrolyte imbalances.
c) Correct electrolyte and acid-base imbalances.

d) Perform careful calculations, checks, and other safety measures, while correcting acid-base and electrolyte imbalances.
e) Monitor response to therapy through history, physical examination, and selected laboratory investigations.

Module 6: Frail elderly

27. Assessment of frail elderly
28. Mini-mental state examination
29. Prescribing drugs in the elderly
30. Care of the elderly

Assessment of frail elderly

At the end of the learning unit, residents should be able to:
a) Enumerate the differences and similarities between comprehensive assessment in elderly patients, and patients in other age groups.
b) Perform a comprehensive assessment, in conjunction with other members of the health care team, for a frail elderly patient, with a special emphasis on social factors, functional status, quality of life, diet and nutrition, and medication history.
c) Develop a problem list based on the assessment of an elderly patient.

Mini-mental state examination (MMSE)

At the end of the learning unit, residents should be able to:
a) Review the appropriate uses, advantages, and potential pitfalls of the MMSE.
b) Identify patients suitable for the MMSE.
c) Screen patients for cognitive impairment using the MMSE.

Prescribing drugs in the elderly

At the end of the learning unit, residents should be able to:
a) Discuss the principles of prescribing drugs in the elderly.
b) Recognize polypharmacy, prescribing cascades, inappropriate dosages, inappropriate drugs, and deliberate drug exclusion as major causes of morbidity in the elderly.
c) Describe physiological and functional declines in the elderly that contribute to an increased risk of drug-related adverse events.
d) Discuss drug-drug interactions and drug-disease interactions among the elderly.
e) Use the Beers criteria.
f) Develop a rational prescribing habit for the elderly.
g) Counsel elderly patients and their families on the safe use of medications.

Care of the elderly

At the end of the learning unit, residents should be able to:
a) Describe the factors that need to be considered when planning care for the elderly.
b) Recognize the needs and well-being of caregivers.
c) Identify available local and community resources for care of the elderly.
d) Develop, with inputs from other health care professionals, an individualized care plan for an elderly patient.

Module 7: Ethics and health care

31. Occupational hazards of **health care workers** HCW
32. An evidence-based approach to smoking cessation
33. Patient advocacy
34. Ethical issues: Transplantation/organ harvesting and withdrawal of care
35. Ethical issues: Treatment refusal and patient autonomy
36. Role of doctors in death and dying

Occupational hazards of Workers (HCW)

At the end of the learning unit, you should be able to:
a) Recognize common sources and risk factors of occupational hazards among HCW.
b) Describe common occupational hazards in the workplace.
c) Develop familiarity with legal and regulatory frameworks governing occupational hazards among HCW.
d) Develop a proactive attitude toward the promotion of workplace safety.
e) Protect yourself and colleagues against potential occupational hazards in the workplace.

An evidence-based approach to smoking cessation

At the end of the learning unit, you should be able to:
a) Describe the epidemiology of smoking and tobacco use in Saudi Arabia.
b) Review the effects of smoking on the smoker and family members.
c) Effectively use pharmacologic and non-pharmacologic measures to treat tobacco usage and dependence.
d) Effectively use pharmacologic and non-pharmacologic measures to treat tobacco usage and dependence among special population groups such as pregnant women, adolescents, and patients with psychiatric disorders.

Patient advocacy

At the end of the learning unit, you should be able to:
a) Define patient advocacy.
b) Recognize patient advocacy as a core value governing medical practice.
c) Describe the role of patient advocates in the care of patients.
d) Develop a positive attitude toward patient advocacy.
e) Be a patient advocate in conflicting situations.
f) Be familiar with local and national patient advocacy groups.

Ethical issues: Transplantation/organ harvesting and withdrawal of care

At the end of the learning unit, you should be able to:
a) Apply key ethical and religious principles governing organ transplantation and the withdrawal of care.
b) Be familiar with the legal and regulatory guidelines regarding organ transplantation and the withdrawal of care.
c) Counsel patients and their families with regards to applicable ethical and religious principles.
d) Guide patients and their families in making informed decisions.

Ethical issues: Treatment refusal and patient autonomy

At the end of the learning unit, you should be able to:

a) Predict situations in which a patient or family is likely to decline prescribed treatment.
b) Describe the concept of “rational adult” in the context of patient autonomy and treatment refusal.
c) Analyze key ethical, moral, and regulatory dilemmas in treatment refusal.
d) Recognize the importance of patient autonomy in the decision-making process.
e) Counsel patients and families declining medical treatment, in the best interests of the patients.

Role of doctors in death and dying

At the end of the learning unit, you should be able to:

a) Recognize the important role a doctor can play in palliative treatment.
b) Provide emotional, as well as physical care, to a dying patient and their family.
c) Provide appropriate pain management for a dying patient.
d) Identify suitable patients and make appropriate referrals to palliative care services.

Appendix D

Top 10 conditions in the specialty of pediatric dentistry

1. A child with acute situational anxiety (Pre-cooperative and uncooperative children)
2. ECC
3. CSHCN
4. Reversible and irreversible pulpitis
5. Dental abscess
6. Missing teeth and space loss
7. Anterior or posterior cross bite
8. Developmental anomalies
9. Traumatic injury
10. Restoration failure

Top 10 procedures performed in the specialty of pediatric dentistry

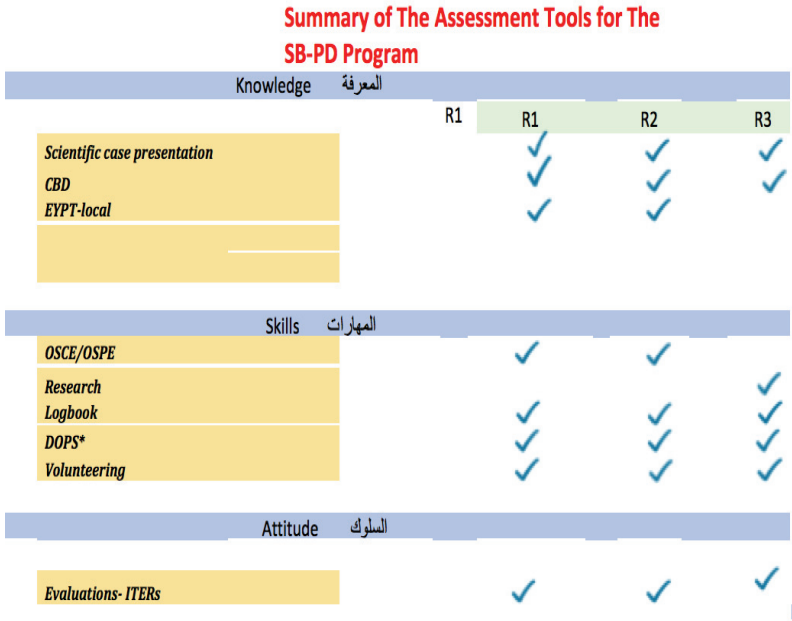
1. Stainless steel crown
2. Composite
3. Glass ionomer restorations
4. Pit-and-fissure sealants
5. Pulpotomy/pulpectomy
6. Space maintainer
7. Management of traumatic injuries
8. Prophylaxis and fluoride application
9. Treatment planning
10. Extractions

Appendix E

List of Formative Assessment Tools

According to the executive policy on continuous assessment, a minimum of four tools are needed, which should cover the three domains of knowledge, skills, and attitude. The trainee should demonstrate competency, as evaluated by each assessment tool, in order to be promoted to the subsequent training level; for further details please refer to the policy on www.scfhs.org.

Approved Formative Assessment Tools, Saudi Board Pediatric Dentistry Program revised annually)



CBD	***Case-based discussion***
EYPT-local	***End-of-year progress test***
OSCE/OSPE	***Objective structured clinical examination/Objective structured practical examination***
DOPS	***Direct observation of procedural skills***
ITERs	***In-training evaluation reports***

Appendix F

Glossary

Glossary	
Blueprint	A description of how the educational objectives correlate to the assessment contents. For example, a test blueprint defines the proportion of test questions allocated to each learning domain and/or content.
Competency	Capability to function within a defined professional role that implies entrustment of a trainee by graduation from the program with the required knowledge, skills, and attitude needed for unsupervised practice.
Specialty core content (skills, knowledge, and professional attitude)	A specific knowledge, skill, or professional attitude that is specific and integral to the given specialty.
Formative assessment	An assessment that is used to inform the trainer and learner of what has been taught and learned, respectively, for the purpose of improving learning. Typically, the results of a formative assessment are communicated through feedback to the learner. Formative assessments are not primarily intended to make judgments or decisions (although this may be a secondary goal).
Mastery	Exceeding the minimum level of competency, and achieving a proficient level of performance; this reflects a rich experience with excellent knowledge, skills, and attitudes.
Portfolio	A collection of evidence of progression towards competency. It may include both constructed components (defined by mandatory continuous assessment tools in the curriculum) and unconstructed components (selected by the learner).
Summative assessment	An assessment that reflects the composite performance of a learner and their development at a particular point in time; it is used to inform judgments and make decisions about the level of learning and certification achieved.
Universal topic	A knowledge, skill, or professional behavior that is not specific to the given specialty, but broadly applicable to general practice within the health care profession.

Appendix G: Forms

1- Case presentation evaluation form 2019

Saudi Commission for Health Specialties
*SCFHS - Pediatric Dentistry

Evaluated By : evaluator's name
Evaluating : person (role) or moment's name (if applicable)
Dates : start date to end date

* indicates a mandatory response

CASE PRESENTATION EVALUATION FORM NEW 2019

	n/a	Unsatisfactory (1)	Below Average(2)	Average (3)	Above Average(4)	Outstanding (5)
*1.Proper documentation of case by charts, x-ray, slide, study model diagnosis	○	○	○	○	○	○
*2.Behavioral Observation Evaluation/Behavioral Management Technique	○	○	○	○	○	○
*3.Mixed Dentition Analysis	○	○	○	○	○	○
*4.Quality of Diet, Oral Hygiene, Perio Assessment & Preventive Instructions	○	○	○	○	○	○
*5.Suitability of Treatment Plan for the Case	○	○	○	○	○	○
*6.Quality of Pulp Therapy	○	○	○	○	○	○
*7.Quality of Restorative Therapy	○	○	○	○	○	○
*8.Quality of Intersective Orthodontic therapy	○	○	○	○	○	○
*9.Time Management for the Treatment	○	○	○	○	○	○
*10.Quality of Treatment done from your point of view	○	○	○	○	○	○
*11.Quality of Oral Presentation of the Resident	○	○	○	○	○	○
*12.Quality of Audio-visual used for presentation	○	○	○	○	○	○
*13.Response from Discussion and Criticism	○	○	○	○	○	○

The following will be displayed on forms where feedback is enabled...
(for the evaluator to answer...)

*Did you have an opportunity to meet with this resident to discuss their performance?
○ Yes
○ No

(for the evaluee to answer...)

*Are you in agreement with this assessment?
○ Yes
○ No

Please enter any comments you have (if any) on this evaluation.

2- In training evaluation report

Saudi Commission for Health Specialties
*SCFHS - Pediatric Dentistry

Evaluated By : evaluator's name
Evaluating : person (role) or moment's name (if applicable)
Dates : start date to end date

* indicates a mandatory response

ITER - IN-TRAINING EVALUATION REPORT

	n/a	Unsatisfactory (1)	Below Average (2)	Average (3)	Above Average (4)	Outstanding (5)
***A) KNOWLEDGE :** **1. Basic**	○	○	○	○	○	○
***2. Clinical**	○	○	○	○	○	○
***B) CLINICAL SKILLS :** **3.History & Physical Examination**	○	○	○	○	○	○
***4. Clinical Judgment & Decision Making**	○	○	○	○	○	○
***5. Consultation Skills**	○	○	○	○	○	○
***6. Performance in Emergencies**	○	○	○	○	○	○
***7. Appropriate Utilization of Investigation**	○	○	○	○	○	○
***8. Records & Reports**	○	○	○	○	○	○
***9. Participation in Scientific Activities**	○	○	○	○	○	○
***C) OPERATIVE & INTERVENTIONAL SKILLS :** **10. Indications & Judgment**	○	○	○	○	○	○
***11. Technical Skills**	○	○	○	○	○	○
***D) PERSONALITY & ETHICS :**	○	○	○	○	○	○

***13. Discipline & Reliability**	○	○	○	○	○	○
***14. Attitude to Patients**	○	○	○	○	○	○
***15. Attitude to Staff**	○	○	○	○	○	○
***16. Ability to Supervise**	○	○	○	○	○	○

Comments

The following will be displayed on forms where feedback is enabled...
(for the evaluator to answer...)

*Did you have an opportunity to meet with this resident to discuss their performance?
○ Yes
○ No

(for the evaluee to answer...)

*Are you in agreement with this assessment?
○ Yes
○ No

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