الهيئة السعودية للتخصصات الصحية
Saudi Commission for Health Specialties

Rhinology, Endoscopic Sinus, and Skull Base Surgery Fellowship

2022


بسم الله الرحمن الرحيم

PREFACE

1. The primary goal of this document is to enrich the training experience of postgraduate trainees by outlining the learning objectives to become independent and competent future practitioners.
2. This curriculum may contain sections outlining some regulations of training; however, such regulations need to be sought from the training's "General Bylaws" and "Executive Policies" published by the Saudi Commission for Health Specialties (SCFHS), which can be accessed online through the official SCFHS website. In the occasion of discrepancy in regulation statements, then the one stated in the most updated bylaws and executive policies will be the reference to apply.
3. As this curriculum is subjected to periodic refinements, please refer to the electronic version posted online for the most updated edition: www.scfhs.org.sa.

I. CONTRIBUTORS

This curriculum was prepared by the Specialty's Curriculum Development Committee:
• Dr. Omar Abu Suliman • Dr. Sumaiya Muathen • Dr. Abdullah Bahakim
Reviewed and Approved by Specialty's Scientific (Otorhinolaryngology, Head & Neck Surgery Council Members):
• Dr. Mona Ashour • Dr. Fahad Al Fawwaz
Advisory Committee Members (Curriculum Review Committee members):
• Dr. Lubna Alkadi • Dr. Faisal Althekair
Approved by Head of Curricula Review Committee:
• Dr.Ali AlYahya, MBBS, Msc.MedEd. FRCSC, FACS

II. COPYRIGHT STATEMENTS

Correspondence: Saudi Commission for Health Specialties P.O. Box: 94656 Postal Code: 11614 Contact Center: 920019393

E-mail: Curricula@scfhs.org.sa

Website: www.scfhs.org.sa

III. FOREWORD

The rhinology, endoscopic sinus, and skull base surgery fellowship curriculum development team acknowledges the valuable contributions and feedback from the scientific committee members and Dr. Faisal Saati as trainee representative in the development of this program. We extend special appreciation and gratitude to all the members who have been pivotal in the completion of this booklet, especially the Curriculum Group, the Curriculum Specialists, and Scientific Council. We would also like to acknowledge that the CanMEDS framework is a copyright of the Royal College of Physicians and Surgeons of Canada, and many of the description's competencies have been acquired from their resources.

IV. TABLE OF CONTENTS

V. INTRODUCTION

1. Context of Practice

Saudi Arabia has an estimated population of over 30 million, and a significant number of individuals have numerous nasal and sinus problems (see Appendix B), one of which is allergic rhinitis (AR). Only a few epidemiological studies have estimated the prevalence of AR in Saudi Arabia, but many studies have examined specific patient groups in other regions. For example, Nahhas et al. examined 6- to 8-year-old children in Madinah and found that 24% of the 5188 children had AR symptoms, although only 4% had been diagnosed with AR. Sobki and Zakzouk evaluated the prevalence of AR among children in Saudi Arabia and associations with hearing impairment and bronchial asthma. The study included 9540 children (44% male, 56% female), where 2529 patients (26.5%) had rhinitis, and 649 patients also suffered from asthma (25.7% of the rhinitis group). Another disease of significance is allergic fungal sinusitis (AFS) with its prevalence, according to one study, was 12.1% among patients with nasal polyps.[1,2]

The management of such diseases necessitates appropriate and sufficient care provided by a specialized surgeon in the field of rhinology, endoscopic sinus, and skull base surgery. To accomplish this goal, a specialized program is required to graduate outstanding surgeons and clinicians. The ultimate aim is to provide a wide range of inpatient and outpatient clinical experience and to increase knowledge and improve medical judgment, surgical skills, and total management of patients with sinonasal and skull base problems.

The fellowship program is dedicated to providing training that ensures delivery of the highest quality and care to the Saudi community. This fellowship will serve as a broad exposure to numerous procedures, diagnosis, surgical advanced skills, research, and training opportunities.

2. Goals and Responsibilities of Curriculum Implementation

This curriculum ultimately seeks to guide trainees to become competent in their respective specialties. Accordingly, this goal requires a significant amount of effort and coordination from all stakeholders involved in the postgraduate training. As "adult-learners," trainees must be proactive, fully engaged, and exhibit the following: a careful understanding of learning objectives, self-directed learning, problem solving, an eagerness to apply learning by means of reflective practice from feedback and formative assessment, and self-awareness and willingness to ask for support when needed. The program director plays a vital role in ensuring the successful implementation of this curriculum. Moreover, training committee members, particularly the program administrator, have a significant impact on program implementation. Trainees should be called to share responsibility in curriculum implementation. The Saudi Commission for Health Specialties (SCFHS) applies the best models of training governance to achieve the highest quality of training. Additionally, academic affairs in training centers and the regional supervisory training committee play a major role in training supervision and implementation. Specialty Scientific (Rhinology, Endoscopic Sinus, and Skull Base Surgery committee) will guarantee that the content of this curriculum is constantly updated to match the highest standards in postgraduate education of each trainee's specialty.

VI. ABBREVIATIONS USED IN THIS DOCUMENT

Abbreviation	Description
SCFHS	Saudi Commission for Health Specialties
F(1)	(First) year of fellowship
F(2)	(Second) year of fellowship
PT	Progress test
OSCE	Objective Structured Clinical Examination
OSPE	Objective Structured Practical Examination
Mini-CEX	Mini-Clinical Experience report
DOPS	Direct Observation of Procedural Skills report
CBD	Case-based discussion report
CBE	Competency-based education
ITER	In-training evaluation report
COT	Consultation observation tool
AR	Allergic rhinitis

Abbreviation	Description
AFS	Allergic fungal sinusitis
CRS	Chronic rhinosinusitis
FESS	Functional endoscopic sinus surgery
DCR	Dacryocystorhinostomy
TBL	Team-based learning

VII. PROGRAM ENTRY REQUIREMENTS

Please be advised that the requirements are subjected to change so please refer to the SCFHS website for any updates.

The fellow must meet the following requirements:

1. Obtained professional classification of senior registrar rank in the general specialty related to subspecialties (Otorhinolaryngology, Head, and Neck Surgery) or passed the final written examination of the Saudi Specialty Certificate provided. The general specialty certificate shall be obtained before sitting for the final examination of the subspecialty.
2. The applicant shall be medically fit according to the requirements of the profession applied for.
3. The applicant shall provide an approval of his/her employer that the applicant can enroll in a full-time training in the subspecialty program for the entire training period.
4. The applicant shall pay the full training, examination, and certificate fees.
5. Candidates must have passed the subspecialty's SCHS admission examination/interview, if required by the fellowship program.
6. Proof of attendance in basic and advanced sinus dissection course.
7. Three letters of recommendation from previous supervisors
8. Curriculum vitae

VIII. LEARNING AND COMPETENCIES

1. Introduction to Learning Outcomes and Competency-Based Education

Rhinology and skull base fellowship training program is guided by well-defined "learning objectives" that are driven by targeted "learning outcomes" to serve specific specialty needs. Learning outcomes reflect the professional "competencies" and tasks that are aimed to be "entrusted" by trainees upon graduation. This will ensure that graduates will meet the expected demands of the healthcare system and patient care in relation to rhinology and skull base specialty. Competency-based education (CBE) is an approach of "adult-learning" that is based on achieving pre-defined, fine-grained, and well-paced learning objectives that are driven from complex professional competencies.

Professional competencies related to healthcare are usually complex and contain a mixture of multiple learning domains (knowledge, skills, and attitude). CBE is expected to change the traditional way of postgraduate education. For instance, time of training, although a precious resource, should not be looked as a proxy for competence (e.g., time of rotation in certain hospital areas is not the primary marker of competence achievement). Furthermore, CBE emphasizes the critical role of informed judgment

of learner's competency progress, which is based on a staged and formative assessment that is driven from multiple workplace-based observations. Several CBE models have been developed for postgraduate education in healthcare (e.g., CanMEDs by the Royal College of Physician and Surgeon of Canada [RCPSC], the CBME competency model by the Accreditation Council for Graduate Medical Education[ACGME], tomorrow's doctor in UK and multiple others). The following are concepts to enhance the implementation of CBE in this curriculum:

1. **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 competency role to make it mendable for learning and assessment.
2. **Milestones:** Milestones are stages along the developmental journey throughout the competency continuum. Trainees throughout their learning journey, from junior and throughout senior levels, will be assisted to transform from being novice/supervised into master/unsupervised practitioners. This should not undermine the role of supervisory/regulatory bodies toward malpractice of independent practitioners. Milestones are expected to enhance the learning process by pacing the training/assessment to match the developmental level of trainees (junior vs. senior).
3. **Learning domains:** Whenever possible, efforts should be directed to annotate the learning outcomes with the corresponding domain (K=knowledge, S=s kills, and A=attitude).

You might have more than one annotation for a given learning outcome.

4. **Content-area categorization:** It is advisable to categorize the learning outcomes in a broad content area related to the practice of profession, for example, diagnostic versus therapeutic, simple versus complex, urgent versus chronic, etc.

Trainees are expected to progress from novice to mastery level in a certain set of professional competencies. SCFHS has endorsed the CanMEDs to articulate professional competencies. This curriculum applies principles of competency-based medical education. CanMeds represents globally accepted framework outlining competency roles. "CanMeds 2015" has been adopted in this curriculum (Frank JR, Snell L, Sherbino J, editors. CanMEDS 2015 Physician Competency Framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015).

2. Program Durations

The standard duration of this program is 2 years.

3. Program Rotations

Training year	Mandatory rotations		Elective rotations	
	Rotation name	Duration	Rotation name*	Duration
F1	Research/rhinology -Advanced rhinology -Vacation	-3 months -7 months -1 month	- Immunology - Neuroradiology - Pulmonology/sleep medicine	-1 month
F2	- Advanced rhinology /Skull base surgery -Vacation	-10 months -1 month	-Neurosurgery -Immunology - Oculoplastic surgery	-1 month

*The fellow can choose from the selected elective rotations

4. Mapping of learning objectives and competency roles to program rotations:

This section aims to match the competencies and objectives related to each rotation. Trainees and trainers should work together to achieve these objectives during teaching and formative assessment. The expectations should evolve as the training level progresses (training stage; milestones).

Junior-level competency matrix: To map competency, learning domains, and milestones

Training year level	Competency roles	Managing inflammatory and allergic rhinosinusitis cases	Managing suspected cases of invasive fungal rhinosinusitis	Managing type 2 disease cases	Managing cases of obstructive sleep apnea (OSA)	Identifying radiological signs of sinonasal disease
F1	Professional expert	- Performs the standard nasal examinations, including eyes and cranial nerves Examinations - Obtains focused history regarding the quality of life and how it is Affected K, S, A	- Reaches the correct diagnosis early - Reverses the underlying cause K, S, A	- Identifies patients with type 2 inflammation - Considers alternative management methods K, S, A	- Reaches to the correct diagnosis early - Reverses the underlying cause; obesity K, S, A	- Detects radiological findings of specific sinonasal disease - Reaches a differential diagnosis K, S, A
	Communicator	- Counsels patients and/or families about the sequelae of rhinosinusitis - Explores and responds to patient's needs, expectations, and concerns about K, S, A	- Effectively communicates with the family and other team members K, S, A	- Counsels patients and/or families about available treatment modalities K, S, A	- -Counsels patients and/or families about the sequelae of OSA - Explores and responds to patient's needs, expectations, and concerns about K, S, A	- -Effectively communicates with the family and other team members K, S, A

Training year level	Competency roles	Managing inflammatory and allergic rhinosinusitis cases	Managing suspected cases of invasive fungal rhinosinusitis	Managing type 2 disease cases	Managing cases of obstructive sleep apnea (OSA)	Identifying radiological signs of sinonasal disease
	Collaborator	- Liaises effectively with surgery, immunology, pulmonology, nursing, and social work services K, S, A	Multidisciplinary, teamwork K, S, A	Multidisciplinary teamwork K, S, A	- Liaises effectively with bariatric surgery, sleep medicine, internal medicine, nursing, and social work services K, S, A	Multidisciplinary, teamwork; sinus surgeon, neurosurgeon, oculoplastic surgeon K, S, A
	Advocate	- Identifies patients who are at a high risk of developing complications of rhinosinusitis and directs them toward the treatment options K, S, A	- Recognizes the major risk factors of invasive fungal rhinosinusitis in Saudi Arabia K, S, A	- Identifies patients with high recurrence rate who have refractory response to routine management K, S, A	- Recognizes the major risk factors of OSA in Saudi Arabia K, S, A	- Identifies common radiological findings of specific sinonasal disease K, S, A
	Leader	- Puts patients in touch with the community support group S,A	- Manages time and risks K,S	- Puts patients in touch with the community support group S,A	- Puts patients in touch with the community support group S,A	- Manages time and risks K,S

Training year level	Competency roles	Managing inflammatory and allergic rhinosinusitis cases	Managing suspected cases of invasive fungal rhinosinusitis	Managing type 2 disease cases	Managing cases of obstructive sleep apnea (OSA)	Identifying radiological signs of sinonasal disease
	Scholar	- Critically appraises research findings to respond to patient problems using the PICO model K, S	- Critically appraises research findings to respond to patient problems using the PICO model K, S	- Critically appraises research findings to respond to patient problems using the PICO model K, S	- Critically appraises research findings to respond to patient problems using the PICO model K, S	- -Critically appraises research findings to respond to patient problems using the PICO model K, S
	Professional	- -Demonstrates knowledge of the recent guidelines for rhinosinusitis; - Requests investigations according to local protocol K, S, A	- Demonstrates knowledge of the recent guidelines for rhinosinusitis; requests investigations according to local protocol K, S, A	- Demonstrates knowledge of the recent guidelines for type 2 disease; requests investigations according to local protocol K, S, A		- Demonstrate knowledge of the recent guidelines for radiological diagnosis of specific sinonasal disease K, S, A

Senior-level competency matrix: to map competency, learning domains, and milestones

Training year level	Competency roles	Managing suspected cases of invasive fungal rhinosinusitis	Managing sinonasal and skull base tumor cases	Managing cases of meningoencephalocele cerebrospinal fluid rhinorrhea	Managing type 2 disease cases	Managing nasolacrimal system diseases
F2	Professional expert	- Reaches the correct diagnosis early - Reverses the underlying cause - Interval surgical interventions K, S, A	- Initiates appropriate investigations guided by the differential diagnosis, including diagnostic CT, MRI sinus, and brain - Outline the medical and surgical management of patients with sinonasal tumors. K, S, A	- Initiates an early appropriate intervention - Carries out medical and surgical intervention K, S, A	- Identifies patients with type 2 inflammation - Compares alternative management methods K, S, A	- Diagnoses patients with nasolacrimal system obstruction - Carries out appropriate intervention K, S, A

Training year level	Competency roles	Managing suspected cases of invasive fungal rhinosinusitis	Managing sinonasal and skull base tumor cases	Managing cases of meningoencephalocele cerebrospinal fluid rhinorrhea	Managing type 2 disease cases	Managing nasolacrimal system diseases
	Communicator	Communicates effectively with the family and other team members K, S, A	- Counsels any patient with risk factors for the development of sinonasal tumors on the utility of screening in the head and neck clinic - Communicates with patients about the diagnosis and prognosis - Counsels and educates patients on the rationale for complete examination and investigation - Recognizes the effect of a new cancer diagnosis on patient and family behavior - Explores and responds to patients' needs, expectations, and concerns about sinonasal tumors K, S, A	- Counsels patients and/or families about the sequelae of untreated meningoencephalocele /CSF leak - Communicates with patients and/or families about the diagnosis and prognosis - Explores and responds to patient's needs, expectations, and concerns about K, S, A	- Counsels patients and/or families about other treatment modalities K, S, A	- Communicates with patients and/or families about the diagnosis and prognosis - Explores and responds to patient's needs, expectations, and concerns about K, S, A

Training year level	Competency roles	Managing suspected cases of invasive fungal rhinosinusitis	Managing sinonasal and skull base tumor cases	Managing cases of meningoencephalocele cerebrospinal fluid rhinorrhea	Managing type 2 disease cases	Managing nasolacrimal system diseases
	Collaborator	Multidisciplinary, teamwork K, S, A	Liaises effectively with head and neck surgery, plastic and microvascular surgery, neurosurgery, histopathology, radiology, oncology, intensive care unit, nursing, and social work services K, S, A	Multidisciplinary, teamwork, including; neurology, neurosurgery, ophthalmology, and rhinology/skull base surgeon K, S, A	Multidisciplinary teamwork K, S, A	Multidisciplinary teamwork K, S, A
	Advocate	Recognizes the major risk factors of invasive fungal rhinosinusitis in Saudi Arabia K, S, A	Recognizes the major risk factors of sinonasal cancer in Saudi Arabia; participates in promoting smoking-cessation programs K, S, A	Demonstrates holistic approach and preventive measures from getting disease sequelae; meningitis K, S, A	Identifies patients with high recurrence rate who have refractory response to routine management K, S, A	Holistic approach and preventive medicine K, S, A

Training year level	Competency roles	Managing suspected cases of invasive fungal rhinosinusitis	Managing sinonasal and skull base tumor cases	Managing cases of meningoencephalocele cerebrospinal fluid rhinorrhea	Managing type 2 disease cases	Managing nasolacrimal system diseases
	Leader	Manages time and risks appropriately K,S	Connects patients with community support group S,A	Manages time and risks appropriately K,S	Connects patients with the community support group S,A	Manages time and risks appropriately K,S
	Scholar	Critically appraises research findings to respond to patient problems using the PICO model K, S	Critically appraises research findings to respond to patient problems using the PICO model K, S		Critically appraises research findings to respond to patient problems using the PICO model K, S	

Training year level	Competency roles	Managing suspected cases of invasive fungal rhinosinusitis	Managing sinonasal and skull base tumor cases	Managing cases of meningoencephalocele cerebrospinal fluid rhinorrhea	Managing type 2 disease cases	Managing nasolacrimal system diseases
	Professional	Demonstrates knowledge with the recent guidelines for rhinosinusitis; requests investigations according to local protocol K, S, A	Complies with professional responsibility regarding reporting cases to the cancer registry S, A	Demonstrates effective, interprofessional relation A	Demonstrates knowledge with the recent guidelines for type 2 disease; requests investigations according to local protocol K, S, A	Effective, interprofessional relations A

Objectives of elective rotations:

Immunology rotation:

The aim of this rotation is to facilitate the understanding of etiology, physiology, pathogenesis, and investigative procedures of three major areas: allergic diseases, immunodeficiency, and immunological disorders.

At the end of this rotation the fellows will be able to:

1. Diagnose and manage of a wide variety of allergic and immunological diseases.
2. Recall principles and practice of allergy testing.
3. Understand and interpret the results of pulmonary function and bronchoprovocation testing.
4. Able to apply the role of immunotherapy for allergic diseases.

Neurosurgery rotation:

At the end of this rotation the fellows will be able to:

1. Demonstrate knowledge, skills, professional judgment, and attitudes needed to practice and teach skull-base neurosurgery.
2. Discuss clinical recognition, natural history, and embryology of all conditions relevant to skull-base pathologies.
3. Analyze pathophysiology of these conditions and the physiological response to skull-base surgery.
4. Undertake comprehensive supportive care of skull-base neurosurgical patients.
5. Perform independently all the rhinology surgical procedures in the field of skull-base.

Neuroradiology rotation:

At the end of this rotation the fellows will be able to:

1. Recognize diagnostic neuroradiology, including adult and pediatric neuroradiology, head and neck imaging, diagnostic angiography, myelography, and interventional neuroradiology basic procedures.
2. Perform neuro ultrasound with color doppler and trans-cranial doppler.
3. Demonstrate proficient skills in neuroradiologic diagnostic imaging (magnetic resonance imaging, computed tomography, neuro-ultrasound, head and neck radiology, pediatric

neuroradiology) and neuroradiologic procedures (diagnostic neuro-angiography and myelography, plus basic neurointerventional skills) in a supervised academic environment.

Pulmonology/sleep medicine rotation:

At the end of this rotation the fellows will be able to:

1. Demonstrate thorough knowledge and sound judgment with the diagnosis, treatment, and prevention of all sleep disorders.
2. Demonstrate competency with the technical skills necessary for the performance and interpretation of the diagnostic and treatment procedures used in sleep medicine.

Oculoplastic surgery rotation:

At the end of this rotation the fellows will be able to:

1. Recognize functional, reconstructive, and aesthetic ophthalmic plastic and reconstructive surgery, as well as to orbital oncology.
2. Diagnose, treat, and manage diseases of the eyelids, face, orbit, and lacrimal system.
3. Demonstrate a good medical judgment and special skills required for an oculoplastic surgeon.

IX. CONTINUUM OF LEARNING

This includes learning that should take place in each key stage of progression within the specialty. Trainees are reminded of the fact of life-long continuous professional development. Trainees should consider the necessity of CPD for every healthcare provider to meet the demand of their vital profession. The following table states how the role is progressively expected to develop throughout junior, senior, and consultant levels of practice.

X. TEACHING METHODS

The teaching process in postgraduate fellowship training programs is based mainly on the principles of adult learning theory. The trainees' feel the importance to learn and to have active roles in the content and the process of their own learning. The training programs implement the adult learning concept on each feature of the activities where the fellows are responsible for their own learning requirements. Formal training time would include the following three formal teaching activities:

1. Program-specific learning activities
2. Universal topics

General learning opportunities

1. Program-specific learning activities:

The program-specific activities are educational activities that are specifically designed and intended for trainees' teaching during their training time. The trainees are required to attend these activities, and non-compliance can subject trainees to disciplinary actions. It is advisable to link the attendance and participation in these activities to the continuous assessment tools (see formative assessment section below). Program administration should support these activities by providing protected-time for trainees to attend these activities and allow them to participate in such activities.

1. Program academic half day:

Every week, 2–4 h of formal training time (commonly referred to as academic half day) should be reserved. A formal teaching time is an

activity that is planned in advanced with assigned tutor, time slots, and venue. The trainee should be freed from all clinical duties to attend these academic half days. Formal teaching time excludes bedside teaching and clinic postings. The academic half day covers the core specialty topics that are aligned with the specialty-defined competencies and teaching methods. These topics will be covered and conducted in an interactive, case-based discussion format. Each topic will have its own learning objectives with pre-learning material references. There should be an active involvement of the trainee in the development and delivery of the topics under faculty supervision. The supervisor's educator should ensure that each discussion topic is stratified into three categories of the learning domain: knowledge, skill, and attitude (see Appendix-B for table of top knowledge topic and procedure list).

The recommended number of half days that is conducted annually is 40 sessions per training academic year, reserving time for other teaching activities such as journal club and skull base tumor board. An example of the academic half day is shown (Appendix C).

2. Practice-based learning:

Training exposures during bedside teaching, operations, simulation skill lab, dissection lab, and other work-related activities as in courses and workshops represent excellent targets for learning. Attending, preparing, and presenting cases in skull base multidisciplinary tumor board is another example of practice-based leaning. Trainees are expected to build their capacity based on self-directed learning. This also allows the educators to supervise the trainees to become competent in the required program practical skills which ensure fulfilling knowledge, psychomotor, and/or attitude learning domains. Each trainee needs to maintain a logbook documenting the procedures observed, performed under

supervision, and performed independently. A minimum number of each procedure performed should be satisfied before training completion. The trainee and the faculty member must meet to review portfolio and logbook on a regular basis.

1. Universal Topics

Universal topics are educational activities that are developed by SCFHS and are intended for all specialties. Priority will be given to topics that are of:

1. High value
2. Interdisciplinary and integrated
3. Require expertise that might be beyond the availability of the local clinical training sites

Universal topics have been developed by SCFHS and are available as e-learning via personalized access for each trainee (to access the online modules). Each universal topic will have a self-assessment at the end of the module. As indicated in the "executive policies of continuous assessment and annual promotion," universal topics are a mandatory component of the criteria for the annual promotion of trainees from their current level of training to the subsequent level. Universal topics will be distributed over the entire period of training.

Training year	Modules		Topic names	
	Number	Name	Number	Name
F1	Module-5	Acute Care	Topic-21	Preoperative assessment
	Module-5	Acute Care	Topic-21	Postoperative assessment
F2	Module-2	Acute Care	Topic-6	Acute pain management
	Module-2	Acute Care	Topic-9	Chronic pain management

4. General Learning Opportunities:

A formal training time should be supplemented by other practice-based learning (PBL) such as:

1. Journal club: Journal club is dedicated to review and criticize publications in the specialty field.
2. Grand rounds: Grand rounds are conducted weekly presented by the department in various topics of the specialty.
3. Morbidity and Mortality (M&M): Morbidity and Mortality rounds are essential in the training to ensure quality of care.
4. Selected topics by trainee

XI. ASSESSMENT AND EVALUATION

1. Purpose of Assessment

Assessment plays a vital role in the success of postgraduate training. Assessment will guide trainees and trainers to achieve defined standards, learning outcomes, and competencies. Conversely, the assessment will provide feedback to learners and faculty regarding curriculum development, teaching methods, and quality of the learning environment. A reliable and valid assessment is an excellent tool to assess the curriculum alignments between the objectives, learning methods, and assessment methods. Finally, assessment assures patients and the public that health professionals are safe and competent to practice.

Assessment can serve the following purposes:

1. Assessment for learning: As trainers will use information from trainees' performance to inform their learning for improvement. It enables educators to use information about trainee's knowledge, understanding, and skills to provide feedback to trainees about learning and how to improve.
2. Assessment as learning involves trainees in the learning process where it enables them to monitor their own progress. Trainees use self-assessment and the educators' feedback to reflect on their progression. It develops and supports trainees' metacognitive skills. Assessment as learning is crucial in helping residents/fellows become lifelong learners.

3. Assessment of learning is used to demonstrate achievement of your learning. This is a graded assessment and usually counts towards the trainee's end-of -training degree.
4. Feedback and evaluation as assessment outcomes will represent a quality metrics that can improve the learning experience.

For organization purpose, assessment will be further classified into two main categories: formative and summative.

2. Formative Assessment

2.1 General Principles

Trainees, as an adult learner, should strive for feedback throughout their journey of competency from "novice" to "mastery" levels. Formative assessment (also referred to as continuous assessment) is the component of assessment that is distributed throughout the academic year, aiming primarily to provide trainees with effective feedback.

At least 1 h every 2 weeks should be assigned by trainees to meet their mentors to review performance reports (e.g., ITER, e-portfolio, mini-CEX, etc). Input from the overall formative assessment tools will be utilized at the end of the year to determine whether individual trainees will be promoted from the current to subsequent training level. Formative assessment will be defined based on the scientific (Rhinology, Endoscopic Sinus, and Skull Base Surgery committee) recommendations (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 assessm ent will have

the following features which will be used based on the Miller's pyramid (appendix-D):

1. Multisource: minimum of four tools.
2. Comprehensive: covering all learning domains (knowledge, skills, and attitude).
3. Relevant: focused on workplace-based observations.
4. Competency-milestone oriented: reflecting trainee's expected competencies that matches the trainee's developmental level.

Trainees should play an active role 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.

Trainers and trainees are directed to follow the recommendations of the scientific council regarding the updated forms, frequency, distribution, and deadlines related to the implementation of evaluation forms.

2.2 Formative Assessment Tools

- This section needs to comply with SCFHS executive policy on continuous assessment (available online: www.scfhs.org).
- Outline the formative assessment tools that are approved by the scientific council/committee of the program.
- Formative assessment tools should be outlined based on the learning domain (knowledge, skills, and attitude) test on different levels of learning domains on the Miller pyramid (Appendix -F), minimum of four tools are required to assess the three domains.
- Under each tool, describe relevant information: aim,

expectation, frequency, etc.

- Make sure that the marking of each tool is clear and is based on the recommendations outlined in the executive policy (no individual weight for each tool, trainee should satisfactorily pass each tool; comprehensive assessment can be applied for borderline failure: refer to policy).
- It is recommended to list any forms to be applied under (appendix) section.

Learning domain	Formative assessment tools	Important details (e.g., frequency, specifications related to the tool)
Knowledge	1. OSCE: objective structured clinical examination 1. Annual written progress test (local or international) 2. Structured academic activities *3.* Case-based discussion (CBD)	4. OSCE: objective structured clinical examination and annual written progress test are conducted annually with a total passing score of 60%. 5. Academic activities as shown in Appendix C. 6. Case-based discussion every 2 weeks.
Skills	7. Log book 8. DOPS: Direct Observation for Procedural Skills 9. Mini-CEX: Mini-Clinical Evaluation Exercise 10. Research activities 11. Volunteer activities	12. The logbook is reviewed with the mentor on a monthly basis to achieve the minimum case requirement of 80 general and 170 advanced (Appendix H) cases. 13. DPOS is carried as part of the in-training evaluation and the performance evaluated every 2 weeks. 14. Mini-CEX is carried as part of in-training evaluation with a minimum of once every 3 months. 15. A minimum of 1 published research is mandatory before completion of the fellowship.
Attitude	ITER: In-training evaluation report	The sum of KSA (knowledge, skills, and attitude) is reflected on the evaluation report.

The evaluation of each component will be based on the following equation:

Percentage	< 50%	50%–59.4%	60%–69.4%	>70%
Description	Clear fail	Borderline fail	Borderline pass	Clear pass

To achieve unconditioned promotion, the candidate must score a minimum of "borderline pass" in all five components.

1. The program director can still recommend the promotion of candidates if the above is not satisfied in some situations:
2. In case the candidate scored "borderline failure" in one or two components at maximum, these scores should not belong to the same area of assessment (e.g., both borderline failures should not belong to both skills).
3. The candidate must have passed all other components and has scored a minimum of clear pass in at least two components.

3. Summative Assessment

1. General Principles

Summative assessment is the component of assessment that aims primarily to make informed decisions on trainees' competency. In comparison to the formative one, summative assessment does not aim to provide constructive feedback. For further details on this section, please refer to the general bylaws and executive policy of assessment (available online: www.scfhs.org). To be eligible for the final exams, trainees will be granted "Certification of Training Completion" upon successful completion of all training rotations.

3.2 Final In-training Evaluation Report (FITER)

In addition to the approval of the completion of clinical requirements (logbook) by the supervising committee, FITER is also prepared by program directors for each fellow at the end of his or her final year in training. This report shall be the basis for obtaining the certificate of Training Program Completion, as well as the qualification for the final specialty exams.

3.3 Certification of Training Completion

To be eligible to set for final specialty examinations, each trainee is required to obtain "Certification of Training Completion." Based on the training bylaws and executive policy (please refer to www.scfhs.org), trainees will be granted "Certification of Training Completion" once the following criteria is fulfilled:

1. Successful completion of all training rotations.
2. Completion of training requirements (e.g., logbook, research, others) as outlined in FITER that is approved by the scientific rhinology, endoscopic sinus, and skull base surgery committee of the specialty.
3. Clearance from SCFHS training affairs that ensure compliance with tuition payment and completion of universal topics.
4. Passing the first part of the examination (whenever is applicable).

"Certification of Training Completion" will be issued and approved by the supervisory committee or its equi valent according to SCFHS policies.

3.4 Final Specialty Examinations

The final specialty examination is the summative assessment component that grant trainees the specialty's certification. It has two elements:

1. Final written examination: to be eligible for this examination, trainees are required to have "Certification of Training Completion."
2. Final clinical/practical exam: Trainees will be required to pass the final written examination to be eligible to set for the final clinical/practical exam.

Blueprint outlines: The content of the following table is for demonstration only; please refer to the most updated version published on the SCFHS website.

The blueprint of the final written and clinical/practical examinations are shown in the following table:

Example of a Written Examination Blueprint

Categories	Sections	Contents				
		Proportions	Medical science	Diagnosis	Management	Investigations
Rhinology 45%	Allergic rhinitis	15%	4	4	3	4
	Allergic fungal sinusitis	18%	5	4	5	4
	Invasive fungal sinusitis	5%	2	1	1	1
	Naso-orbital disorders	3%	0	1	1	1

Categories	Sections	Contents				
		Proportions	Medical science	Diagnosis	Management	Investigations
	Epistaxis	4%	1	1	1	1
Oncology 40%	Sinonasal tumors	15%	3	3	5	4
	Skull base tumors	18%	4	4	6	4
	Supportive care	7%	3	1	2	1
Immunotherapy 5%	Immunotherapy modalities	5%	1	1	2	1
Scholarly activities and others 10%	Research, ethics, professionalism, and patient safety	10%	5	0	5	0
	Total	100%				

*Main blueprint framework adapted from the American Board of Pediatrics.

Example of a Final Clinical Examination Blueprint

		DIMENSIONS OF CARE				
		Health Promotion and Illness Prevention 1±1 Station(s)	Acute 5±1 Station(s)	Chronic 3±1 Station(s)	Psychological Aspects 1±1 Station(s)	# Station(s)
DOMAINS FOR INTEGRATED CLINICAL ENCOUNTER	Patient Care 7±1 Station(s)	1	4	2		7
	Patient Safety and Procedural Skills 1±1 Station(s)		1			1
	Communication and Interpersonal Skills 2±1 Station(s)			1	1	2
	Professional Behaviors 0±1 Station(s)					0
	Total Stations	1	5	3	1	10

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

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

XII. PROGRAM AND COURSE EVALUATION

SCFHS will apply variable measures to evaluate the implementation of this curriculum. Training outcomes of this program will undergo the quality assurance framework endorsed by the Central Training Committee at SCFHS. Trainee assessment (both formative and summative) results will be analyzed and mapped to curriculum content. Other indicators that will be incorporated are as follows:

1. Report of the annual trainees' satisfaction survey.
2. Reports from trainees' evaluation of faculty members.
3. Reports from trainees' evaluation of rotations.
4. Reports from the annual survey of program directors.
5. Data available from program accreditations.
6. Reports from direct field communications with trainees and trainers.

Goal-based evaluation: the intended milestone achievement will be evaluated at the end of each stage to assess the progress of the curriculum delivery, and any deficiency will be addressed in the following stage utilizing the time devoted for trainee-selected topics and professional session.

In addition to subject-matter opinion and best practices from benchmarked international programs, SCFHS will apply a robust method to ensure that this curriculum will utilize all the data that will be available during the time of curriculum revision in the future.

XIII. POLICIES AND PROCEDURES

This curriculum represents outline of the means and materials for the learning objectives; using this, trainees and trainers will interact for the purpose of achieving the identified educational outcomes. The Saudi Commission for Health Specialties (SCFHS) has a full set of "General Bylaws" and "Executive Policies" (published on the official SCFHS website) that regulate all training-related processes. The general bylaws of training, assessment, and accreditation as well as executive policies on admission, registration, continuous assessment and promotion, examination, trainees' representation and support, duty hours, and leaves are examples of regulations that need to be implemented. Under this curriculum, trainees, trainers, and supervisors must comply with the most updated bylaws and policies, which can be accessed online (via the official SCFHS website).

XIV. APPENDICES

1. Universal topic modules
2. Top conditions and procedures in the specialty
3. Examples of academic half day table
4. Miller's pyramid of assessment
5. Glossary
6. How to write objectives in SMART style
7. Example of research rotation objectives
8. Logbook
9. References

Appendix A

Universal Topics

Intent:

These are high value, interdisciplinary topics of outmost 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.

Topics included here meet one or more of the following criteria:

1. Impactful: these are topics that are common or life-threatening
2. Interdisciplinary: topics that are difficult to teach by a single discipline
3. Orphan: topics that are poorly represented in the undergraduate curriculum
4. Practical: topics that trainees will encounter in hospital practice

Development and Delivery: Core topics for the post-graduate curriculum 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 focusing on practical aspects of care. These topics will be more content-heavy than workshops and other face-to-face interactive sessions planned.

The suggested duration of each topic is 1.30 h.

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 multiple-choice questions. All trainees must attain minimum competency in the summative assessment. Alternatively, these topics can be assessed in a summative manner along with a specialty examination.

Some ideas: may include case studies, high-quality images, work examples of prescribing drugs in disease states, and internet resources.

Module 1: Introduction

1. Safe drug prescription
2. Hospital-acquired infections
3. Sepsis; SIRS; DIVC
4. Antibiotic stewardship
5. Blood transfusion

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

1. Recognize the importance of safe drug prescription in healthcare.
2. Describe the various adverse drug reactions with examples of commonly prescribed drugs that can cause such reactions.

3. Apply principles of drug–drug interactions, drug–disease interactions, and drug–food interactions into common situations.
4. Apply principles of prescribing drugs in special situations such as renal failure and liver failure.
5. Apply principles of prescribing drugs in the elderly, pediatric age group patients, and in pregnancy and lactation.
6. Promote evidence-based cost-effective prescription.
7. Discuss ethical and legal framework governing safe drug prescription in Saudi Arabia.

Hospital Acquired Infections (HAI): At the end of the learning unit, you should be able to:

1. Discuss the epidemiology of HAI with special reference to HAI in Saudi Arabia.
2. Recognize HAI as one of the major emerging threats in healthcare.
3. Identify the common sources and set-up of HAI.
4. Describe the risk factors of common HAIs such as ventilator-associated pneumonia, methicillin-resistant Staphylococcus aureus, central line bloodstream infection, vancomycin-resistant enterococcus.
5. Identify the role of healthcare workers in the prevention of HAI.
6. Determine appropriate pharmacological (e.g., selected antibiotic) and non-pharmacological (e.g., removal of indwelling catheter) measures in the treatment of HAI.
7. Propose a plan to prevent HAI in the workplace.

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

1. Explain the pathogenesis of sepsis, SIRS, and DIVC.
2. Identify patient-related and non-patient-related predisposing factors of sepsis, SIRS, and DIVC.
3. Recognize a patient at risk of developing sepsis, SIRS, and DIVC.
4. Describe the complications of sepsis, SIRS, and DIVC.

5. Apply the principles of management of patients with sepsis, SIRS, and DIVC.
6. Describe the prognosis of sepsis, SIRS, and DIVC.

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

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

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

1. Review the different components of blood products available for transfusion.
2. Recognize the indications and contraindications of blood product transfusion.
3. Discuss the benefits, risks, and alternatives to transfusion.
4. Undertake consent for specific blood product transfusion.
5. Perform steps necessary for safe transfusion.
6. Develop understanding of special precautions and procedures necessary during massive transfusions.

Recognize transfusion-associated reactions and provide immediate management.

Module 2: Cancer

1. Principles of the management of cancer
2. Side effects of chemotherapy and radiation therapy
3. Oncologic em ergencies

4. Cancer prevention
5. Surveillance follow-up of cancer patients

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

1. Discuss the basic principles of staging and grading of cancers.
2. Enumerate the basic principles (e.g., indications, mechanism, and types) of
    1. Cancer surgery
    2. Chemotherapy
    3. Radiotherapy
    4. Immunotherapy
    5. Hormone therapy

Side Effects of Chemotherapy and Radiation Therapy: At the end of the learning unit, you should be able to:

1. Describe important side effects (e.g., frequent or life or organ threatening) of common chemotherapy drugs.
2. Explain principles of monitoring of side-effects in a patient undergoing chemotherapy.
3. Describe measures (pharmacological and non-pharmacological) available to ameliorate side-effects of commonly prescribed chemotherapy drugs.
4. Describe important (e.g., common and life-threatening) side effects of radiation therapy.
5. 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:

1. Enumerate important oncologic emergencies encountered both in hospital and ambulatory settings.
2. Discuss the pathogenesis of important oncologic emergencies.

3. Recognize the oncologic emergencies.
4. Institute immediate measures when treating a patient with oncologic emergencies.
5. Counsel the patients in anticipatory manner to recognize and prevent oncologic emergencies.

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

1. Conclude that many major cancers are preventable.
2. Identify that smoking prevention and life-style modifications are major preventable measures.
3. Recognize cancers that are preventable.
4. Discuss the major cancer prevention strategies at the individual as well as national level.
5. Counsel patients and families in a proactive manner regarding cancer prevention including screening.

Respiratory disorders:

1. Obtaining history of patients with respiratory disorders
2. Refer patient to immunology to study allergens
3. Diagnosing a patient with Samter's triad

Surveillance and Follow-Up of Cancer Patients: At the end of the learning unit, you should be able to:

1. Describe the principles of surveillance and follow-up of patients with cancers.
2. Enumerate the surveillance and follow-up plan for common forms of cancer.
3. Describe the role of primary care physicians, family physicians, and similar others in the surveillance and follow-up of cancer patients.
4. Liaise with oncologists to provide surveillance and follow-up for patients wit h cancer.

Module 3: Diabetes and Metabolic Disorders

1. Recognition and management of diabetic emergencies
2. Management of diabetic complications
3. Comorbidities of obesity
4. Abnormal ECG

Recognition and Management of Diabetic Emergencies: At the end of the learning unit, you should be able to:

1. Describe pathogenesis of common diabetic emergencies including their complications.
2. Identify risk factors and groups of patients vulnerable to such emergencies.
3. Recognize a patient presenting with diabetic emergencies.
4. Institute immediate management.
5. Refer the patient to the appropriate next level of care.
6. Counsel patient and families to prevent such emergencies.

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

1. Describe the pathogenesis of important complications of type 2 diabetes mellitus.
2. Screen patients for such complications.
3. Provide preventive measures for such complications.
4. Treat such complications.
5. Counsel patients and families with special emphasis on prevention.

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

1. Screen patients for presence of common and important comorbidities of obesity.
2. Manage obesity-related comorbidities.

3. Provide dietary and lifestyle advice for the prevention and management of obesity.

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

1. Recognize common and important ECG abnormalities.
2. Institute immediate management, if necessary.

Module 4: Medical and Surgical Emergencies

1. Management of acute chest pain
2. Management of acute breathlessness
3. Management of altered sensorium
4. Management of hypotension and hypertension
5. Management of upper GI bleeding
6. Management of lower GI bleeding

For all the above, the following learning outcomes apply.

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

1. Triage and categorize patients.
2. Identify patients who need prompt medical and surgical attention.
3. Generate preliminary diagnoses based on history and physical examination.
4. Order and interpret urgent investigations.
5. Provide appropriate immediate management to patients.
6. Refer the patients to next level of care, if needed.

Module 5: Acute Care

1. Pre-operative assessment
2. Post-operative care
3. Acute pain management
4. Chronic pain mana gement

5. Management of fluid in the hospitalized patient
6. Management of electrolyte imbalances

Pre-operative Assessment: At the end of the learning unit, you should be able to:

1. Describe the basic principles of pre-operative assessment.
2. Perform pre-operative assessment in an uncomplicated patient with special emphasis on
    1. General health assessment
    2. Cardiorespiratory assessment
    3. Medications and medical device assessment
    4. Drug allergy
    5. Pain relief needs
3. Categorize patients according to risks.

Post-operative Care: At the end of the learning unit, you should be able to:

1. Devise a post-operative care plan including monitoring of vitals, pain management, fluid management, medications, and laboratory investigations.
2. Hand-over the patients properly to appropriate facilities.
3. Describe the process of post-operative recovery in a patient.
4. Identify common post-operative complications.
5. Monitor patients for possible post-operative complications.
6. Institute immediate management for post-operative complications.

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

1. Review the physiological basis of pain perception.
2. Proactively identify pat ients who could be in acute pain.
3. Assess a patient with acute pain.

4. Apply various pharmacological and non-pharmacological modalities available for acute pain management.
5. Provide adequate pain relief for uncomplicated patients with acute pain.
6. Identify and refer patients with acute pain who can be benefitted from specialized pain services.

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

1. Review biopsychosocial and physiological basis of chronic pain perception.
2. Discuss various pharmacological and non-pharmacological options available for chronic pain management.
3. Provide adequate pain relief for uncomplicated patients with chronic pain.
4. Identify and refer patients with chronic pain who can benefit from specialized pain services.

Management of Fluid in Hospitalized Patients: At the end of the learning unit, you should be able to:

1. Review physiological basis of water balance in the body.
2. Assess a patient for his/her hydration status.
3. Recognize a patient with over and under hydration.
4. Order fluid therapy (oral as well as intravenous) for a hospitalized patient.
5. 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, you should be able to:

1. Review phy siological basis of electrolyte and acid-base balance in the body.

2. Identify diseases and conditions that are likely to cause or associated with acid/base and electrolyte imbalances.
3. Correct electrolyte and acid-base imbalances.
4. Perform careful calculations, evaluations, and other safety measures while correcting acid-base and electrolyte imbalances.
5. Monitor response to therapy through history, physical examination, and selected laboratory investigations.

Module 6: Frail Elderly

1. Assessment of frail elderly
2. Mini-mental state examination
3. Prescribing drugs in the elderly
4. Care of the elderly

Assessment of Frail Elderly: At the of the learning unit, you should be able to

1. Enumerate the differences and similarities between the comprehensive assessment of the elderly and assessment of other patients.
2. Perform comprehensive assessment, in conjunction with other members of the health care team, of a frail elderly with special emphasis on social factors, functional status, quality of life, diet and nutrition, and medication history.
3. Develop a problem list based on the assessment of the elderly.

Mini-Mental State Examination: At the end of the learning unit, you should be able to

1. Review the appropriate usages, advantages, and potential pitfalls of mini-MSE.
2. Identify patients suitable for mini-MSE.
3. Screen patients for cognitive impairment through mini-MSE.

Prescribing Drugs in the Elderly: At the end of the learning unit, you should be able to:

1. Discuss the principles of prescribing in the elderly.
2. Recognize poly-pharmacy, prescribing cascade, inappropriate dosages, inappropriate drugs, and deliberate drug exclusion as major causes of morbidity in the elderly.
3. Describe the physiological and functional declines in the elderly that contribute to increased drug-related adverse events.
4. Discuss drug–drug interactions and drug–disease interactions among the elderly.
5. Familiarize with Beers criteria.
6. Develop rational prescribing habit for the elderly.
7. Counsel elderly patient and family on safe medication usage.

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

1. Describe the factors that need to be considered while planning care for the elderly.
2. Recognize the needs and well-being of caregivers.
3. Identify the local and community resources available in the care of the elderly.
4. Develop, with inputs from other healthcare professionals, individualized care plan for an elderly patient.

Module 7: Ethics and Healthcare

1. Occupational hazards of health care workers (HCWs)
2. Evidence-based approach to smoking cessation
3. Patient advocacy
4. Ethical issues: transplantation/organ harvesting; withdrawal of care
5. Ethical issues: treatment refusal; patient autonomy
6. Role of doctors in death and dying

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

1. Recognize common sources and risk factors of occupational hazards among the HCW.
2. Describe common occupational hazards in the workplace.
3. Develop familiarity with legal and regulatory frameworks governing occupational hazards among the HCW.
4. Develop a proactive attitude to promote workplace safety.
5. Protect yourself and colleagues against potential occupational hazards in the workplace.

Evidence-Based Approach to Smoking Cessation: At the end of the learning unit, you should be able to:

1. Describe the epidemiology of smoking and tobacco usages in Saudi Arabia.
2. Review the effects of smoking on the smoker and family members.
3. Effectively use pharmacologic and non-pharmacologic measures to treat tobacco usage and dependence.
4. Effectively use pharmacologic and non-pharmacologic measures to treat tobacco usage and dependence among special population groups such as pregnant ladies, adolescent, and patients with psychiatric disorders.

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

1. Define patient advocacy.
2. Recognize patient advocacy as a core value governing medical practice.
3. Describe the role of patient advocates in the care of the patients.
4. Develop a positive attitude towards patient advocacy.
5. Be a patient advocate in conflicting situations.
6. Be familiar with local and national patient advocacy groups.

Ethical issues: transplantation/organ harvesting, withdrawal of care: At the end of the learning unit, you should be able to:

1. Apply key ethical and religious principles governing organ transplantation and withdrawal of care.

2. Be familiar with the legal and regulatory guidelines regarding organ transplantation and withdrawal of care.
3. Counsel patients and families in light of applicable ethical and religious principles.
4. Guide patients and families to make an informed decision.

Ethical issues: treatment refusal, patient autonomy: At the end of the learning unit, you should be able to:

1. Predict situations where a patient or family is likely to decline the prescribed treatment.
2. Describe the concept of "rational adult" in the context of patient autonomy and treatment refusal.
3. Analyze key ethical, moral, and regulatory dilemmas in treatment refusal.
4. Recognize the importance of patient autonomy in the decision-making process.
5. Counsel patients and families declining medical treatment in light of the best interest of patients.

Role of Doctors in Death and Dying: At the end of the learning unit, you should be able to:

1. Recognize the important role a doctor can play during a dying process.
2. Provide emotional as well as physical care to a dying patient and family.
3. Provide appropriate pain management in a dying patient.
4. Identify suitable patients and refer patient to palliative care services.

Appendix B

Top Conditions and Procedures in the Specialty

Top Conditions and Procedures in the Specialty			
Top Causes of Out-Patient Consultations Related to the Specialties in Saudi Arabia			
Disease; Conditions		Relative	Cumulative
		Frequency	Frequency
1.	Nasal Obstruction	40%	40%
2.	Decrease Smell Sensation	50%	50%
3.	Eye Tearing	10%	10%
4.	Others (headache, nasal discharge, vision problems)	%	%
	Top Causes of In-patient Admissions Related to the Specialties in Saudi Arabia		
Disease; Conditions		Relative	Cumulative
		Frequency	Frequency
	Allergic Fungal Sinusitis	35%	35%
	Chronic Rhinosinusitis with Nasal Polyp	25%	25%
	Epiphora	10%	10%
	CSF Rhinorrhea	5%	5%
	Pituitary Adenoma	10%	10%
	Deviated Nasal Septum	15%	15%
	Others (nasopharynx diseases, nasal malignancies)	%	%
Top Procedures/Surgeries Performed by Specialty			
Name of Procedures/Surgeries		Approximate Frequency	
FESS		70%	
Combined skull base surgeries		15%	
Endoscopic DCR		13%	
Endoscopic septoplasty		12%	
Others (Endoscopic adenoidectomy, SPA ligation, orbital decompression, and lateral canthotomy)		%	
Examples of Core Specialty Topics: Case Discussions, Interactive Lectures			

Top Conditions and Procedures in the Specialty	
Topics	**Comments**
Approach to a patient with nasal polyps	
Approach to a patient with unilateral clear secretions	
Examples of Core Specialty Topics: Workshops/Simulation	
Topics	**Comments**
Skull base reconstruction	
Post-operative care for skull base surgeries	
Operation of navigation system machine	

Appendix C

The following is a table with example topics that illustrate the half day activities as it spans over the course of the training period.

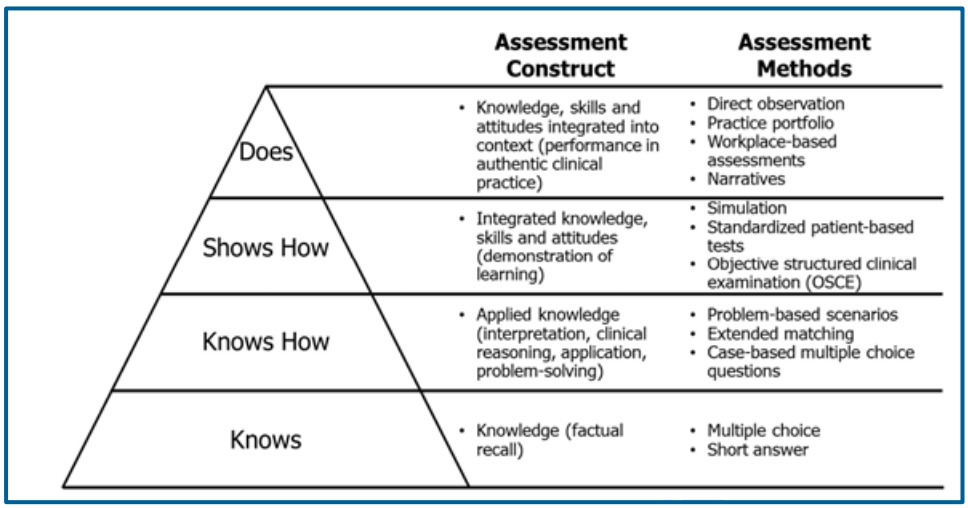
Academic Week	Time	Topic	Presenter
1	13:00–16:00	Paranasal sinuses anatomy	A
2	13:00–16:00	Anterior skull anatomy	B
3	13:00–16:00	Physiology of PNS, olfaction, and taste	C
4	13:00–16:00	Radiology of paranasal sinuses	A
5	13:00–16:00	Radiology of the anterior skull base	B
6	13:00–16:00	Principles of allergy and types of inflammation	C
7	13:00–16:00	Rhinitis	A
8	13:00–16:00	Acute rhinosinusitis	B

Academic Week	Time	Topic	Presenter
9	13:00–16:00	Chronic rhinosinusitis without nasal polyps	C
10	13:00–16:00	Chronic rhinosinusitis with nasal polyps	A
11	13:00–16:00	Medical treatment of CRS	B
12	13:00–16:00	Management of recalcitrant CRS	C
13	13:00–16:00	Complications of rhinosinusitis	A
14	13:00–16:00	Sinonasal manifestations of systemic diseases	B
15	13:00–16:00	Congenital sinonasal disorders	C
16	13:00–16:00	Monoclonal antibodies and CRSwNP	A
17	13:00–16:00	Fungal rhinosinusitis	B
18	13:00–16:00	Instrumentations and navigation in sinus surgeries	C
19	13:00–16:00	Functional endoscopic sinus surgery	A
20	13:00–16:00	Revision FESS	B
21	13:00–16:00	FESS complications: prevention and management	C
22	13:00–16:00	Endoscopic management of epistaxis	A
23	13:00–16:00	Endoscopic frontal sinus approaches, part 1	B
24	13:00–16:00	Endoscopic frontal sinus approaches, part 2	C
25	13:00–16:00	External approach to paranasal sinuses	A

Academic Week	Time	Topic	Presenter
26	13:00–16:00	Septoplasty and turbinate surgery	B
27	13:00–16:00	Endoscopic management of eustachian tube disorders	C
28	13:00–16:00	Benign sinonasal tumors	A
29	13:00–16:00	Malignant sinonasal tumors	B
30	13:00–16:00	Skull base pathology	C
31	13:00–16:00	CSF rhinorrhea	A
32	13:00–16:00	Endoscopic approach to the anterior skull base	B
33	13:00–16:00	Endoscopic approach to sellar and parasellar region	C
34	13:00–16:00	Endoscopic approach to pterygopalatine and infratemporal fossae	A
35	13:00–16:00	Endoscopic approach to the clivus and the craniocervical junction	B
36	13:00–16:00	Endoscopic DCR	C
37	13:00–16:00	Endoscopic orbital surgery	A
38	13:00–16:00	Skull base reconstruction	B
39	13:00–16:00	Septal perforation closure	C
40	13:00–16:00	Office-based rhinology procedures	A

Appendix D

Miller's pyramid of assessment provides a framework for assessing the trainees' clinical competences which acts a road map for the trainers to select the assessment methods to target different clinical competencies including "knows," "knows how," "shows how," and "does" (2).



(Figure1: Miller's pyramid)

1. Adapted from: Walsh CM. In-training gastrointestinal endoscopy competency assessment tools: types of tools, validation, and impact. Best Pract Res Clin Gastroenterol. 2016;30(3):357-74.
2. Miller GE. The assessment of clinical skills/competence/performance. Acad Med. 1990;65(9 Suppl): S63–7.

Appendix E

Glossary

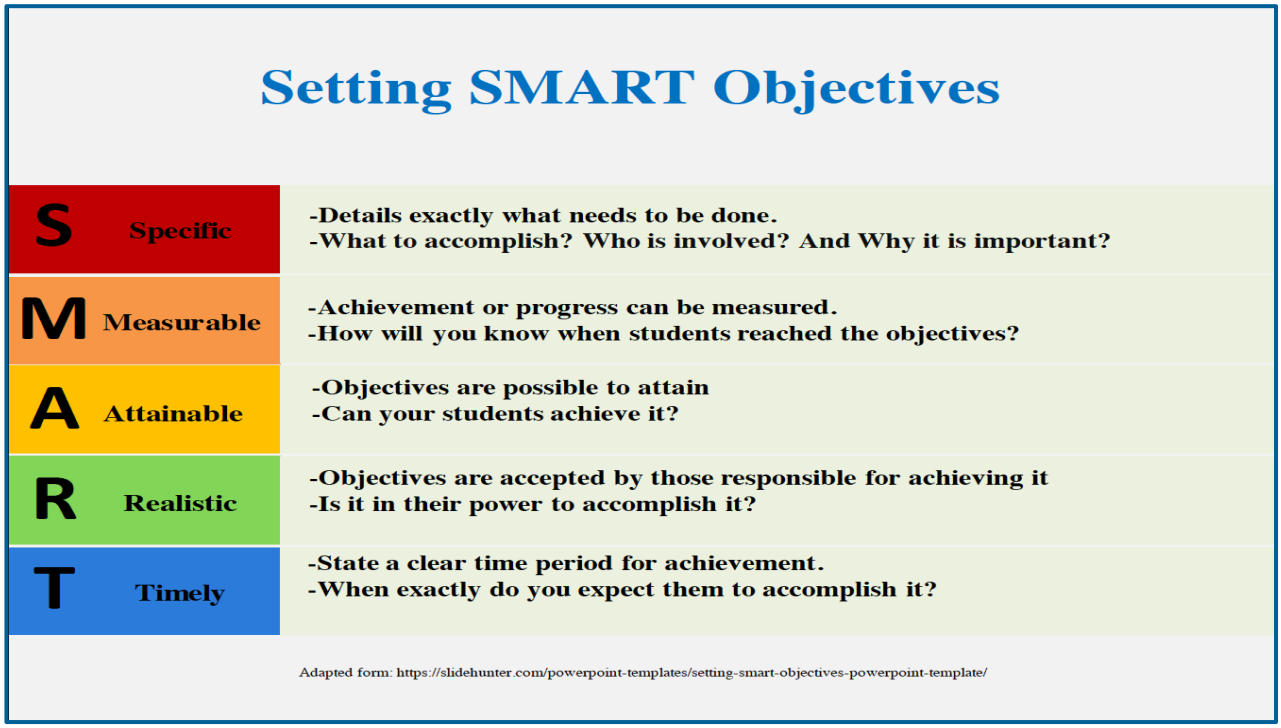
Glossary	
Blueprint	Description correlating educational objectives with assessment contents. For example, test blueprint defines the proportion of test questions allocated to each learning domain and/or content.
Competency	Capability to function within a defined professional role that implies entrustment of a trainee by graduation of the program with the required knowledge, skills, and attitude needed to practice unsupervised.
Specialty core Content (skills, knowledge, and professional attitude)	A specific knowledge or 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 formative assessment are communicated through a feedback to the learner. Formative assessments are not intended primarily to make judgments or decisions (though it can be as a secondary gain).
Mastery	Exceeding the minimum level of competency to the proficient level of performance indicating rich experience with possession of great knowledge, skills, and attitude.

Glossary	
Portfolio	A collection of evidence of progression towards competency. It may include both constructed components (defined by mandatory continuous assessment tools in curriculum) and unconstructed components (selected by the learner).
Summative assessment	An assessment that describes the composite performance of the development of a learner at a particular point in time and is used to inform judgment and make decisions about the level of learning and certification.
Universal topic	Knowledge, skills, or professional behavior that is not specific to the given specialty but universal for the general practice of a given healthcare profession.

Appendix F

How to write objectives in SMART style

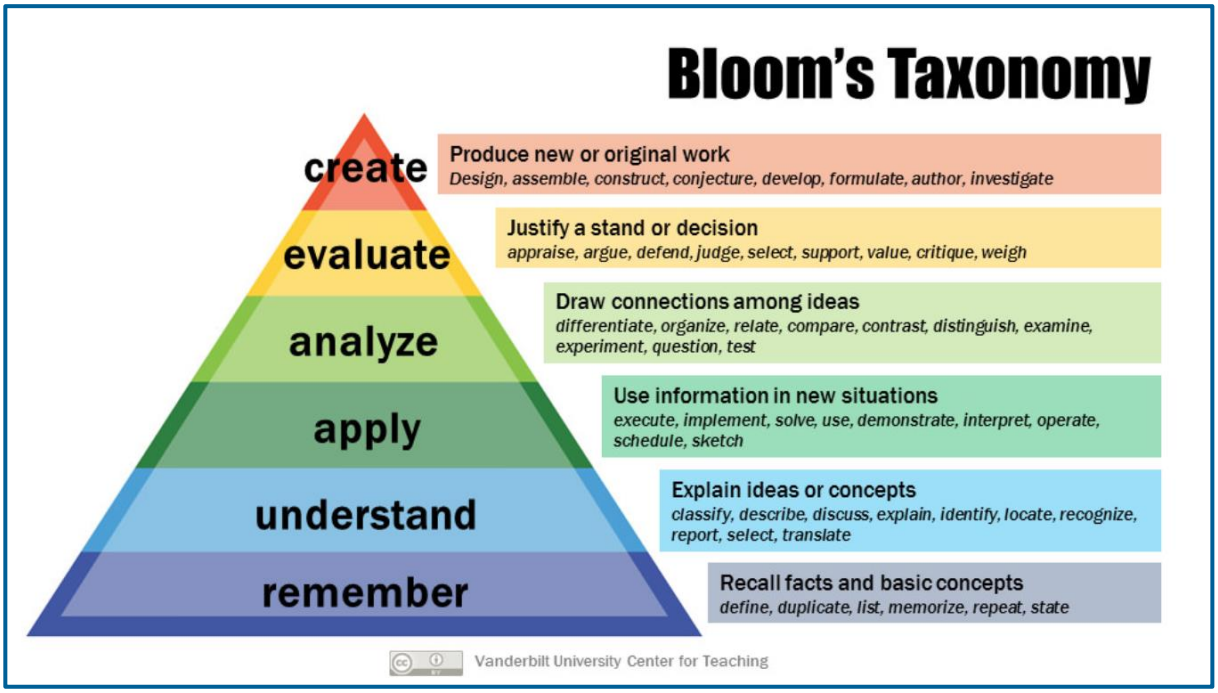
1. SMART objectives



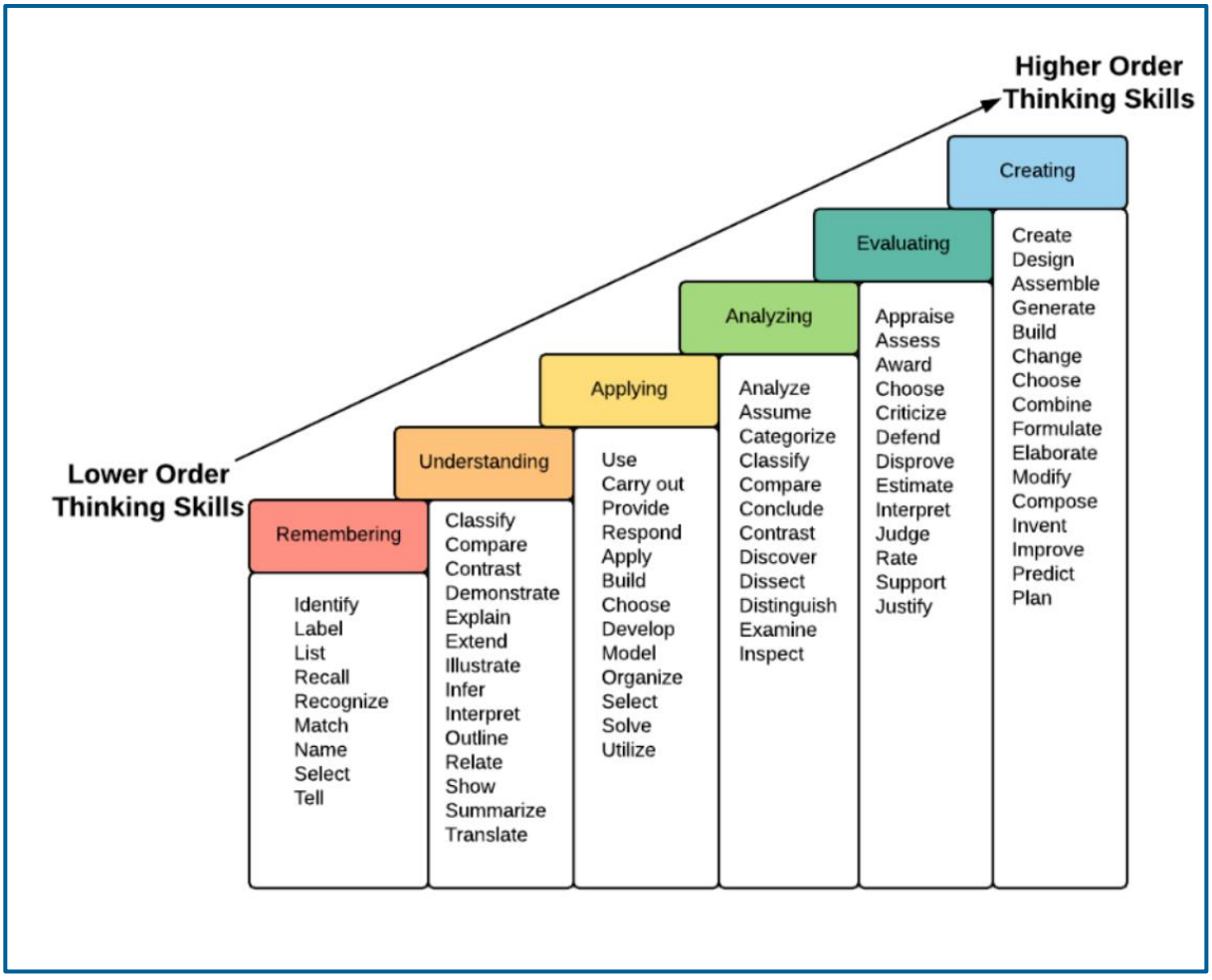
1. Bloom's taxonomy action verbs

Bloom's Taxonomy Action Verbs

Level	Definition	Sample verbs					Sample behaviors
KNOWLEDGE	Student recalls or recognizes information, ideas, and principles in the approximate form in which they were learned.	arrange define describe duplicate	identify label list match	memorize name order outline	recognize relate recall repeat	reproduce select state	The student will define the 6 levels of Bloom's taxonomy of the cognitive domain.
COMPREHENSION	Student translates, comprehends, or interprets information based on prior learning.	explain summarize paraphrase describe illustrate classify	convert defend describe discuss distinguish	estimate explain express extend generalized give example(s)	identify indicate infer locate paraphrase predict	recognize rewrite review select summarize translate	The student will define the 6 levels of Bloom's taxonomy of the cognitive domain.
APPLICATION	Student selects, transfers, and uses data and principles to complete a problem or task with a minimum of direction.	use compute solve demonstrate apply construct	apply change choose compute demonstrate discover dramatize	employ illustrate interpret manipulate modify operate	practice predict prepare produce relate schedule	show sketch solve use write	The student will write an instructional objective for each level of Bloom's taxonomy.
ANALYSIS	Student distinguishes, classifies, and relates the assumptions, hypotheses, evidence, or structure of a statement	analyze categorize compare contrast separate apply	change discover choose compute demonstrate dramatize	employ illustrate interpret manipulate modify operate	practice predict prepare produce relate schedule	show sketch solve use write	The student will compare and contrast the cognitive and affective domains.
SYNTHESIS	Student originates, integrates, and combines ideas into a product, plan or proposal that is new to him or her.	create design hypothesize invent develop arrange assemble	categorize collect combine comply compose construct create	design develop devise explain formulate generate plan	prepare rearrange reconstruct relate reorganize revise	rewrite set up summarize synthesize tell write	The student will design a classification scheme for writing educational objectives that combines the cognitive, affective, and psychomotor domains.
EVALUATION	Student appraises, assesses, or critiques on a basis of specific standards and criteria.	Judge Recommend Critique Justify Appraise Argue	Assess Attach Choose Compare Conclude Contrast	Defend Describe Discriminate Estimate Evaluate	Explain Judge Justify Interpret Relate	Predict Rate Select Summarize Support Value	The student will judge the effectiveness of writing objectives using Bloom's taxonomy.



Examples of Verbs to use in writing objectives



Appendix G

2.2.6 RESEARCH ROTATION

Number of rotation months	First year	Second year	Total
	3	0	3

MEDICAL EXPERT

Goals:

1. To demonstrate an understanding of the basic principles of research design, methodology, data analysis, and clinical epidemiology, including their advantages and disadvantages from the perspective of radiology.
2. To familiarize the ethical requirements of research and demonstrate an understanding of the responsible use of informed consent.
3. To understand and practice appropriate methods for writing research manuscript, data collection, and result analysis and discussion.
4. To demonstrate awareness of the current research topics in radiology using available medical informatics systems.
5. To acquire the skills for scientific presentations and public discussions.

Training Methods

1. A dedicated 3-month, full-time rotation in research is conducted with minimal clinical exposure.
2. It is expected that the project will span for more than 3 months. Therefore, completion of the work should be parallel with other subsequent rotations.
3. The fellow must choose a supervisor who will help in accessing the essential resources that will allow appropriate understanding of research skills and periodically discuss the progress.
4. Attendance of dedicated courses or workshops that enhance research skills may be required by the program.

5. The fellow must finish the research proposal by the end of the first month and should be accepted by the Rhinology research committee.
6. Oral abstract of the study results should be presented at the second year on the fellows Rhinology Research Day.
7. The research paper should be sent at least 2 weeks before the Rhinology Research Day.
8. It is highly desirable for fellows to work on presenting the research results at national and/or international meetings and work hard to publish their work in indexed journals.

Evaluation

1. Attendance at designated courses/lectures will be monitored and incorporated into the annual evaluation score.
2. Panel scoring of the research abstract presentation will be conducted at the end of the 2nd year, on the research day. This will count as the rotation score.

COMMUNICATOR

1. Demonstrate skills in conveying and discussing scientific research to scientific communities through posters, abstracts, teaching slides manuscripts or other scientific communications.
2. Communicate and collaborate effectively with the research supervisor to conduct the research.

COLLABORATOR

1. Identify, consult, and collaborate with appropriate experts to conduct the research.

LEADER

1. Demonstrate the ability to identify an area of research interest and a research supervisor to engage in the scholarship of scientific inquiry and dissemination.
2. Demonstrate the ability to utilize available resources and regularly meet with an identified research mentor.
3. Demonstrate the ability to set realistic priorities and to use time effectively to optimize professional performance.
4. Demonstrate an understanding of the cost-effective use of health care resources.

HEALTH ADVOCATE

1. Recognize the contributions of scientific research in improving the health of patients and communities.

SCHOLAR

1. Demonstrate the ability to pose an appropriate research question, recognize, and identify gaps in knowledge and expertise around this question and formulate an appropriate study design to answer it.
2. Demonstrate the ability to conduct the research outlined in the proposal.
3. Demonstrate the ability for data collection, data analysis, and preparation of an abstract and manuscript.
4. Demonstrate the ability to identify areas for further research.

PROFESSIONAL

1. Uphold ethical and professional expectations of research consistent with institutional review board guidelines, including maintenance of meticulous data and conduct of an ethical research.
2. Demonstrate personal responsibility for setting research goals and working with supervisor to set and achieve research timeline objectives.

3. Publish accurate and reliable research results, with attention to appropriate authorship attribution criteria.
4. Disclose potential financial conflicts of interest (including speaker fees, consultative relationships, etc.) as appropriate when engaging in and disseminating research results.

Appendix H

Procedure Logbook Types

No	Procedure	General*	Advanced	Optional
1	Control of nasal epistaxis (cautery)	X		
2	Foreign body removal	X		
3	Turbinate surgery	X		
4	Closed reduction of nasal bones	X		
5	Incision of abscesses	X		
6	Septoplasty	X		
7	Revision septoplasty		X	
8	Choanal atresia endoscopic repair		X	
9	Management of immediate post-operative complications	X		
10	Biopsy of nasal cavity and sinus	X		
11	Endoscopic sinus surgery: nasal polypectomy, uncinectomy, ethmoidectomy, maxillary sinusotomy	X		
12	Endoscopic sinus surgery: sphenoidotomy		X	
13	Endoscopic sinus surgery: Draf I		X	

No	Procedure	General*	Advanced	Optional
14	Endoscopic sinus surgery: Draf II A, B		X	
15	Endoscopic sinus surgery: Draf III		X	
16	Orbital decompression		X	
17	Endoscopic sinus surgery repair of cerebrospinal fluid (CSF) leak		X	
18	Drainage orbital abscess, endoscopic approach		X	
19	Frontal trephination		X	
20	Frontal sinus osteoplastic flap		X	
21	Endoscopic resection of sinunasal neoplasm		X	
22	Open resection of sinunasal neoplasm		X	
23	Endoscopic approach to anterior skull base neoplasm		X	
24	Endoscopic medial wall maxillectomy		X	
25	Endoscopic sphenopalatine artery ligation		X	
26	Repair of septal perforation		X	
27	Open rhinoplasty			X
28	Closed rhinoplasty			X
29	Image guidance endoscopic sinus surgery	X		
30	Endoscopic dacryocystorhinostomy		X	
31	Caldwell-Luc			X

*The fellow role in general cases to supervise residents in training.

Logbook Template Sample

No.	Procedure	First Year			Second Year			Date
		I	S	A	I	S	A	

*I = Independent, S = Supervised, and A= Assisted

Appendix-I

References:

1. Alharethy S, Wedami MA, Syouri F, Alqabbani AA, Baqays A, Mesallam T, et al. Validation of the Arabic version of the score for allergic rhinitis tool. Ann Saudi Med. 2017;37(5):357–61.
2. Telmesani LM. Prevalence of allergic fungal sinusitis among patients with nasal polyps. Ann Saudi Med. 2009;29(3):212–4.
3. CanMED competency (Frank JR, Snell L, Sherbino J, editors. CanMEDS 2015 Physician Competency Framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015.