



الهيئة السعودية للتخصصات الصحية  
Saudi Commission for Health Specialties

# Otology, Neurotology and Lateral Skull-Base Surgery Fellowship



سِرِّهِمْ وَمَنْ يَخْفَى

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# PREFACE

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The curriculum represents a vital part of learning. In addition to informing trainees, trainers, and supervisors about training goals and objectives, the curriculum will have major impacts on program planning, execution, and quality assurance of training outcomes.

The Saudi Commission for Health Specialties (SCFHS) is the national regulatory body of postgraduate training programs across all health professions in Saudi Arabia.

This manual is meant to serve as a guide for “Curriculum Development Committee” members in their journey of developing the curriculum of their specialty.

Curriculum Development Committee (CDC) members should adhere to the proposed curriculum structure in this manual. The subject-matter content needs to be created by CDC.

CDC will be required to establish a blueprint for the curriculum content. CDC will be required to get that approved by the scientific council/committee of the program (whenever applicable).

This manual will provide pre-written sections and materials universally applicable to SCFHS programs. CDC members are advised to follow instructions to help customize content based on program needs.

For any further support please do not hesitate to contact us at: [Curricula@scfhs.org.sa](mailto:Curricula@scfhs.org.sa)

# I. CONTRIBUTORS

This curriculum was prepared by the Specialty's Curriculum Development Committee:

- Dr. Saeed A Alghamdi
- Dr. Khalid Badr
- Dr. Fahad N. Al Tamimi
- Prof. Khalid I Alnouri

Reviewed and approved by the Specialty's Scientific (Council/Committee) Members:

- Prof. Talal Alkhatib
- Dr. Ibrahim alnoury

Curriculum Review Committee members:

- Mazen Alqasmi, MBBS, MME, SBEM
- Nada Saleh, MME, MSc, PhD

Approved by the Head of Curricula Review Committee:

- Dr. Ali AlYahya, MD, MME, FRCSC



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## II. COPYRIGHT STATEMENTS

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Any amendment to this document shall be approved by the Specialty Scientific Council and the Executive Council of the commission and shall be considered effective from the date of updating the electronic version of this curriculum published on the commission website unless a different implementation date has been mentioned

P.O. Box: 94656

Postal Code: 11614

Contact Center: 920019393

Website: [www.scfhs.org.sa](http://www.scfhs.org.sa)

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## III. ACKNOWLEDGMENT

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The Otology, Neurotology, and Lateral Skull-Base Fellowship Program team would like to express their special gratitude to the Supervisory Committee Members for their feedback. We also extend our special appreciation to all the members who have been vital in the completion of this manual. We also acknowledge that the Canadian Medical Education Directives for Specialists (CanMEDS) framework is copyrighted by the Royal College of Physicians and Surgeons of Canada, and many of the descriptions of competencies described in this booklet were acquired from their resources. The development of this curriculum could not be completed without its support.



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# V. INTRODUCTION

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## 1. Context of Practice

In April 2021, the World Health Organization stated that by 2050 approximately 2.5 billion people are projected to have some degree of hearing loss, at least 700 million will require hearing rehabilitation, and one out of every ten people will have disabling hearing loss. Over 1 billion young adults are at risk of permanent, avoidable hearing loss due to unsafe listening practices. With this increase in demand, otology and neurotology have evolved to serve a patient population with an increasing number of concomitant medical disorders, necessitating more specialized and advanced invasive treatment and support. (1)

Screening tests should be performed in all newborns for the early detection of hearing loss. The frequency of hearing loss is higher in newborns with risk factors and when such infants are diagnosed, treatment should be started within a maximum of 6 months and newborns should be referred for rehabilitation and training.(4)

Otorhinolaryngology, which includes the subspecialties of Otology and Neurotology, were able to treat patients with hearing loss, perforated eardrums, tinnitus, ear infections, and problems with skull base, ear and facial nerves, tumors, vestibular diseases, cochlear implants, dizziness, otitis media, and problems with the hearing bones are all things that can cause hearing loss. Educational standards are based on several internationally recognized frameworks. This program encourages a culture of collaboration and progress in the fields of otology and neurotology by exposing trainees to the most advanced equipment and surgical procedures available, as well as groundbreaking and new educational approaches.

Fellows participating in the fields of otology and neurotology in the Kingdom of Saudi Arabia will benefit from the new fellowship program, which will provide comprehensive training. To provide an acceptable degree of clinical maturity, judgment, and technical abilities, this program will be developed under the direction and supervision of skilled professors and experienced otologists and neurotologist consultants.

The Otolaryngology and Neurotology Fellowship is a two-year structured training program dedicated to providing essential instruction, standardized educational structure, patient material, and support to create well-trained otorhinolaryngologists. Two reasons contributed to the success of the program: individual attention to each fellow and wealth of clinical experience. The fellows gained practical knowledge regarding unique otological and neurotological disorders after completing the course.

## 2. Goals and Responsibilities of Curriculum Implementation

The goal of this curriculum was to produce competent trainees in their respective fields. This goal will require a tremendous amount of effort and collaboration from all postgraduate training stakeholders. As "adult learners," trainees must be proactive, fully engaged, and demonstrate the following characteristics: a thorough understanding of learning objectives, self-directed learning, problem-solving skills, eagerness to apply learning through reflective practice based on feedback and formative assessment, and self-awareness and willingness to seek help when needed.

For this curriculum to be successfully implemented, the program director is crucial. Furthermore, members of the training committee, particularly the program administrator, have a strong say about how the program is implemented. Trainees should be active in the curriculum implementation process and share their duties. The SCFHS employs the best training governance mechanisms to attain the greatest level of training quality. Academic affairs in training centers and the regional supervisory training committee play a significant role in training oversight and implementation. The Specialty Scientific Committee will ensure that the content of this curriculum is updated to ensure that it meets the highest standards of postgraduate education in each trainee's specialty.



## VI. ABBREVIATIONS USED THIS DOCUMENT

Abbreviation	Descriptions
F1	First year fellow
F2	Second year fellow
SCFHS	Saudi Commission for Health Specialties
CSOM	Chronic suppurative otitis media
OSCE	Objective structured clinical examination
OSPE	Objective structured practical examination
Mini-Cex	Mini-clinical experience
DOPS	Direct observation of procedural skills
CBD	Case-based discussion
ITER	In-training evaluation report
CBE	Competency-based education
CI	Cochlear implant
ME	Middle ear
EAC	External auditory canal
CanMed	Canadian Medical Education Directives for Specialists
TBL	Team based learning
SC	Scientific Committee
IAC	Internal auditory canal

Abbreviation	Descriptions
AUD	Audiology
CPA	Cerebro-pontine angle
V. lab	Vestibular laboratory
AL	Annual leave



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# VII. PROGRAM ENTRY REQUIREMENTS

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1. Successful completion of an accredited training program in Otolaryngology by the Saudi Health Council or its equivalent from a university recognized by the Saudi Commission for Health Specialties (SCFHS)
2. Comprehensive CVs
3. Three recommendation letters
4. Successful completion of a scientific committee interview

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# VIII. LEARNING AND COMPETENCIES

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## 1. Introduction to Learning Outcomes and Competency-Based Education

To satisfy unique specialty demands, outcome-based or competency-based education should be guided by well-defined "learning objectives" driven by the program's targeted "learning outcomes." "Learning outcomes" must represent the professional "competencies" and responsibilities which trainees are expected to be entrusted with after graduation. This will ensure that graduates are well-prepared to satisfy the expectations of the healthcare system and patient care in their fields. Competency-based education (CBE) is an adult-learning strategy focused on accomplishing predefined, fine-grained, and well-paced learning objectives driven by sophisticated professional competencies. A common criticism is the classification of complicated personal and professional characteristics as "competencies." Despite a lack of factual evidence, CBE has been widely accepted. CBE, which has been promoted for more than 50 years, can help define the required knowledge and abilities, as well as help to plan evaluations.

Physicians' competencies are usually complicated, encompassing a wide range of study areas, including medical knowledge, clinical skills, procedural skills, and professional attitudes. As a result of CBE, the traditional postgraduate education system is expected to shift. Furthermore, the CBE highlights the importance of making an educated assessment of a learner's competency progress based on a staged formative assessment based on several workplace observations. For postgraduate healthcare education, several CBE models have been developed (e.g., CanMEDs by the Royal College of Physicians and Surgeons of Canada [RCPSC]). The following are some ideas to help with CBE implementation in this curriculum:

Competency is a cognitive construct that evaluates an individual's ability to operate effectively in a specific scenario based on a professional standard. To better correlate learning and assessment procedures, professional positions (e.g., experts, advocates, communicators, leaders, researchers, collaborators, and professionals) are used to define skills.



**Milestones:** On the competency continuum, milestones are the developmental phases. Trainees are aided throughout their learning journey, from junior to senior levels, as they progress from novice, supervised to master, and unsupervised practitioners. This does not negate the function of supervisory/regulatory organizations in preventing independent practitioners from engaging in misconduct. Milestones are anticipated to improve learning by appropriately pacing the training process for each individual's developmental level (junior vs. senior).

**Learning Domains:** Whenever possible, the learning outcomes should be annotated with the appropriate domain: K, knowledge; S, skills; and A, attitude. It is possible to obtain many annotations for a single learning outcome.

**Content-area Categorization:** Learning outcomes should be classified into broad content areas relevant to the profession (e.g., diagnostic vs. therapeutic, simple vs. complex, and urgent vs. chronic).

By demonstrating a set of professional competencies, **trainees** are expected to progress from novices to masters. The CanMEDs have been endorsed by the SCFHS to articulate professional competencies. CBE ideas are used in this curriculum. We used a globally recognized framework that describes competency positions as CanMEDs.

## General learning goals

### Medical expert

- Practise medicine within the Otolaryngology and Neurotology fields.
- Perform patient-centered clinical assessment for the Otolaryngology & Neurotology patients.
- Establish a management plan for Otolaryngology & Neurotology patients.
- Perform procedures and therapies for the assessment and/or management of Otolaryngology & Neurotology cases.
- Establish plans for ongoing care and, when appropriate, timely consultation.

### Communicator

- Establishing professional therapeutic relationships with patients and their families.
- Elicit accurate and relevant information, incorporating the perspectives of patients and their families.

- Engage patients and their families in developing plans that reflect patients' healthcare needs and goals.
- Perform effective documentation and share written and electronic information about medical encounters to optimize clinical decision-making, patient safety, confidentiality, and privacy.

### **Collaborator**

- Work with physicians and other colleagues in healthcare professions to promote understanding, manage differences, and resolve conflicts.
- Hand over the care of a patient to another healthcare professional to facilitate continuity of safe patient care.

### **Leader**

- Contributing to the improvement of healthcare delivery in teams, organizations, and systems.
- Demonstrate leadership in professional practice.
- Manage career planning, finances, and human resources with practice health advocates.
- Respond to an individual patient's health needs by advocating for the patient within and beyond the clinical environment.
- Respond to the needs of the communities or populations they serve by advocating for system-level change in a socially accountable manner.
- Actively contribute as an individual and as a team member for the continuous improvement of healthcare quality and patient safety.

### **Scholar**

- Integrating the best available evidence into practice.
- Contributes to the creation and dissemination of knowledge and practices applicable to health.
- Contributing to the education of students, residents, the public, and other healthcare professionals.
- Engaging in the continuous enhancement of professional activities through ongoing learning.

### **Professional**

- Demonstrate commitment to patients by applying best practices and adhering to high ethical standards
- Demonstrate a commitment to own health and well-being to foster optimal patient care.





- Demonstrate a commitment to society by recognizing and responding to societal expectations in healthcare.
- Demonstrate a commitment to the profession by adhering to standards and participating in physician-led regulations.



## 2. Program Duration:

This fellowship program is two years long.

## 3. Program Rotations:

Candidate must finish 24 months in Otology/Neurotology with the following:

**First year**, as mentioned in the rotation roadmap, has 13 blocks training period (each block = 4 weeks)

6 blocks fellows will focus on middle ear surgeries

4 block fellows will focus on cochlear implants and other implantable surgeries

1 block for audio vestibular laboratory

1 block fellow will focus on research

1 block fellow allows taking annual leave

**Second year**, as mentioned in the rotation roadmap, has 13 blocks training period (each block = 4 weeks)

6 blocks fellows will be focusing on advance middle ear surgery

3 blocks fellows will focus on cochlear implant

3 blocks fellows will focus on lateral skull base surgery

1 block fellow allows taking annual leave



## Rotation roadmap

Blocks (each block = 4 weeks)

Year	1	2	3	4	5	6	7	8	9	10	11	12	13
<b>F1</b>	ME	ME	ME	ME	ME	ME	CI & Other Implantable surgeries	CI & Other Implantable surgeries	CI & Other Implantable surgeries	CI & Other Implantable surgeries	V.LAB	*Research	A.L
<b>F2</b>	CI	CI	CI	ME	ME	ME	*Lateral skull Base Surgery	*Lateral skull Base Surgery	*Lateral skull Base Surgery	ME	ME	M.E	A.L

**Legend:**

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

The goals of this section program are:

- 1- Enable the fellow to develop expertise and acquire the relevant knowledge and necessary competencies in the diagnosis and medical/surgical management of conditions related to the discipline of otology-neurotology.
  - 2- Acquire the theoretical and practical knowledge necessary to succeed in certifying examinations after the successful completion of training.
  - 3- Develop a skill set to contribute as a teacher and researcher in the field of otology-neurotology.
  - 4- Develop an awareness of quality assurance issues specifically related to the specialty.
- For the competency-matrix: to map competency, the learning domain, and milestones (Appendix A and B).



Rotation Setting	Training stage	g years	Competency roles**	Rotation specific objectives (SMART)* (To describe the purposed outcomes in the form of KSA)
<b>MIDDLE EAR AND ADVANCED MIDDLE EAR SURGERY</b>	<b>F1+F2</b>	<b>1+2</b>	<b>12 BLOCK</b>	<p><b>1. Middle Ear Pathology</b></p> <p>Define the evaluation of patients with middle ear disease in the clinics and involved in complex middle ear surgeries such as ossiculoplasty, stapes surgery, and some revision mastoidectomies. Less involved cases will involve the resident staff, and the fellow may act as a teaching resource for them. <b>At the end of the fellowship, the fellow is expected to</b></p> <ul style="list-style-type: none"> <li>a- perform the clinical examination for primary or revision middle ear cases and interpret CTs and MRIs radiological findings of the temporal bone.</li> <li>b- formulate a plan of care taking into consideration the indications, risks, benefits, and alternative surgical techniques for the middle ear with and without complications.</li> <li>c- perform independently different surgeries of the middle ear and temporal bone, including meatoplasty, myringoplasty, tympanoplasty, canal wall up or down mastoidectomy, atticotomy, ossicular reconstruction, stapedotomy, facial nerve exploration, and decompression, as well as the removal of benign and limited malignant tumors of the external and middle ear.</li> </ul> <p><b>2. Cochlear implant &amp; implantable hearing devices</b></p> <p>Preoperative assessment of potential cochlear implant candidates involved in regular cochlear implant surgeries meeting committees for patient selection as well as planning of management</p> <p>Perform cochlear implant surgery</p>
<b>COCHLEAR IMPLANT AND OTHER IMPLANTABLE HEARING DEVICES</b>	<b>F1 +F2</b>	<b>1+2</b>	<b>7 BLOOK</b>	

Rotation Setting	Training stage	g years	Competency roles**	Rotation specific objectives (SMART)* (To describe the purposed outcomes in the form of KSA)
				<p>At the end of the fellowship, the fellow is expected to:</p> <p>Illustrate the indications and limitations of cochlear implants.</p> <p>Practice cochlear implants surgery independently</p> <p>Identify the candidacy criteria for the selection of BAHA and other middle ear implants in both adult and pediatric patients.</p> <p>Practice BAHA and middle ear implant surgery independently</p>
<b>AUDIO VESTIBULAR LABORATORY</b>	F1	1	1 block	<p><b>3. Vestibular Disorders</b></p> <ul style="list-style-type: none"> <li>- Outline the road map approach to dizzy patients intervention in the vestibular clinic</li> <li>- participate in procedures and surgeries for vestibular disorders such as gentamicin ablation, vestibular nerve sections, labyrinthectomies, and superior canal dehiscence management</li> </ul> <p><b>At the end of the fellowship, the fellow is able to</b></p> <ul style="list-style-type: none"> <li>a- Identify the anatomy and physiology and comprehend the different pathologic conditions of the vestibular apparatus and their different clinical presentations.</li> <li>b- Analyze medical history and neurotologic examination to arrive at a differential diagnosis of vertigo. To apply a standardized approach to be able to interpret different vestibular results</li> <li>c- Practice repositioning maneuvers.</li> <li>d- Evaluate patients with unresponsive vertigo (e.g., Recalcitrant Meniere's disease) and perform appropriate procedures for management when indicated.</li> </ul>



Rotation Setting	Training stage	g years	Competency roles**	Rotation specific objectives (SMART)* (To describe the purposed outcomes in the form of KSA)
<b>LATERAL SKULL BASE SURGERY</b>	<b>F2</b>	<b>2</b>	3 BLOOK	<p><b>4. Neurotology &amp; Lateral Skull Base</b> Assist in different lateral skull base approaches and and work with the multidisciplinary team, especially (neurosurgery) to manage patients with basal skull pathology.</p>
<b>RESEARCH</b>	<b>F1+F2</b>	<b>1+2</b>	1 BLOCK	<p><b>5. Temporal Bone and Research</b> Select independently a research project in the of otology and neurotology. <b><i>Carry out the research as outlined in the research proposal.</i></b></p> <p><b><i>Submit the manuscript of the research in any one of ORL journals and present at international conferences</i></b></p>

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## IX. CONTINUUM OF LEARNING

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This includes learning that should take place at each key stage of progression within the specialty. Trainees are reminded of lifelong Continuous Professional Development (CPD). Trainees should keep in mind the necessity of CPD for every healthcare provider to meet the demands of their vital profession. The following table shows how this role is progressively expected to develop throughout the junior, senior, and consultant levels of practice.





*For Fellowship programs:*

Specialty General Practice	F1 (Junior Level)	F2 (Senior Level)	Consultant sub specialist
Sub- specialty Non-practising	Dependent/supervised practice	Dependent/supervised practice	Independent practice/provide supervision
Obtain basic health science and foundational level to core discipline knowledge	Acquire advanced knowledge and adopt evidence-based practice related to otology and neurotology problems of the specialty.	Apply knowledge to provide appropriate clinical care related to otology and neurotology problems of the specialty	Acquire advanced and up-to-date knowledge related to core clinical problems of the otology and neurotology specialty
Internship to the practice of discipline	Interpretation of the clinical skills and surgical procedures related to the otology and neurotology problems and procedures of the specialty	Analyze and interpret the findings from clinical skills to develop appropriate differential diagnoses and management plans for the patient	Compare and evaluate challenging, contradictory findings and develop expanded differential diagnoses and management plans

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# X. TEACHING METHODS:

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The teaching process of a postgraduate fellowship training program is mainly based on the principles of adult learning theory. The trainees were excited to be aware of the importance of learning and to have active roles in the content and process of their own learning. The training program uses the adult learning concept in each aspect of the activities wherein fellows are responsible for their own learning requirements. The formal training time includes the following four teaching activities:

- Program-Specific Learning Activities
- Universal Topics
- General Learning Opportunities

## 1. Program-Specific Learning Activities:

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

### A) Program Academic Half-Day:

Every week at least 2–4 hours of formal training (commonly referred to as an *academic half-day*) should be reserved. Formal teaching time is an activity that is planned in advance with the assigned tutor(s), time slots, and venue. Formal teaching time excludes bedside teaching and clinical postings. The academic half-day covers the core specialty topics determined and approved by the specialty's scientific council aligned with specialty-defined competencies and teaching methods. The core specialty topics ensure that important clinical problems of the specialty are well taught. It is recommended that lectures be conducted in an interactive case-based discussion format. The learning objectives of each core topic must be clearly defined, and it is preferable to use pre-learning materials. Whenever applicable, core specialty topics should include workshops, team-based learning (TBL), and simulation



to develop skills in core procedures. Regional supervisory committees, in coordination with academic and training affairs, program directors, and F2 fellows should work together to ensure the proper planning and implementation of academic activities, as indicated in the curriculum. There should be active involvement of the trainee in the development and delivery of the topics under faculty supervision; the involvement might be in the form of delivery, content development, or research, to name a few. The trainee's supervisor should ensure that the discussion of each topic is stratified into three categories of learning domains: knowledge, skill, and attitude, whenever applicable (see appendix-D for the top knowledge topic and procedure list).

The recommended number of half-days that should be conducted annually is 40 sessions per academic training year, with time reserved for other forms of teaching methods, such as journal clubs and clinical/practical teaching. The fellow's training committee, program directors, and senior fellows, in coordination with academic and training affairs and regional supervisory committees, should work together to ensure the planning and implementation of academic activities, as indicated in the curriculum. This should be done efficiently by utilizing the available resources with an optimal exchange of expertise.

Please provide an example of an academic half-day table in (Appendix E)

<i>Academic week</i>	<i>Section</i>	<i>Date</i>	<i>Time</i>	<i>Sessions</i>	<i>Presenters</i>
1	Complication of CSOM	Oct 5	13:00–14:00	Intra-cranial complication	Program director
			14:00–15:00	Case base study**	A
			15:00–16:00	Intertemporal complication	B
2	Challenging case in cochlear implant	Oct 12	13:00–14:00	Syndromic cochlear implant	C
			14:00–15:00	Case base study	D
			15:00–16:00	Malformed cochlea	E
3	Temporal bone trauma and management	Oct 19	13:00–14:00	Management of traumatic hearing loss	F
			14:00–15:00	Case base study	B
			15:00–16:00	Management of traumatic facial nerve injury	C
4	VII & VIII Nerve tumor	Oct 26	13:00–14:00	Journal club* Update management of cholesteatoma	K



<i>Academic week</i>	<i>Section</i>	<i>Date</i>	<i>Time</i>	<i>Sessions</i>	<i>Presenters</i>
			14:00–15:00	Case base study Middle ear implant	B
			15:00–16:00	Acoustic neuroma	A

- \* Journal club could be conducted in the evening or during the half day.
- \*\* Case-based study could be conducted in the evening or during the half-day
- An example half-day table can be placed in the appendices instead of in the main text.

## B) Practice-Based Learning:

Training exposure during bedside, lab, O.R., and other work-related activities, including courses and workshops (e.g., simulations, standardized patients, and bedside teaching) for difficult skull base and challenging implantable cases. Trainees are expected to build their capacity based on self-directed learning.

On the other hand, practice-based learning allows the educator to supervise fellow students to become competent in the required program and acquire practical skills that ensure fulfilling knowledge, psychomotor, and/or attitude learning domains. Each trainee was required to maintain a logbook documenting the procedures followed and performed under supervision and independently. It would be prudent to determine the minimum number of procedures to be performed before training completion and the minimum number needed to maintain competency after certification. For a full list of procedures, please see Appendix C.

## 2. Universal Topics

Universal topics are educational activities developed by the SCFHS and intended for all specialties. Priority is given to topics with these qualities.

- High value

- Interdisciplinary and integrated
- Require expertise that might be beyond the availability of the local clinical training sites

Universal topics have been developed by the SCFHS and are available through 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 formative 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, particularly during residency. Universal topics were distributed throughout the training period.

See appendix C for Universal Topics

Training Year	Modules		Topics name	
	Number	Name	Number	Name
F1	Module-1	Medical Fundamental (Introduction )	Topic-	1. Blood transfusion 2. Hospital acquired infections 3. Antibiotic stewardship 4. Sepsis, SIRS, and DIVC 5. Safe drug prescribing
	Module 4	Medical and Surgical Emergencies	Topic-	6. Acute chest pain 7. Management of acute breathlessness 8. Management of Hypotension Hypertension Upper GI bleeding Lower GI bleeding 9. e wound infection post operation 10. flap infection post cochlear implant 6



Training Year	Modules		Topics name	
	Number	Name	Number	Name
F2				
	Module-5	<b>Acute Care</b>	Topic-	<ol style="list-style-type: none"> <li>1. Pre-operative assessment</li> <li>2. Post-operative care</li> <li>3. Acute pain management</li> <li>4. Chronic pain management</li> <li>6. Management of fluid in the hospitalized patient</li> <li>7. Management of electrolyte imbalances</li> </ol>
	Module-7	<b>Ethics and Healthcare</b>	Topic-	<ol style="list-style-type: none"> <li>1. Occupational hazards of Health Care Workers</li> <li>2. Evidence based approach to smoking cessation.</li> <li>3. Patient advocacy</li> <li>4. organ transplantation</li> <li>5. Autonomy and Treatment Refusal</li> <li>6. Death and Dying</li> </ol>

### 3. General Learning Opportunities:

Formal training time should be supplemented by other practice-based learning (PBL), such as (can be customized):

- Journal club appraisal during the activities every month
- Grand rounds for participating, sharing knowledge and decision-making of the cases
- CPD activities relevant to otology and neurotology specialties (conferences and workshops)
- Attending departmental morbidity and mortality (M&M) monthly meetings

The M&M conference offers trainees an opportunity to discuss patient cases in which adverse effects occur through errors or complications. The goal of this resource is to refocus the content of morbidity and mortality and transform it into a platform for teaching patient safety principles and emphasizing error-reduction strategies.

- Attend at least one Advanced Temporal Bone Lateral Skull Base Dissection Course during the two years of fellowship.
- Submit publishable research before sitting for the final exam and presenting at least once at international conferences





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# XI. ASSESSMENT AND EVALUATION

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## 1. Purpose of Assessment

Assessment plays a vital role in the success of postgraduate training. Assessment guides trainees and trainers to achieve defined standards, learning outcomes, and competencies. Moreover, the assessment also provides feedback to learners and faculty regarding curriculum development and implementation, teaching methods, and the quality of the learning environment. Reliable and valid assessment is essential to assess curriculum alignment with respect to objectives, learning methods, and assessment tools. Finally, the assessment assures patients and the public that health professionals are eligible and competent to practice.

Assessment can serve the following purposes:

- a. **Assessment for learning:** Trainers will use information from trainees' performance to guide their learning for improvement. This enables educators to use information about trainees' knowledge, understanding, and skills to provide feedback to trainees about learning and how to improve.
- b. **Assessment as learning** involves trainees in the learning process while enabling them to monitor their own progress. Trainees use self-assessment and educators' feedback to reflect on their progress. It develops and supports the trainees' metacognitive skills. Assessment of learning is crucial in helping residents/fellows become lifelong learners.
- c. **Assessment of learning** used to demonstrate the achievement of trainees' learning. This is a graded assessment and usually counts towards the trainees' end-of-training degree.
- d. **Feedback and evaluation**, as assessment outcomes, represent quality metrics that can improve the learning experience.

Miller's Pyramid of Assessment provides a framework for assessing the trainees' clinical competencies, which acts as a guide for the trainers to select the assessment methods to target different clinical competencies, including

“knows,” “knows how,” “shows how,” and “does” (check the -checklist- Appendix A).

For the sake of the organization, the assessment will be further classified into two main categories: *Formative* and *Summative*.

## 2. Formative Assessment

### 2.1 General Principles

Trainees, as adult learners, should strive to seek and develop their performance based on feedback throughout their journey of competency from “novice” to “mastery” levels. Formative assessment (also referred to as formative assessment) is a component of assessment distributed throughout the academic year, aiming primarily to provide trainees with effective feedback.

Every 4 weeks, at least 1 hour should be assigned for trainees to meet with their mentors to review performance reports (e.g., ITER, e-portfolio, and mini-CEX). 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 (council/committee) recommendations, usually updated and announced for each individual program at the start of the academic year.

According to executive policy on formative assessment (available online: **Error! Hyperlink reference not valid.**), formative assessment will have the following features that will be used based on Miller’s pyramid (see checklist *appendix A*-):

- a. Multisource: minimum four tools
- b. Comprehensive: covering all learning domains (knowledge, skills, and attitude)
- c. Relevant: focusing on workplace-based observations
- d. Competency milestone-oriented: reflecting trainee’s expected competencies that match trainee’s developmental level.

Trainees should play an active role in seeking feedback during their training, and trainers should provide timely and formative assessments. The SCFHS provides an e-portfolio system to enhance the communication and analysis of data from formative assessments.



Trainers and trainees are expected 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

- The trainee will be evaluated according to the regulations of the Saudi Council for Health Specialists.
- Trainee will attend the half-day academic teaching.
- Trainee will prepare cases for discussion every week, supervised by the training committee. In addition, his/her progression in research will be evaluated.
- Trainee will be evaluated after each surgical case and given verbal feedback.
- Evaluation forms will be completed at the end of each 3-month duration by the training physician in compliance with the CanMeds role.
- At the end of the first fellowship each year, candidates will have an oral exam by the otology and skull base Fellowship Committee and a short-essay exam (promotion exam).
- To qualify for the promotion, the first-year fellow must pass the written exam.

Learning Domain	Formative Assessment Tools	Important details ( e.g., frequency , specifications related to the tool)
Knowledge	- Structured Oral Exam (SOE)	Promotion exam at the end of F1
		Not required
	- Structured Academic Activities	Lecture to be presented by the fellow) every alternative month
	- Case-Based Discussion (CBD)	Every 6 months
Skills	- Logbook	To be submitted to program director one month before final exam appendix C
	- DOPS: Direct Observation for Procedural Skills	Three assessments every 6 months

Learning Domain	Formative Assessment Tools	Important details ( e.g., frequency , specifications related to the tool)
	- Mini-CEX: Mini-Clinical Evaluation Exercise	Three assessments every 6 months
	- Research Activities	manuscript presented in recognized international conference before appearing in final exam
Attitude	ITER: In-Training Evaluation Report	Every 3 months



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

Percentage	< 60%	60–65%	65–70%	> 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 used formative assessment tools.

- The program director can still recommend the promotion of candidates if the above is not met in some situations:
- In case the candidate scored “borderline failure” in one or two components at most, and these scores should not belong to the same area of assessment (for example, both borderline failures should not belong both to skills)
- The candidate must have passed all other components and has scored a minimum of clear pass in at least two components.

### 3. Summative Assessment

#### 3.1. General Principles

*Summative* assessment is a component of assessment that aims primarily to make informed decisions about trainees’ competency. Compared to formative assessment, the *summative assessment* does not aim to provide constructive feedback. For further details on this section, please refer to the General Bylaws of Training in Postgraduate Programs and General Assessment **Error! Hyperlink reference not valid..** To be eligible to sit for the final exams, trainees will be granted “Certification of Training Completion” upon successful completion of all training rotations.

### 3.2 Certification of Training Completion

To be eligible to sit for final specialty examinations, each trainee is required to obtain “*Certification of Training Completion.*” Based on the General Bylaws of Training in Postgraduate Programs and executive policies (please refer to **Error! Hyperlink reference not valid.**), trainees will be granted “Certification of Training Completion once the following criteria are fulfilled:

- a. Successful completion of all training rotations.
- b. Completion of training requirements (e.g., logbook, research, and others) as outlined in FITER approved by the scientific council/committee of specialty.
- c. Clearance from the SCFHS training affairs that ensure compliance with tuition payment and completion of universal topics.
- d. Passing the first part examination (whenever applicable).

“Certification of Training Completion” will be issued and approved by the supervisory committee or its equivalent according to the SCFHS policies.

### 3.3 Final Specialty Examinations

The final specialty examination is the summative assessment component that grants trainees specialty certifications. It has two elements:

- a) Final written exam: To be eligible for this exam, trainees are required to have obtained “Certification of Training Completion.”
- b) Final clinical/practical exam: Trainees will be required to pass the final written exam to be eligible to sit for the final clinical/practical exam.



## Final Otology Written Exam

### Contents

Categories	Sections	Proportions	Medical science	Diagnosis	Management	Investigations
Otology 35%	Surgical anatomy	15%	8	2	3	2
	Hearing loss	10%	3	2	3	2
	Ossicular reconstruction	10%	3	2	3	2
	Hearing aid	5%	2	0	3	0
Cochlear implant 20%	Pre lingual	12%	3	3	3	3
	Post lingual	8%	2	2	2	2
Skull base 20%	approaches	20%	6	4	7	3
Audiovestibular disorder 10%		10%	2	3	3	2
Scholarly Activities and others 15%	Research, ethics, professionalism, and patient safety	10%	8	0	0	2
	<b>Total</b>	<b>100%</b>	<b>37</b>	<b>18</b>	<b>27</b>	<b>18</b>

## Final Clinical Exam for otology, neurotology, and skull base fellowship

		DIMENSIONS OF CARE				
		Health Promotion & 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 & Procedural Skills 1±1 Station(s)		1			1
	Communication & Interpersonal Skills 2±1 Station(s)			1	1	2
	Professional Behaviors 0±1 Station(s)					0
	<b>Total Stations</b>	<b>1</b>	<b>5</b>	<b>3</b>	<b>1</b>	<b>10</b>

\*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 of Training in Postgraduate Programs and General Assessment (available online: [Error! Hyperlink reference not valid.](#)).

Learning Domain	Summative Assessment Tools	Passing Score
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Knowledge	<ul style="list-style-type: none"> <li>- Final Written MCQ Examination</li> </ul>	At least a borderline pass in each tool in accordance with the standard-setting method used by the executive administration of assessment
Skills	<ul style="list-style-type: none"> <li>- Objective Structured Clinical Examinations (OSCE)</li> <li>- Structured Oral Examinations (SOE)</li> </ul>	At least a borderline pass in each tool in accordance with the standard-setting method used by the executive administration of assessment
Attitude	FITER: In-Training Evaluation Report	Successfully pass FITER

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## XII. PROGRAM AND COURSE EVALUATION

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

- Reports from trainees' evaluation of faculty members
- Reports from trainees' evaluation of rotations

Goal-based Evaluation: The achievement of intended milestones will be evaluated at the end of each stage to assess the progress of curriculum delivery, and any deficiencies will be addressed in the following stage utilizing the time devoted to trainee-selected topics and professional sessions.

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



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# XIII. POLICIES AND PROCEDURES

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This curriculum represents the means and materials and outlines the learning objectives with which trainees and trainers will interact to achieve the identified educational outcomes. The SCFHS has a full set of “General Bylaws of Training in Postgraduate Programs” 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, formative 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 that can be accessed online (via the official SCFHS website).

## General Training Requirements:

Fellows must follow the SCFHS’s training requirements and obligations.

Training requires full-time dedication. During the course of the program, the fellow must be involved in full-time, ongoing training.

Fellows will be involved in patient care on a daily basis with increasing levels of responsibility.

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# XIV. APPENDICES

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- A. JUNIOR – LEVEL COMPETENCY – MATRRIX
- B. SENIOR LEVEL COMPETENCY – MATRRIX
- C. Universal Topics Modules
- D. Top Conditions and Procedures in the Specialty
- E. Logbook requirements
- F. References



## Appendix-A

Junior-level Competency-Matrix: to map Competency, learning domain and Milestones

Training Year level	Competency -Roles (with annotation of learning domains involved: K: knowledge, S: Skills, A: Attitude)	Activities Related to Specialty				
		Knowledgeable full patient clinical assessment	Managing complication on case of CSOM	Managing patient undergoing surgery		Compliance with documentation and proper standard of reporting
F1	<b>Professional Expert</b>	Take a full history and perform a thorough physical examination K.S	Describe the detailed management of complications K.S.A	Explain and complete the assessment of the patient going for surgery with all lab results, NPO , Abx K.S		Ensure all documentation is complete with daily patient care, prescriptions, and discharge summaries K.S.
	<b>Communicator</b>	Counsel patients and families about the complication of CSOM -Identify the patient's needs and expectations. K.S	Communicate effectively with the patient and the responsible management team <b>K.S.A</b>	Inform patient and family regarding medical and surgical treatment and explain the risks of both <b>K.S.A</b>		Review dictations, presentation, and documentation in details. K.S
	<b>Collaborator</b>	<b>Coordinate management plans with neurosurgery and infectious disease</b>  K.S.A	Liaise with multidisciplinary teams to ensure patients get the maximum benefit	Work in a team to meet patients and their family's needs K.S		Modify the best practice delivered with interprofessional communication K.S

Training Year level	Competency -Roles (with annotation of learning domains involved: K: knowledge, S: Skills, A: Attitude)	Activities Related to Specialty					
		Knowledgeable full patient clinical assessment	Managing complication on case of CSOM	Managing patient undergoing surgery			Compliance with documentation and proper standard of reporting
			<b>K.S</b>				
	<b>Advocate</b>	Identified high-risk impending complications and identified the medical and surgical treatment modality <b>K.S</b>	Discover the major and minor risk factors that may lead to complications of CSOM <b>K.S.A</b>	Predict the advanced goals of patient safety procedures. <b>K.S</b>			Improve the patient journey with high-quality of care <b>K.S.A</b>
	<b>Leader</b>	Create best management and surgical team intervention <b>K.S</b>	Create the team and support them in the best medical and surgical practice <b>K.S.A</b>	Modify the patients' care in touch with community support group <b>K.S.A</b>			Show the best practice and quality for patient satisfaction <b>K.S</b>



Training Year level	Competency -Roles (with annotation of learning domains involved: K: knowledge, S: Skills, A: Attitude)	Activities Related to Specialty				
		Knowledgeable full patient clinical assessment	Managing complication on case of CSOM	Managing patient undergoing surgery		Compliance with documentation and proper standard of reporting
	<b>Scholar</b>	List the critically acclaimed research findings to respond to patient problems <b>K.S</b>	List the critically acclaimed research findings in respond to patient problems <b>K.S</b>	Outline the evidence-based practice <b>K.S</b>		Select the advanced QUALITY DELIVERED WITH UPDATE BASED PRACTICE <b>K.S.A</b>
	<b>Professional</b>	Educate patients with up-to-date management <b>K.S.A</b>	Maintain confidentiality with interprofessional relation <b>K.S</b>	Choose the type of education with up-to-date surgical skills and practice <b>K.S</b>		Foster professional communication with different specialties <b>K.S.A</b>

## Senior-level Competency-Matrix: to map Competency, learning domain and Milestones

Training Year level	Competency-Roles (with annotation of learning domains involved: <b>K</b> : knowledge, <b>S</b> : Skills, <b>A</b> : Attitude)	Managing suspected cases of congenital hearing loss	Managing cerebropontine angle (CPA) skull base tumor cases	Managing cases of Temporal bone trauma	Managing Otosclerosis	
F2	<b>Professional Expert</b>	Describe the correct diagnosis early and -To recognize the underlying cause - perform surgical interventions  K.S.A	Identify the appropriate differential diagnosis. -outlines the proper management strategy of patients with CPA tumors. K.S	Explain appropriate management for early and late presentation <b>K.S</b>	Differentiate patients with conductive hearing loss from those with intact tympanic membrane  <b>K.S</b>	
	<b>Communicator</b>	Convey to the family the importance of early diagnosis and management of these cases K.S.A	-Explain to the patient and family the natural course of the disease and elaborate on different lines of management and their expected outcome K.S.A	- Explain to the patients and/or families about the sequelae of temporal bone trauma - Communicates with patients and/or families about the diagnosis	Clarify to the patients and/or families the treatment modality of otosclerosis.  <b>K.S.</b>	





<b>Training Year level</b>	<b>Competency-Roles</b> (with annotation of learning domains involved: <b>K:</b> knowledge, <b>S:</b> Skills, <b>A:</b> Attitude)	<b>Managing suspected cases of congenital hearing loss</b>	<b>Managing cerebropontine angle (CPA) skull base tumor cases</b>	<b>Managing cases of Temporal bone trauma</b>	<b>Managing Otosclerosis</b>	
				and prognosis <b>K.S</b>		
	<b>Collaborator</b>	Demonstrate multidisciplinary teamwork. <b>K.S</b>	Explain effectively the management modality with head and neck surgery, neurosurgery, histopathology, radiology, oncology, ICU, nursing, and social work services <b>K.S.A</b>	Describe the multidisciplinary teamwork, including neurology, neurosurgeon, ophthalmology, and skull base surgeon <b>K.S.A</b>	Appraise the multidisciplinary teamwork with audiology <b>K.S</b>	

<b>Training Year level</b>	<b>Competency-Roles</b> (with annotation of learning domains involved: <b>K</b> : knowledge, <b>S</b> : Skills, <b>A</b> : Attitude)	<b>Managing suspected cases of congenital hearing loss</b>	<b>Managing cerebropontine angle (CPA) skull base tumor cases</b>	<b>Managing cases of Temporal bone trauma</b>	<b>Managing Otosclerosis</b>	
	<b>Advocate</b>	Summarize the major risk factors of congenital hearing loss in Saudi Arabia K.S.A	Summarize the major risk factors of CPA tumors in Saudi Arabia K.S.A	Predict the groups with a high risk for temporal bone trauma <b>K.S</b>	Summarize the major risk factors of conductive hearing loss and intact tympanic membrane in Saudi Arabia K.S.A	
	<b>Leader</b>	Analyze the time and risk management K.A	Connect the patients with the community support group K.S	Inspect the time and risk management <b>K.S</b>	Connect the patients with severe to profound conductive hearing with community support group K.S.A	
	<b>Scholar</b>	Identify the critical points of research findings to respond to patient problems <b>K.S</b>	Design the critical points of research findings to facilitate response to patient problems <b>K.S</b>	Design the critical points of research findings to facilitate response to patients with head trauma <b>K.S</b>	Compose the critical points of research findings to understand how they impact and alleviate hearing loss	



<b>Training Year level</b>	<b>Competency-Roles</b> (with annotation of learning domains involved: <b>K:</b> knowledge, <b>S:</b> Skills, <b>A:</b> Attitude)	<b>Managing suspected cases of congenital hearing loss</b>	<b>Managing cerebropontine angle (CPA) skull base tumor cases</b>	<b>Managing cases of Temporal bone trauma</b>	<b>Managing Otosclerosis</b>	
					<b>K.S.A</b>	
	<b>Professional</b>	Propose staying up-to-date with the recent guidelines for congenital hearing loss. <b>K.S.A</b>	Summarize with professional responsibilities regarding reporting cases to the tumor registry <b>K.S.A</b>	Develop and maintain confidentiality in professional relations between patient and management team <b>K.S</b>	Plan staying up-to-date with the recent guidelines for the management of conductive hearing loss. <b>K.S.A</b>	

## Universal Topics

### Intent:

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

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

- Impactful: these are topics that are common or life-threatening
- Interdisciplinary: topics that are difficult to teach by a single discipline

- Orphan: topics that are poorly represented in the undergraduate curriculum
- Practical: topics that trainees will encounter in hospital practice

### Development and Delivery:

Core topics for the PG curriculum will be developed and delivered centrally by the commission through an e-learning platform. A set of preliminary learning outcomes was developed for each topic. In collaboration with the central team, content experts may modify learning outcomes.

These topics will be didactic in nature, focusing on the practical aspects of care. These topics will be more content-intensive than 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 a context-rich MCQ. All trainees must attain minimum competency in 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, practical 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, you should be able to:

- a) Recognize the importance of safe drug prescribing in healthcare
- b) Describe various adverse drug reactions with examples of commonly prescribed drugs that can cause such reactions.



- c) Apply principles of drug-drug, drug-disease, and drug-food interactions in common situations
- d) Apply principles of prescribing drugs in special situations such as renal failure and liver failure
- e) Apply principles of prescribing drugs to elderly, pediatric age group patients, and pregnant and lactating mothers
- f) Promote evidence-based and cost-effective prescribing
- g) Discuss ethical and legal framework governing safe-drug prescribing in Saudi Arabia

### Hospital Acquired Infections (HAI):

At the end of the Learning Unit, you should be able to

- a) Discuss the epidemiology of HAI with special reference to HAI in Saudi Arabia
- b) Recognize HAI as one of the major emerging threats in healthcare
- c) Identify the common sources and set-ups of HAI
- d) Describe the risk factors of common HAIs, such as ventilator-associated pneumonia, MRSA, CLABSI, and vancomycin-resistant *Enterococcus* (VRE)
- e) Identify the role of healthcare workers in the prevention of HAI
- f) Determine appropriate pharmacological (e.g., selected antibiotic) and non-pharmacological (e.g., removal of an indwelling catheter) measures in the treatment of HAI.
- g) Propose a plan to prevent HAI in the workplace

Sepsis, SIRS, and DIVC: At the end of the Learning Unit, you should be able to:

- a) Explain the pathogenesis of sepsis, SIRS, and DIVC
- b) Identifying patient-related and non-patient-related predisposing factors for sepsis, SIRS, and DIVC
- c) Recognize a patient at risk of developing sepsis, SIRS, and DIVC
- d) Describe the complications of sepsis, SIRS, and DIVC
- e) Apply the principles of management of 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 plan for safe and proper antibiotic usage, including the right indications, duration, types of antibiotics, and discontinuation.
- e) Assess the local guidelines and update them for 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) Undertake consent for specific blood product transfusion
- e) Perform steps necessary for safe transfusion
- f) Develop an understanding of special precautions and procedures necessary during massive transfusions

Recognize transfusion-associated reactions and provide immediate management

## Module 2: Cancer

1. Principles of management of cancer
2. Side effects of chemotherapy and radiation therapy
3. Oncologic emergencies
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:

- a) Discuss the basic principles of staging and grading of cancers
- b) Enumerate the basic principles, (e.g., indications, mechanism, and 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) Describes important side effects (e.g., frequent or life-threatening) of common chemotherapy drugs
- b) Explain the principles of monitoring of side effects in a patient undergoing chemotherapy
- c) Describe measures (pharmacological and non-pharmacological) available to ameliorate the 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 the 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) Adopt immediate measures for treating a patient with oncologic emergencies
- e) Counsel the patients in an anticipatory manner to recognize and prevent oncologic emergencies

### Cancer Prevention:

At the end of Learning Unit, you should be able to:

- a) Conclude that many major cancers are preventable
- b) Identify smoking prevention and lifestyle modifications as major preventable measures
- c) Recognize cancers that are preventable
- d) Discuss the major cancer prevention strategies at the individual as well as national level
- e) Counsel patients and families in a proactive manner regarding cancer prevention, including screening

### 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 of patients with cancers
- b) Enumerate the surveillance and follow-up plan for common forms of cancer
- c) Describe the role of primary care physicians, family physicians, and others 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

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:

- a) Describe the pathogenesis of common diabetic emergencies, including their complications
- b) Identify risk factors and groups of patients vulnerable to such emergencies
- c) Recognize a patient presenting with diabetic emergencies





- d) Institute immediate management
- e) Refer the patient to the appropriate next level of care
- f) Counsel patients and families to prevent such 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 such complications
- c) Provide preventive measures for such complications
- d) Treat such complications
- e) Counsel patients and families with special emphasis on prevention

### 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 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

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; following learning outcomes apply.

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 immediate management to patients
- f) Refer the patients to the next level of care, if needed

## Module 5: Acute Care

1. Preoperative assessment
2. Postoperative care
3. Acute pain management
4. Chronic pain management
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:

- a) Describe the basic principles of preoperative assessment
- b) Perform pre-operative assessment in uncomplicated patient with special emphasis on
  - 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 postoperative care plan, including monitoring of vitals, pain management, fluid management, medications, and laboratory investigations



- b) Hand over the patients properly to the appropriate facilities
- c) Describe the process of postoperative recovery in a patient
- d) Identify common postoperative complications
- e) Monitor patients for possible postoperative complications
- f) Institute immediate management for postoperative 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 pain relief for uncomplicated patients with acute pain
- f) Identify and refer patients with acute pain who can benefit from specialized pain services

**Chronic Pain Management:** At 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 pain relief for uncomplicated patients with chronic pain
- d) Identify and refer patients with chronic pain who can be benefitted from specialized pain services

**Management of Fluid in Hospitalized Patients:** At end of the Learning Unit, you should be able to:

- a) Review the physiological basis of water balance in the body
- b) Assess a patient for his/her hydration status
- c) Recognize a patient with over and under hydration
- d) Order fluid therapy (oral as well as intravenous) for a hospitalized patient

- e) Monitoring the 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

- a) Review physiological basis of electrolyte and acid-base balance in the body.
- b) Identify diseases and conditions likely to cause or 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 the acid-base and electrolyte imbalances.
- e) 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 end of the Learning Unit, you should be able to

- a) Enumerate the differences and similarities between comprehensive assessment of elderly and that of other patients
- b) Perform comprehensive assessment, in conjunction with other members of the health care team, of the frail elderly with 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 the elderly

**Mini-Mental State Examination:** At the end of the Learning Unit, you should be able to:

- a) Review the appropriate usages, advantages, and potential pitfalls of Mini-MSE
- b) Identify patients suitable for mini-MSE
- c) 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

- a) Discuss the principles of prescribing for 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 increased drug-related adverse events.
- d) Discuss drug-drug interactions and drug-disease interactions among the elderly
- e) Familiar with Beers criteria
- f) Develop a rational prescribing habit for the elderly
- g) Counsel elderly patients and families on the safe medication usage

**Care of the Elderly:** At the end of the Learning Unit, you should be able to:

- a) Describe the factors that need to be considered while planning care for the elderly
- b) Recognize the needs and well-being of caregivers
- c) Identify the local and community resources available in the care of the elderly
- d) Develop, with inputs from other healthcare professionals, an individualized care plan for elderly patients

## Module 7: Ethics and Healthcare

1. Occupational hazards of HCW
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 Health Care 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 the HCW

- b) Describe common occupational hazards in the workplace
- c) Develop familiarity with legal and regulatory frameworks governing occupational hazards among the HCW
- d) Develop a proactive attitude to promote workplace safety
- e) 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:

- a) Describe the epidemiology of smoking and tobacco usage 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) Effective use of pharmacologic and non-pharmacologic measures to treat tobacco use 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 the patients
- d) Develop a positive attitude towards 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; 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 withdrawal of care
- b) Be familiar with the legal and regulatory guidelines regarding organ transplantation and withdrawal of care
- c) Counsel patients and families in the light of applicable ethical and religious principles
- d) 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:

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

### Role of Doctors in Death and Dying:

At the end of the Learning Unit, you should be able to:

- Recognize the important role a doctor can play during dying
- Provide emotional as well as physical care to a dying patient and family
- Provide appropriate pain management for a dying patient
- Identify suitable patients and refer patient to palliative care services

## Appendix-B

### Top Conditions and procedures in the Specialty(2)

Top Conditions and procedures in the Specialty			
Top Ten Causes of Mortality in Saudi Arabia*			
Disease; Conditions		Relative	Cumulative
		Frequency	Frequency
1.	Squamous cell carcinoma of EAC	18%	18%
2.	Advanced lateral skull base tumor	13%	31%
3.	Intracranial Complication CSOM	10%	41%
Top Ten Cancers			
Disease; Conditions		Relative	Cumulative

## Top Conditions and procedures in the Specialty

### Top Ten Causes of Mortality in Saudi Arabia\*

Disease; Conditions		Relative	Cumulative
		Frequency	Frequency
		Frequency	Frequency
1.	Squamous cell EAC	18%	18%
2.	Local advance Glomus Jugulare	13%	31%
3.	Acoustic schwannoma with brain stem compression	10%	41%

### Top Ten Causes of Out-Patient Consultations Related to the Specialties in Saudi Arabia

Disease; Conditions		Relative	Cumulative
		Frequency	Frequency
1.	Hearing Loss	22%	22%
2.	Ear Discharge	12%	34%
3.	Condition C	10%	44%

### Top Ten Causes of In-patient Admissions Related to the Specialties in Saudi Arabia

Disease; Conditions		Relative	Cumulative
		Frequency	Frequency
1.	Sudden Sensorineural hearing loss	18%	18%
2.	CSOM Complications	13%	31%
3.	Vestibular Neuritis	10%	41%

### Top Ten Procedures/Surgeries Performed by the Specialty

Name of Procedures/ Surgeries	Approximate Frequency
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Top Conditions and procedures in the Specialty		
Top Ten Causes of Mortality in Saudi Arabia*		
Disease; Conditions	Relative	Cumulative
	Frequency	Frequency
CWU vs CWD Mastoidectomy		
Cochlear implants		
Ossicular Reconstructions		
Examples of Core Specialty Topics: Case Discussions; Interactive Lectures		
Topics	Comments	
Approach to patient with Pulsatile Tinnitus		
Approach to patient with Hearing loss		
Examples of Core Specialty Topics: Workshops/Simulation		
Topics	Comments	
Cochlear & implantable hearing device procedure		
Advance Lateral Skull base Course		
Temporal Bone Course		
Research		

## Appendix C

Log book candidates should have details of particular procedure in his log book

## Log book for otology and skull base cases and activities

#	Procedures	Observer	Assistant	independent
1	Tympanoplasty	5	15	30
2	Tympano-mastoidectomy	3	7	20
3	Ossiculoplasty	5	5	20
4	Stapedectomy	5	3	12
5	Implantable hearing device	4	10	10
6	Cochlear implant	3	15	50
7	Skull base procedures	5	10	8
8	Dealing with emergency cases	0	3	20
9	Speaker in local / international symposium			2
10	Research			2

## Appendix D

### 2.2.6 RESEARCH ROTATION

Number of rotation months	First year	Second year	Total
	0	1	1



## MEDICAL EXPERT

### Goals:

- To demonstrate an understanding of the basic principles of research design, methodology, data analysis, and clinical epidemiology. In addition, they have both advantages and disadvantages from the perspective of radiology.
- Familiarize themselves with the ethical requirements of research and demonstrate an understanding of the responsible use of informed consent.
- To practice appropriate methods for writing research proposals, manuscripts, data collection, and result analysis and discussion.
- To demonstrate awareness of current research topics in radiology using available medical informatics systems.
- To skillfully present scientific presentations and participate in public discussions.

### Training Methods

- Specify the period as appropriate dedicated to research **or** full-time rotation in the research to be conducted.
- Attendance in dedicated courses or workshops that enhance research skills may be required of the program.
- The project is expected to last more than a month. Therefore, the completion of the work should be parallel to other subsequent rotations.
- The trainee must choose a supervisor to help access the essential resources that will allow the appropriate utilization of research skills and periodically discuss progress.
- The trainee must finish the research proposal by the end of the first 6 months and should be accepted by the institutional review board.
- The oral abstract of the study results should be presented at a specified time point (e.g., end of the final year before entering the final exam) on Specialty's Research Day.
- The research paper should be sent at least two weeks before Specialty's Research Day.
- It is highly desirable for trainees to present research results at national and/or international meetings and aim to publish their work in indexed journals.

## Evaluation

- Attendance at designated courses/lectures/workshops was monitored and incorporated into the annual evaluation score.
- Panel scoring of the research abstract presentation will be conducted at the end of the pre-specified point year on Specialty's Research Day. This was considered the rotation score for that month.

## COMMUNICATOR

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

## COLLABORATOR

- Identify, consult, and collaborate with appropriate experts, research institutions, and/or organizational bodies to facilitate research.

## LEADER

- Identify an area of research interest and research supervisor to engage in the scientific inquiry and dissemination.
- Utilize available resources and regularly meet with an identified research mentor.
- Set realistic priorities and use time effectively in order to optimize professional performance.
- Utilize health care resources cost-effectively.

## HEALTH ADVOCATE

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

## SCHOLAR

- Pose appropriate research questions, recognize and identify gaps in knowledge and expertise around this question, and formulate an appropriate study design to answer it.
- Carry out the research as outlined in the proposal.
- Collect and analyze data utilizing appropriate methods.
- Prepare abstracts and manuscripts suitable for publication in peer-reviewed journals and/or international scientific meetings.
- Identify research limitations and areas for further research.



## PROFESSIONAL

- Ethical and professional research expectations are consistent with institutional review board guidelines, including the maintenance of meticulous data and the conduct of ethical research.
- Demonstrate personal responsibility for setting research goals and work with supervisors to establish and achieve research timeline objectives.
- Appropriately attribute authorship and contributions when publishing research
- Disclosing potential financial conflicts of interest (including speaker fees and consultative relationships) as appropriate when engaging in and disseminating research results.

### References:

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- 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
- 4- Erdogdu S.North Clin Istanb.Our newborn hearing screening results. North Clin Istanb. 2021; 8(2): 167–171