SLEEP STUDIES

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V. 01

الهيئة السعودية للتخصصات الصحية
Saudi Commission for Health Specialties

In The Name of Allah

I. PREFACE

- 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 practitioners.
- This curriculum may contain sections outlining some training regulations; however, such regulations must be sought from the "General Bylaws of Training in Postgraduate Programs" and "Executive Policies" published by the Saudi Commission for Health Specialties (SCFHS), which can be accessed online through the official SCFHS website. In the case of discrepancies in the regulation statements, the statement in the most updated bylaws and executive policies will be the reference to apply.
- As this curriculum is subject to periodic refinement, please refer to the electronic version posted online for the most updated edition at: www.scfhs.org.sa

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V. INTRODUCTION:

1. Context of Practice

Sleep medicine is a specialized field that focuses on the diagnosis and treatment of sleep disorders and disturbances. Sleep disorders can substantially affect the quality of life, overall health, and daily functioning of individuals. The field of sleep medicine encompasses various aspects of sleep, including the study of sleep patterns, biology of sleep, and impact of sleep on physical and mental well-being.

Sleep medicine professionals diagnose and treat various sleep disorders, including insomnia, sleep apnea, narcolepsy, restless legs syndrome, parasomnia (such as sleepwalking and night terrors), and circadian rhythm disorders. Each disorder has its own symptoms, causes, and treatment approaches.1–4

Sleep medicine often involves collaboration among different medical specialties, including pulmonology, neurology, psychiatry, otolaryngology, and dentistry. A multidisciplinary approach is essential for addressing the diverse causes and manifestations of sleep disorders.

The field of sleep medicine is dynamic, with ongoing research aimed at better understanding the intricacies of sleep and developing more effective treatment strategies. Sleep medicine professionals play a crucial role in educating healthcare providers and the general public about the importance of sleep and the potential consequences of untreated sleep disorders.

The practice of sleep medicine in Saudi Arabia began in the mid-to-late 1990s and has since grown substantially. However, challenges remain, such as ensuring access to diagnosis and treatment, and raising awareness among healthcare professionals and the general public.[5]

Sleep disorders can significantly affect the quality of life, overall health, and daily functioning of an individual. Over the past 40 years, sleep medicine has evolved remarkably, expanding beyond the commonly perceived notion that it only deals with obstructive sleep apnea (OSA). The International Classification of Sleep Disorders (ICSD-3) recognizes more than 87 different sleep disorders across seven major categories, highlighting the complexity and breadth of this field.[6] This growth in the discipline has increased the global demand for clinical sleep facilities but has led to malpractice by unqualified practitioners, underscoring the importance of structured training programs in sleep medicine.[7]

Sleep disorders in Saudi Arabia are prevalent, underdiagnosed, and undertreated, highlighting a significant public health concern and an increased demand for sleep medicine. The extensive waiting lists for sleep studies, which were last reviewed in 2007, underscore the widespread nature of sleep disorders in the Kingdom.[8]

Sleep disorders are prevalent and have a substantial impact on public health. In Saudi Arabia, OSA was reported in 12% of male and 5% of females in the general population.[9] Furthermore, a study reported the prevalence of insomnia to be 37.6% in the general population of Saudi Arabia.[10] In addition, a population-based study reported a prevalence of 8.4% for restless legs syndrome.[11] Moreover, untreated sleep disorders are associated with various medical conditions, including cardiovascular disease, diabetes, obesity, and mental health disorders. Addressing sleep-related issues can contribute to overall health and well-being.[12]

Among patients with coronary artery disease (82%) were categorized as high risk of OSA. The estimated prevalence of OSA in the study sample was 56.4% based on polysomnography (PSG). Approximately 61% of patients with sleep apnea suffer from moderate to severe OSA.[13] Other sleep disorders are also prevalent; obesity hypoventilation syndrome was reported in 8.5% of patients suspected of having OSA,[14] narcolepsy with cataplexy occurs at a rate of 40 per 100,000 people,[15,16] and restless leg syndrome affects 5.7–6.4% of the population.11 Insomnia, is widespread, with 57.1% prevalence among primary care attendees and 78% among employees and visitors at a medical center.[17,18] These statistics indicate the need for enhanced sleep medicine services in Saudi Arabia.

In 2013, only 18 sleep facilities were available in the Kingdom of Saudi Arabia (KSA). The estimated per capita number of beds/year/100,000 people was 0.11, and the per capita PSG (PSG) rate was 18.0 PSG/year/100,000 people. The most important obstacles to the progress of sleep medicine in the KSA are the lack of trained sleep technologists and a lack of sleep medicine specialists, with only 37 qualified sleep physicians.[19]

The National Sleep Medicine Training Program in Saudi Arabia represents a significant advancement in the healthcare landscape of the region. It was designed to meet the growing demand for specialized sleep medicine services and solidify Saudi Arabia's position as a leader in clinical sleep medicine and research in the Middle East. This program, the first of its kind in the region, followed the 2013 introduction of regulations and accreditation standards for sleep physicians and technologists, marking a major development in the field.

The scope of sleep medicine practice includes the diagnosis and treatment of various sleep disorders, such as insomnia, sleep apnea, narcolepsy, and restless legs syndrome. The procedures commonly performed in this field include PSG,[20] home sleep apnea testing, actigraphy,[21] and ancillary tests for daytime sleepiness assessments, such as the Multiple Sleep Latency Test (MSLT)[22] and Maintenance of Wakefulness Test (MWT).[23] Treatment approaches range from Continuous Positive Airway Pressure (CPAP)[24] and Bilevel Positive Airway Pressure therapies for sleep apnea, medication management for

various sleep disorders, and behavioral and cognitive therapies for conditions such as insomnia. Sleep medicine specialists focus on patient education and lifestyle modifications to improve sleep hygiene and overall sleep quality. This multidisciplinary field often intersects with neurology, psychiatry, and pulmonology, offering a comprehensive approach to managing sleep-related health issues.

Please see Appendix A

Sleep medicine training involves both outpatient and inpatient care to provide comprehensive training and experience. Outpatient care focuses on diagnosing and managing sleep disorders that can be treated without an overnight hospital stay and involves regular consultations and follow-up at sleep clinics. In contrast, the inpatient aspect covers more severe cases of sleep disorders that require hospitalization for detailed monitoring and intensive treatment. The training program equips fellows with the skills and knowledge to determine an appropriate level of care based on the severity and complexity of each case.[25]

Future needs and challenges in sleep medicine revolve around technological advancements, addressing the increasing prevalence of sleep disorders, and enhancing interdisciplinary research and training. The integration of the latest digital health technologies presents opportunities for improved diagnostics and management and raises concerns about data accuracy and privacy. As sleep disorders are more prevalent globally, a pressing need exists for public health strategies that focus on awareness and prevention. The field requires more specialized training and research to keep pace with the evolving nature of sleep disorders and their intersection with other health conditions such as cardiovascular and mental health disorders.

Overall, the future of sleep medicine is likely to experience greater convergence of technology, interdisciplinary collaboration, and public health initiatives to meet the growing challenges in this field.

Sleep medicine is a specialized branch of medicine dedicated to the study, diagnosis, and treatment of sleep disorders. With increasing awareness of the importance of sleep in maintaining optimal health, the field continues to evolve and contribute to advancements in medical knowledge and patient care.

2. Goals and Responsibilities of Curriculum Implementation

This curriculum seeks to guide trainees to become competent in Sleep Studies. Achieving this goal requires effort and coordination from all stakeholders involved in 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, 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 the curriculum. Moreover, training committee members, particularly program administrators, play an important role in program implementation. Trainees should be called upon to share the responsibility of curriculum implementation.

The strategic direction of the Saudi Commission for Health Specialties (SCFHS) applies a recognized competency model of training governance to achieve the highest quality of training, and postgraduate programs are required to cover research and evidence-based practices in their curricula. Additionally, academic affairs in training centers and regional supervisory training committees play major roles in training supervision and its implementation. **The Sleep Studies** Scientific Committee will guarantee that the content of this curriculum will be constantly updated to match the highest standards of postgraduate education for each trainee.

VI. ABBREVIATIONS USED IN THIS DOCUMENT

Abbreviation	Description
AASM	American Academy of Sleep Medicine
EEG	Electroencephalography
EMG	Electromyography
ICSD	International Classification of Sleep Disorders
EOG	Electrooculography
MSLT	Multiple Sleep Latency Test
NREM	Non-Rapid Eye Movement
PAP	Positive Airway Pressure
PSG	Polysomnography
RLS	Restless Legs Syndrome
MWT	Maintenance of Wakefulness Test
OSA	Obstructive Sleep Apnea
PLMS	Periodic Limb Movements During Sleep
REM	Rapid Eye Movement

Abbreviation	Description
SDC	Sleep Disorders Center
K	Knowledge
S	Skills
A	Attitude
CBD	Case-based Discussion
DOPS	Direct Observation of Procedural Skills
ME	Medical Expert
COM	Communicator
COL	Collaborator
L	Leader
HA	Health Advocate
SCH	Scholar
P	Professional

VII. PROGRAM ENTRY REQUIREMENTS

Please refer to the executive policy of the SCFHS regarding admissions and registration.

We advise candidates to refer to the SCFHS website.

VIII. LEARNING AND COMPETENCIES

1. Introduction to Learning Outcomes and Competency-Based Education

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

Professional competencies related to healthcare are complex and encompass a mixture of multiple learning domains (knowledge, skills, and attitudes). CBE is expected to change the traditional methods of postgraduate education. For instance, training time, although a precious resource, should not be considered 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 in learners' competency progress, based on a staged and formative assessment driven by multiple workplace-based observations. Several CBE models have been developed for postgraduate education in healthcare (e.g., CanMEDS) by the Royal College of Physicians and Surgeons of Canada. The following concepts enhance the implementation of CBE in the curriculum.

- **Competency:** Competency is a cognitive construct that assesses one's potential to perform efficiently in a given situation according to professional standards. Professional roles (e.g., medical experts, health advocates, communicators, leaders, scholars, collaborators, and professionals) are used to define competency roles to make them suitable for learning and assessment.
- **Milestones**: Milestones are the stages of the developmental journey throughout the competency continuum. Throughout their learning journey, trainees from junior and senior levels will be assisted in transforming from (novice/supervised) to (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 training/assessment to match the developmental level of trainees (junior vs. senior).
- **Learning-domains:** Whenever possible, efforts should be directed to annotate learning outcomes with the corresponding domain (K: Knowledge, S: Skills, and A: Attitude). You may have more than one annotation for a given learning outcome.
- **Content-area Categorization:** It is advisable to categorize learning outcomes into broad content areas related to the practice of the profession. Examples include diagnostic vs. therapeutic, simple vs. complex, and urgent vs. chronic.
- **Trainees** are expected to progress from novice to master level in a certain set of professional competencies. The SCFHS endorses the CanMEDS to articulate professional competencies. The curriculum applies the principles of competency-based medical education. CanMEDS is a globally accepted framework that outlines competency roles. "CanMEDS 2015" has been adopted in this section.[26]

General Objectives:

By the end of the training, the trainee should have:

- **Demonstrated the following practical skills:**
  - A. Hooking up and scoring a minimum of 200 full PSG.
  - B. Setting and interpreting a minimum of 15 patients with MSLT.
  - C. Setting and interpreting a minimum of 100 titration studies for PAP therapy.
  - D. Setting, scoring, and interpreting a minimum of 20 PSG following a split-night protocol.
  - E. Hooking up and scoring a minimum of 50 pediatric PSG.
  - F. Hooking up and scoring a minimum of 100 sleep studies using portable devices.
  - G. Interpreting a minimum of 50 patients using sleep logs and or actigraphy.
  - H. Attending at least one PAP clinic weekly for adults and children.
  - I. Writing/publishing at least one article as a result of a sleep medicine research project will be ongoing throughout the training period.
  - J. Attending all sleep lecture series (≥ 80%) and complete required readings.
- **Demonstrated adequate knowledge of the following:**
  - A. Normal human sleep physiology and adaptation of different organ systems during sleep. They include those that occur in the respiratory, cardiac, muscular, nervous, and endocrine systems.
  - B. Changes in physiological parameters are associated with different sleep disorders, such as sleep apnea and parasomnia.

C. Dealing with sleep complaints; understanding the different types of sleep-disordered breathing; neurological disorders and their effects on sleep; limb movement disorders; insomnia and its non-pharmacological treatments; circadian rhythm disorders; sleep disorders related to psychological diseases; and hypersomnia, such as narcolepsy, parasomnia, and pediatric sleep disorders.

- **Demonstrated adequate knowledge of the following diagnostic procedures and assessments:**

A. Use of devices, tools, and tests in sleep medicine. It includes 10–20 electrodes.

B. Placement system, identification of artifacts, and their correction.

C. Sleepiness evaluation questionnaires and those used to assess sleep apnea risk

D. Understanding how sleep disorders are diagnosed at the theoretical and practical levels.

E. Interpreting sleep studies based on scoring sleep stages and variables such as breathing patterns, snoring events, arousals, and cardiac rhythms.

F. Interpret integrated polysomnographic signals, including EEG, EOG, EMG, respiratory, oxygenation, cardiac, and movement channels, to support accurate scoring and preparation of a comprehensive sleep study report.

G. Comprehending and interpreting different sleep studies. These included full sleep studies, MSLT, and MWT.

H. PAP devices, maintenance, troubleshooting, and their applications.

- **Generic Competencies**

The following competencies are expected by the end of each training year.

1) Medical Expert
2) Communicator
3) Collaborator
4) Leader
5) Health Advocate
6) Scholar
7) Professional

The characteristics of each competency are outlined below:

❖ MEDICAL EXPERT

Definition

As Medical Experts, sleep disorder specialists (RDS) integrate all CanMEDS roles by applying medical knowledge and clinical skills to provide patient-centered care. The trainee should be able to perform the following tasks:

- Function effectively as an RDS in Category 1 and some Category 2 procedures.
- Establish and maintain clinical knowledge, skills, and attitudes appropriate to sleep medicine
- Perform a complete and appropriate assessment of a sleep medicine patient.
- Use preventive and therapeutic interventions effectively.
- Appropriately use and interpret diagnostic tests relevant to sleep medicine practice.
- Demonstrate proficient and appropriate use of procedural skills.
- Seek appropriate directions from other health professionals and recognize the limits of their expertise.

❖ COMMUNICATOR

Definition

As Communicators, RDS should effectively facilitate the specialist-patient relationship and exchanges that occur before, during, and after a clinical encounter. The trainee should be able to:

- Develop rapport, trust, and ethical therapeutic relationships with patients and their families.
- Accurately elicit and synthesize relevant information and perspectives of patients, families, colleagues, and other professionals.
- Convey relevant information and explanations accurately to patients, their families, colleagues, and other professionals.
- Develop a common understanding of issues, problems, and plans with patients, families, and other professionals to develop a shared care plan.
- Convey effective oral and written information about a medical encounter, and maintain clear, accurate, and appropriate records (written or electronic) of clinical encounters and plans.

❖ COLLABORATOR

Definition

As Collaborators, the RDS should be able to work effectively within a healthcare team to achieve optimal critical patient care. The trainee should be able to:

- Participate effectively and appropriately in an interprofessional healthcare team.
- Effectively work with other health professionals to prevent, negotiate, and resolve interprofessional conflicts.
- Demonstrate adequate skills in educating and learning from interdisciplinary team members.
- Describe the role of the RDS as a collaborator.

❖ LEADER

Definition

As Leader, RDS are integral participants in healthcare organizations, organizing sustainable practices, making decisions about resource allocation, and contributing to the effectiveness of the healthcare system. The trainee should be able to:

- Participate in activities that contribute to the effectiveness of healthcare organizations and systems.
- Manage their practice and career effectively.
- Allocate finite healthcare resources appropriately.
- Serve in administrative and leadership roles.
- Use specific available resources to assist in the care of patients with sleep medicine.

❖ HEALTH ADVOCATE

Definition

As Health Advocates, RDS responsibly use their expertise and influence to advance the health and well-being of individual patients, communities, and populations. The trainee should be able to:

- Respond to individual patient health needs and issues as part of patient care.
- Respond to the health needs of the communities they serve.
- Identify the determinants of health for the population served.
- Promote the health of individual patients, communities and populations.
- Describe the societal and environmental factors relevant to patients with sleep disorder.
- Describe the current barriers to providing effective care for patients with sleep disorder.
- Ensure that patients' privacy and dignity are maintained.
- Act as an effective advocate for the rights of patients and their families in clinical situations involving serious ethical considerations.

❖ SCHOLAR

Definition

The RDS demonstrates a lifelong commitment to reflective learning, as well as the creation, dissemination, application, and translation of medical knowledge. The trainee should be able to:

- Maintain and enhance professional activities through ongoing learning.
- Critically evaluate medical information and its sources and apply it appropriately to practice decisions.
- Facilitates the learning of patients, families, students, other health professionals, and the public.
- Contribute to the development, dissemination, and translation of new knowledge and practices.
- Act as a role model for other RDS and senior RDS.
- Access and use the relevant literature to help solve clinical problems
- Apply critical appraisal skills to the literature on sleep medicine.
- Complete at least one scholarly project under the mentorship of an attending senior RDS or another faculty member. The project should be presented at either a national or international scientific event or published in a peer-reviewed journal. Trainees are encouraged to complete the project or make significant progress toward completing the training before their final examination.

❖ PROFESSIONAL

Definition

As Professionals, RDS are committed to the health and well-being of individuals and society through ethical practices, profession-led regulations, and high personal standards of behavior. The trainee should be able to:

- Demonstrate commitment to patients, profession, and society through ethical practice.
- Demonstrate integrity, honesty, and compassion in the patient care.
- Demonstrates commitment to patients, the profession, and society through participation in professional regulations.
- Demonstrate commitment to RDS health, manage one's own stress in dealing with sleep medicine patients, and sustainable practice.
- Demonstrate self-awareness and self-care in patients with sleep disorder.

1. Program duration:

The duration of the RDS training program is **2** years and is composed of clinical, practical, and didactic experiences in various settings and patient populations.

2. Program Rotations:

First Year

Mandatory core rotations			Elective Rotations			Selective Rotations		
Rotation Name	Duration	Setting	Rotation Name	Duration	Setting	Rotation Name	Duration	Setting
Introduction	One week	Hospital	NONE			NONE		
Polysomnography	24 weeks	SDC						
Portable Sleep Medicine	8 weeks	SDC						
CPAP devices and noninvasive ventilators	8 weeks	SDC						
Research	One week	Hospital						
Holiday	One week							

Second Year

<table>
<tr><th colspan="3">Mandatory core rotations</th><th colspan="3">Elective Rotations*</th><th colspan="3">Selective Rotations</th></tr>
<tr><th>Rotation Name</th><th>Duration</th><th>Setting</th><th>Rotation Name</th><th>Duration</th><th>Setting</th><th>Rotation Name</th><th>Duration</th><th>Setting</th></tr>
<tr><td>Pediatric Sleep</td><td>One week</td><td>SDC</td><td>EEG (Neuroscience)</td><td>One week</td><td>SDC</td><td colspan="3" rowspan="4">NONE</td></tr>
<tr><td>Ancillary test (Other Diagnostic Tools)</td><td>One week</td><td>SDC</td><td>General Respiratory Therapy course</td><td>One week</td><td>Hospital</td></tr>
<tr><td>Polysomnography</td><td>24 weeks</td><td>SDC</td><td rowspan="2">Pulmonary Function Tests</td><td rowspan="2">One week</td><td rowspan="2">Hospital</td></tr>
<tr><td>PAP clinics</td><td>8 weeks</td><td>SDC</td></tr>
<tr><td>Elective</td><td>8 weeks</td><td>SDC/ Hospital*</td><td colspan="3"></td><td colspan="3"></td></tr>
<tr><td>Holiday</td><td>One week</td><td></td><td colspan="3"></td><td colspan="3"></td></tr>
</table>

* Each trainee is expected to select one elective rotation (block).

IX. MAPPING OF LEARNING OBJECTIVES AND COMPETENCY ROLES TO PROGRAM ROTATIONS

This section aims to match the competencies and objectives of each type of rotation. Trainees and trainers should work together to fulfill these objectives during teaching and formative assessment. Expectations evolve as the training level progresses (training stages and milestones).

Training Year	Mandatory core rotations*			
	Rotation name	Duration	Setting	Learning Domains
Y1	Orientation	2 W	Hospital	
	Module 1: Introduction to Sleep Disorders			
	○ **Topic 1:** Normal human sleep physiology	2 W	Hospital	K, S, A
	○ **Topic 2:** Sleep disorders	2 W	Hospital	K, S, A
	Module 2: Introduction Sleep Laboratory (equipment/montage)			
	○ **Topic 1:** Monitoring devices and ancillary equipment	8 W	SDC	K, S, A
	○ **Topic 2:** International 10–20 system measurements	8 W	SDC	K, S, A
	○ **Topic 3:** Ethics and patient safety in sleep laboratory	6 W	SDC	K, S, A
	○ **Topic 4:** Performing in lab diagnostic testing procedures: PSG, titration night, split night, MWT, and MSLT	14 W	SDC	K, S, A
	○ **Topic 5:** Performing portable sleep testing procedures	6 W	SDC	K, S, A
	Annual vacation: 30 Days	**4 Weeks**		
	Total	**52**		

Training Year	Mandatory core rotations*			
	Rotation name	Duration	Setting	Learning Domains
Y2	**Module 3: Diagnostic test analysis**			
	○ **Topic 1:** Sleep stages and respiratory events and PLM	16 W	SDC	K, S, A
	○ **Topic 3:** other tests	2 W	SDC	K, S, A
	Module 4: Treatment and management of sleep disorders			
	○ **Topic 1:** Treatment and management of sleep-related breathing disorders	8 W	SDC	K, S, A
	○ **Topic 2:** CPAP devices and noninvasive ventilators	5 W	SDC	K, S, A
	○ **Topic 3:** PAP clinics	4 W	Outpatients	K, S, A
	Module 5: Research in sleep			
	○ **Topic 4:** Research Methods	4 W	Hospital	K, S, A
	○ **Topic 5:** Critical Appraisal of Research Studies	2 W	Hospital	K, S, A
	Module 6: Pediatric sleep			
	○ **Topic 1:** Sleep disorders in pediatric population	1 W	SDC	K, S, A

Training Year	Mandatory core rotations*			
	Rotation name	Duration	Setting	Learning Domains
	○ **Topic 2:** Diagnostic tests for pediatric population	2 W	SDC	K, S, A
	○ **Topic 3:** Sleep stages, respiratory events and PLM scoring in pediatric population	2 W	SDC	K, S, A
	○ **Topic 4:** Treatment for sleep disorders in pediatric population	2 W	SDC	K, S, A
	Annual vacation: 30 Days	**4 Weeks**		
	Total	**52**		

For the Competency Matrix: to map competency, learning domain, and milestones.

Module 1: Introduction to Sleep Disorders		
Module Description: This module is designed to provide a detailed exploration of the physiological processes of the sleep and wakefulness cycle and its effects on different organ systems. In addition, it will focus on common sleep disorders, their completion, and their causes.		
Topic 1: Normal Human Sleep Physiology		
Learning Objectives	**Teaching/Learning Strategies**	**Competency roles:**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Explain normal sleep and wakefulness cycle.	○ Lectures ○ Case studies ○ Discussion	S, ME
2- Describe the opponent process sleep model.		S, ME
3- List the anatomical components and neurotransmitters involved in the wake and sleep cycles.		S, ME
4- Describe changes in different organ systems occur during sleep.		S, ME
5- Identify different stages of sleep, along with physiological changes.		ME
6- Discuss the neurobiology of EEG waves observed across different sleep stages.		ME

Module 1: Introduction to Sleep Disorders		
7- Identify the key neurotransmitters and hormones involved in sleep regulation.		ME
8- Define the homeostatic sleep drive and its relationship with sleep needs.		ME
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Analyze physiological changes during sleep	○ Lectures ○ Discussion	ME, P
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Present a clear prospective of complexity of sleep	○ Clinical teaching	COM, HA, P, COL

Topic 2: Sleep Disorders		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Identify the potential causes of common sleep disorders.		ME
2- Explain different types of sleep-disordered breathing and their basic characteristics.		ME
3- Classify common sleep disorders according to the International Classification of Sleep Disorders.		ME
4- Define changes in physiological parameters with different sleep disorders.		S
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Compare different sleep disorders.	○ Demonstration observation	ME
2- Discuss appropriate tests for each sleep disorder.		ME, P
Learning Domains: Attitude		

Topic 2: Sleep Disorders		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Upon completion of this module, trainees should be able to:		
1- Articulate the value of normal sleep.	○ Reflective exercises Observation	COM, HA, ME
2- Listen to instructors and other trainees during class discussions and learning activities.		COM, COL, P, L

Module 2: Introduction Sleep Laboratory (equipment/montage)		
Module Description: This module is designed to provide a comprehensive review of sleep centers and the role of RDSs. Additionally, it will provide the trainee with some of the most valuable skills to produce accurate data that will affect the diagnosis and treatment of the patient while maintaining patient safety and privacy.		
Topic 1: Monitoring devices and ancillary equipment		
Learning Objectives	**Teaching/Learning Strategies**	**Competency roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Explain how the sleep technologist position was created.	Lectures Case studies Discussion	HA, COM, L
2- List scope of practice of a RDS (Appendix A).		P, COM, L
3- Detail different devices, tools, and tests used in sleep medicine.		P, COM, L
4- Demonstrate how electricity is used in a sleep laboratory.		ME
5- Define the units and prefixes used to describe electrical charge, current, and potential differences.		S, L, ME
6- Describe different sensors used during PSG.		S, L, ME

Module 2: Introduction Sleep Laboratory (equipment/montage)		
7- Explain the optimal environment and setting of a sleep laboratory.		S, L, ME
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Perform appropriate handling, cleaning, and storage of devices and tools used in sleep medicine.	Demonstration and re-demonstration Observation and supervised practice Clinical rotation	HA, P, L
2- Provide instructions to the patient for optimal recording.		COM, HA, P
3- Prepare the patient for optimal data recording during PSG.		P, HA
4- Differentiate between the various measures used to monitor airflow and respiratory efforts.		ME
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Adhere to patient confidentiality, privacy, and ethical practices during the procedures.	Demonstration observation and supervised practice	HA, COM, P, L
2- Commit to caring for the equipment and devices used by the sleep center.		HA, P, L

Topic 2: International 10–20 system measurements		
Learning Objectives	**Teaching/Learning Strategies**	**Competency roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Discuss sensor placement according to the American Academy of Sleep Medicine guidelines.	○ Lectures ○ Case studies ○ Discussion	COM, ME
2- List steps required to set up a 10–20 EEG montage for a different sleep study.		COM, P, ME
3- Identify common issues and artifacts that may arise during the EEG recordings.		P, ME
4- Explain the function of each component in the EEG recording system.		ME
5- Discuss the importance of the sampling rate and bit resolution.		ME
6- Explain the recommended sources for EEG, EOG, EMG, airflow, ECG, respiratory effort, and body position.		ME
7- Explain the function of each component of the EEG recording system.		ME
Learning Domains: Skills		

Topic 2: International 10–20 system measurements		
Learning Objectives	**Teaching/Learning Strategies**	**Competency roles**
Upon completion of this module, trainees should be able to:		
1- Locate EEG points using the 10–20 system.	Demonstration and re-demonstration Observation and supervised practice Clinical rotation Bedside teaching	ME, P
2- Perform step-by-step procedure for placing electrodes and initiating EEG recordings using 10–20 system.		ME, P
3- Develop strategies for troubleshooting and minimizing artifacts for accurate data interpretation.		ME, P
4- Perform biocalibration during a sleep study.		P, ME
5- Set appropriate sampling rates and voltage requirements.		P, ME
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Articulate the value of following the 10–20 system.	Group activity In class discussion	P, L

Topic 3: Infection control and patient safety in sleep laboratory		
Learning Objectives	**Teaching/Learning Strategies**	**Competency roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Describe electrical safety factors for PSG.	Lectures Case studies Discussion	P, HA
2- Explain the principles of infection control in sleep laboratories.		HA, P
3- Discuss the common sources of infection in sleep laboratory.		HA, P
4- Describe the proper cleaning techniques for electrodes and sensors.		HA, P
5- List fire safety measures.		HA, P, L
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Respond to patient life-threatening emergencies.	Lab practice Bedside teaching	HA, L
2- Describe the protocols for the proper sterilization and disinfection of sleep laboratory equipment.		P, COL, HA

Topic 3: Infection control and patient safety in sleep laboratory		
Learning Objectives	**Teaching/Learning Strategies**	**Competency roles**
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Respect to instructors and other trainees during class discussion and learning activity	Group activity In class discussion	COM, COL, P

Topic 4: Performing in lab diagnostic testing procedures: PSG, titration night, split night, MWT, MSLT		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Identify the purpose and significance of PSG, titration night, split night, MWT, and MSLT in diagnosing sleep disorders.	Lectures Case studies Discussion	ME
2- Explain the procedures to the patients and their families.		COM, COL, P
3- Identify the devices and equipment required for each diagnostic test.		P, ME
4- Identify the criteria for the titration and split nights.		ME, P
5- Summarize steps for performing in-lab procedures include PSG, titration night, split night, MWT, and MSLT.		ME, P
6- Discuss various montages used during PSG.		ME, P
7- Discuss the importance of audio-video signals during a sleep study.		ME, P
8- Identify common problems encountered during PSG.		HA, ME
9- Discuss the minimum recordable parameters during an attended sleep study.		ME

Topic 4: Performing in lab diagnostic testing procedures: PSG, titration night, split night, MWT, MSLT		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
10-Adjust the instrumentation controls for optimal recording quality.		P, ME
11-Recognize artifacts during a sleep study.		ME, P, L
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Apply electrodes using the 10–20 system according to the applicable procedures.	Clinical rotation Bedside teaching Simulation Lab practice	ME, P
2- Effectively communicate the results to interdisciplinary healthcare teams.		COM, COL
Apply PAP devices to patients when needed, based on the AASM guidelines.		ME, COM, S
Modify PAP level based on AASM guidelines.		ME, S
Perform diagnostic sleep testing according to the current AASM standards and procedures adopted by the program.		ME, S
3- Arrange appropriate montages used for each specific PSG procedure.		P, ME
4- Troubleshoot common problems encountered during PSG recording, including the artifacts.		ME, P, COM

Topic 4: Performing in lab diagnostic testing procedures: PSG, titration night, split night, MWT, MSLT		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
5- Apply appropriate filters to all recorded channels.		ME, P
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Evaluate the ethical considerations and patient safety measures related to the performance of different diagnostic tests.	Clinical teaching and practice	P, HA
2- Adhere to patient confidentiality, privacy, and ethical practices during the procedures.		HA

Topic 5: Performing portable sleep testing procedures		
Learning Objectives	**Teaching/Learning Strategies**	**Competency roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Identify physiological parameters monitored during portable sleep testing.	Lectures Case studies Discussion	ME
2- Explain the distinct levels of portable sleep testing and the equipment used in each level.		COM
3- Explain the procedures to the patients and their family.		COM
4- Recognize various devices with their advantages and disadvantages.		ME
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Identify the indications for using portable sleep testing.	Clinical rotation Bedside teaching Simulation Lab practice	ME
2- Demonstrate the ability to set up and calibrate portable sleep-monitoring devices.		ME
3- Troubleshoot common technical issues related to the equipment setup.		ME
4- Implement guidelines for the appropriate use of various types of sleep studies.		P

Topic 5: Performing portable sleep testing procedures		
Learning Objectives	**Teaching/Learning Strategies**	**Competency roles**
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Adhere to patients' confidentiality, privacy, and ethical practices during the procedures.	Clinical rotation and practice	HA, COM, P

Module 3: Diagnostic Test Analysis		
Module Description: In this module, the trainee will learn how to analyze and interpret the results of various diagnostic procedures that were introduced in the previous module.		
Topic 1: Sleep stages and respiratory events, PLM		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Demonstrate a comprehensive understanding of the various sleep stages, including NREM and REM sleep.	Lectures Case studies Discussion	ME
2- Identify the key characteristics of each sleep stage presented in this chapter.		ME
3- Summarize the frequency, amplitude, and morphology of EEG waveforms that appear during different stages of sleep.		ME
4- Recognize sleep–wake stages and relevant respiratory and movement events, and identify clinically important cardiac rhythm abnormalities in an adult polysomnographic recording.		ME
Learning Domains: Skills		

Module 3: Diagnostic Test Analysis		
Upon completion of this module, trainees should be able to:		
1- Explain the mechanisms and events related to respiratory functions, including airflow, respiratory effort, and gas exchange.	Clinical rotation Bedside teaching Simulation Lab practice	ME
2- Score sleep–wake stages and relevant respiratory and movement events according to the current AASM scoring manual adopted by the program, and identify and document clinically important cardiac rhythm abnormalities.		ME
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1. Adhere to patient confidentiality, privacy, and ethical practices during the procedures.	Demonstration observation and supervised practice	P, HA
2. Respect to instructors and other trainees during class discussions and learning activities.		P, COM, COL

Topic 2: Other tests		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Recognize REM sleep behavior disorder, sleep-related bruxism, and rhythmic movement disorder.	Lectures Case studies Discussion	ME
2- Explain the use of screening questionnaires, sleep diaries, and actigraphy watches to patients and their families.		COM, COL, P
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Score for REM sleep behavior disorder, sleep-related bruxism, and rhythmic movement disorder.	Clinical rotation Bedside teaching Simulation Lab practice	P, ME
2- Use of screening questionnaires to identify poor sleep habits and potential sleep disorders.		HA, ME
3- Use sleep diaries and actigraphy to assess sleep disorders.		HA, L, ME
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		

Topic 2: Other tests		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
1- Adhere to patient confidentiality, privacy, and ethical practices during the procedures.	Demonstration observation and supervised practice	L, P, HA
2- Respect to instructors and other trainees during class discussions and learning activities.		COM, L, COL, P

Module 4: Treatment and Management of Sleep Disorders		
Module Description: This module is designed to provide trainees with the knowledge and skills required to safely apply, monitor, and troubleshoot PAP therapies used in the management of selected sleep-related breathing disorders.		
Topic 1: Treatments and managements of sleep related breathing disorders		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Identify treatment options for sleep-related breathing disorders.	Lectures Case studies Discussion	ME, S, COL
2- Explain the role of noninvasive monitoring in sleep disorders testing.		ME, COL, COM
3- Differentiate between oxygenation and ventilation.		P, ME
4- List criteria to start oxygen therapy during a sleep study.		P, ME
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Troubleshoot factors that may limit the accuracy of the oximetry data.	Clinical rotation Bedside teaching	ME, COL, L

Module 4: Treatment and Management of Sleep Disorders		
2- Apply the changes needed to the montage during the titration night.	Simulation Lab practice	ME, P, COL
3- Provide oxygen therapy according to the AASM guidelines.		COL, ME
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
Value the importance of adhering to the therapy.		HA, COM, L

Topic 2: PAP devices and noninvasive ventilator		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- List the steps of manual PAP titration in adults.	Lectures Case studies Discussion	S
2- Define criteria to switch from CPAP to BPAP in patients with OSA.		ME
3- Summarize the AASM categories for successful PAP titration.		ME
4- State the criteria for initiating oxygen therapy during sleep study.		S
Learning Domains: Skills		
1- Select the appropriate mask for the patient.	Clinical rotation Bedside teaching Simulation Lab practice	ME
2- Adjust the pressure level according to the AASM guidelines.		ME
3- Provide oxygen therapy according to the AASM guidelines.		ME
4- Troubleshoot common PAP issues.		P, HA, ME

Topic 2: PAP devices and noninvasive ventilator		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
5- Maintain CPAP and PAP machines.		P, HA
6- Explain the PAP equipment cleaning techniques.		COM, COL, ME
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Demonstrate teamwork during clinical practice and class activities.	Demonstration observation and supervised practice	COM, COL, L
2- Articulate precautions when using PAP and oxygen therapy.		ME

Topic 3: PAP clinics		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Follow patients' progress on PAP therapy and provide treatment recommendations.	Lectures Case studies Discussion	COL, COM, HA
2- Assist patients with PAP adherence issues.		ME, COL, COM
3- Identify PAP therapy outcomes.		S, ME
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Educate patients and their families on correct device use, cleaning, maintenance, and basic troubleshooting.	Clinical rotation Bedside teaching Simulation Lab practice	COM, COL, L
2- Address any issues that arise after treatment.		COM, COL, HA, L
3- Provide technical assistance and troubleshooting of PAP devices, masks, or tubes.		COM, COL, HA, L
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Demonstrate teamwork during clinical practice and class activities.	Demonstration observation and supervised practice	COM, COL, L

Module 5: Research in Sleep		
Module Description: In this module, trainees will learn the basic principles of research and research methodology. They will learn how to formulate a research question, select an appropriate design, and complete the major stages of a research project.		
Topic 1: Research methods		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Articulate the definition of research design.	Lectures Discussion In class activity	ME, SCH
2- Summarize the different research methods.		SCH
3- Outline the major stages of a clinical research project		SCH
4- Explain basic statistical analysis and tests used in medical research.		SCH
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
5- Use technology to retrieve the desired literature.	Reflective exercises Assignment	S
6- Submit a complete research paper in the field of sleep.		SCH

Module 5: Research in Sleep		
7- Present the results of the research project.		
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Adhere to research ethical standards.	Assignment	HA, P
Topic 2: Critical Appraisal of Research Studies		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- List parts of the research paper.	Lectures Case studies Discussion	SCH
2- Identify strengths and weaknesses in research articles.		SCH, P
3- Discuss the current research tools and methodologies used in modern academic research.		SCH, ME
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Critically appraise published medical research relevant to sleep medicine.	Reflective exercises	SCH, ME

Module 5: Research in Sleep		
2- Analyze research methodology.	Assignment	SCH, ME
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Adhere to research ethical standards.	Discussion	HA, SCH, P

Module 6: Pediatric Sleep		
Module Description: This module is designed to provide a comprehensive review of differences between adults and children in sleep disorder presentation, diagnosis, and treatment. The trainee will learn about preparation, assessment, diagnostic testing, and treatment considerations relevant to pediatric sleep populations.		
Topic 1: Sleep disorders in pediatric population		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Summarize sleep physiology in children and infants.	Lectures Case studies Discussion	S, ME
2- Correlate EEG changes with age among children.		S, COL, COM, ME
3- Discuss changes in EEG during sleep among children.		S, ME
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Prepare the children for the sleep study.	Clinical rotation Bedside teaching	ME, COM, COL
2- Recognize sleep disorders in the pediatric population.		ME, S, COL

Module 6: Pediatric Sleep		
3- Score respiratory events in children.	Simulation Lab practice	ME, S
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Appreciate sleep changes in the pediatric population.		ME, P, HA
Topic 2: Diagnostic tests for pediatric population		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Summarize steps for performing in-lab procedures including PSG, titration night, and split night.	Lectures Case studies Discussion	COM, ME, P
2- Explain diagnostic tests to patients and their families or caregivers using appropriate language.		COM, ME, P
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Perform complete diagnostic sleep studies for pediatric patients.	Clinical rotation	ME, P, COM

Module 6: Pediatric Sleep		
2- Discuss various montages used during pediatric PSG.	Bedside teaching Simulation Lab practice	ME, P, COM
3- Discuss the importance of audio–video signals during a sleep study.		COM, ME
4- Identify common problems encountered during PSG.		ME, S
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Adhere to patient confidentiality, privacy, and ethical practices during the procedures.	Demonstration observation and supervised practice	ME, P, COM, L, HA
2- Articulate precautions when using PAP and oxygen therapy.		ME, P, COM, L, HA
Topic 3: Sleep stages, respiratory events, and PLM scoring in pediatric population		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Discuss the rules for respiratory scoring in children.	Lectures Case studies Discussion	COM, P, HA
2- Explain the mechanisms and events related to respiratory function, including airflow, respiratory effort, and gas exchange, in the pediatric population.		ME, COL

Module 6: Pediatric Sleep		
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Score pediatric sleep–wake stages and relevant respiratory and movement events according to the current AASM scoring manual.	Clinical rotation Bedside teaching Simulation Lab practice	ME, S, COL
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Adhere to patient confidentiality, privacy, and ethical practice, during the procedures.	Demonstration observation and supervised practice	HA, COM, P, L
2- Respect to instructors and other trainees during class discussions and learning activities.		P, COM, L, COL

Topic 4: Treatment for sleep disorders in pediatric population		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- List the steps of manual PAP titration in children.	○ Lectures ○ Case studies ○ Discussion	S, ME, COM
2- Define criteria to switch from CPAP to BPAP in patients with OSA.		ME, S
3- List treatment options for sleep disorders in pediatric population.		ME, S
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Select the appropriate mask for the patient.	○ Clinical rotation ○ Bedside teaching ○ Simulation ○ Lab practice	ME, P
2- Adjust the pressure level for pediatrics according to the AASM guidelines.		P, ME, COL
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Adhere to patient confidentiality, privacy and ethical practice during the procedures.	Demonstration observation and supervised practice	HA, P, L, COM

Elective Rotations:

Module Description: This module is designed to provide an immersive journey into the fundamental principles of neuroscience, spanning the intricate cellular mechanisms underlying neuronal function to the complex neural networks orchestrating behavior and cognition.		
Topic 1: EEG (Neuroscience)		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Express the fundamental principles of neuroscience, including the structure and function of neurons, synaptic transmission, and neural plasticity.	Lectures Case studies Discussion	S, ME
2- Explore the intricate cellular mechanisms underlying neuronal function.		S, ME
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Analyze EEG data to identify characteristic patterns associated with various sleep stages, sleep disorders and neurological conditions.	Clinical rotation Bedside teaching Simulation Lab practice	ME, COL
2- Discuss emerging research trends and advancements in neuroscience and sleep medicine.		ME, COL, COM
3- Implement quality assurance measures to ensure the accuracy, reliability, and safety of EEG recordings in sleep laboratories and clinical settings.		COL, COM, P, HA, L

Learning Domains: Attitude	
Upon completion of this module, trainees should be able to:	
1- Commitment to patient-centered care, prioritizing the well-being and comfort of individuals undergoing sleep studies and treatment for sleep disorders.	HA, COL, COM

Module Description: This module is designed to introduce basic mechanical ventilation from understanding the physiological basis of breathing to mastering the various modes of ventilation and interpreting ventilator waveforms		
Topic 2: Basic mechanical ventilation		
Learning Objectives	**Teaching/Learning Strategies**	**Competency Roles**
Learning Domains: Knowledge		
Upon completion of this module, trainees should be able to:		
1- Describe the components and functions of mechanical ventilators.	Lectures Case studies Discussion	S
2- Explain the physiological effects of mechanical ventilation.		S, ME
3- List the indications for mechanical ventilation.		P
Learning Domains: Skills		
Upon completion of this module, trainees should be able to:		
1- Interpret ventilator waveforms and respiratory parameters.	Clinical rotation Bedside teaching Simulation Lab practice	S, ME, COL
2- Perform troubleshooting and problem-solving techniques for common ventilator-related issues.		ME, L
3- Adjust mechanical ventilation parameters based on blood gas results.		ME, COM, L
Learning Domains: Attitude		
Upon completion of this module, trainees should be able to:		
1- Uphold patient safety and comfort as paramount values in the delivery of mechanical ventilation.		P, HA, COL, COM

The following highlights the responsibilities of the RDS:

❖ Function

- Perform basic PSG and associated interventions.

❖ Testing Preparation Procedures:

- Assist in the preparation and calibration of equipment to function properly.
- Assist in applying electrodes and sensors according to the standards.
- Assist in performing appropriate physiological calibrations to ensure proper signals.
- Assist in performing routine PAP mask fittings.

❖ PSG Procedures:

- Follow the procedural protocols.
- Follow the “lights out” procedures to establish and document baseline values.
- Perform sleep study tracing quality to ensure that the signals are artifact-free.
- Document routine observations.
- Assist with appropriate interventions.
- Follow “lights on” procedures to verify the integrity of the collected data.
- Demonstrate knowledge and skills.

❖ Service Management and Professional Issues

- Complies with applicable laws, regulations, guidelines, and standards regarding safety and infection control
- Participate in equipment care.
- Basic Cardiopulmonary Life Support certification.
- Demonstrate effective written and spoken English and Arabic communication skills.
- Demonstrate the ability to follow the direction.

X. TEACHING METHODS:

The teaching process in the postgraduate sleep study diploma training program is mainly based on the principles of adult learning theory. Trainees are expected to be aware of the importance of learning and play active roles in the content and process of their learning. The training programs implement the adult learning concept in each feature of the activities, where the residents are responsible for their own learning. Formal training time includes the following three teaching activities:

1. Program Specific Learning Activities
2. Universal topics
3. General Learning Opportunities

1. Program-Specific Learning Activities:

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

Year	Module	Outlines
Modules of first year training	Orientation	• General hospital orientation program • General departmental orientation • Policies and procedures • Hospital mandatory training courses • Infection control • BLS
	Module 1: Introduction to sleep disorders	See program rotation for more details
	Module 2: Introduction to sleep laboratory (equipment/montage)	
Modules of second year training	Module 3: Diagnostic test analysis	See program rotation for more details
	Module 4: Treatment and management of sleep disorders	
	Module 5: Research in sleep	
	Module 6: Pediatric sleep	

The trainees should feel the importance of learning and play active roles in the content and learning processes. Formal training time includes the following two formal teaching activities:

1.1 Program Academic Half-Day Activity:

At least 2 h of formal training per week (commonly referred to as the academic half-day). Formal teaching time is a pre-arranged event involving an assigned tutor, time slots, and venue. Formal teaching time does not encompass activities such as bedside teaching or clinical postings. The academic half-day covers core specialty topics determined and approved by the specialty scientific council, aligned with specialty-defined competencies and teaching methods. The core specialty topics ensure that important clinical problems in the specialty are adequately taught. It is recommended to conduct lectures in an interactive way, in a case-based discussion (CBD) format. Each learning objective of the core topic must be defined, and it is preferable to use pre-learning materials. Educators should ensure that each topic of discussion is stratified into three categories in the learning domain: knowledge, skill, and attitude.

The recommended sessions of "academic half-days" comprise the following: theoretical lectures and case discussions based on PSG scoring/troubleshooting. This half-academic day should be an interactive conference in which both sleep faculty and trainees present interesting cases and PSG findings. The topics covered in the half-day academic activities are presented in **Appendix B.**

2.1 Logbook

The trainee is expected to fulfil the following requirements in the logbook:

2.1.1. Setting/hooking up and scoring/interpreting:

- A minimum of **200** PSG.
- A minimum of **100** titration studies for PAP therapy.
- A minimum of **15** MSLT cases.
- A minimum of 20 PSG following a split-night protocol.
- A minimum of **50** pediatric PSG.
- A minimum of **100** sleep studies using portable devices

2.2 Interpret a minimum of 50 patients using sleep logs and actigraphy.

3. Universal Topics

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

- High value
- Interdisciplinary and integrated
- Require expertise that might be beyond the availability of the local 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 has a self-assessment at the end. 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 at residency level. Universal topics will be distributed throughout the training period. The table below shows the universal topics and years required for their completion. **Example table for Universal Topics distributed over training years:**

Training Year	Modules		Topics name	
	Number	Name	Number	Name
First year	Module 1	Medical fundamentals	Topic 2	Hospital-acquired infection
			Topic 3	Antibiotic stewardship
			Topic 5	Safe drug prescription
	Module 3	Diabetes and metabolic disorders	Topic 10	Diabetic emergencies
			Topic 12	Obesity
	Module 4	Medical and surgical emergencies	Topic 14	Acute chest pain
			Topic 15	Acute breathlessness
			Topic 16	Altered sensorium
			Topic 17	Hypotension
			Topic 18	Hypertension
			Topic 21	Abnormal ECG
Second year	Module 5	Acute care	Topic 22	Pre-operative assessment

Training Year	Modules		Topics name	
	Number	Name	Number	Name
			Topic 24	Acute and chronic pain management
			Topic 26	Management of electrolyte imbalances
	Module 7	Ethics and healthcare	Topic 31	Occupational hazards of healthcare workers
			Topic 32	Evidence-based approach to smoking cessation
			Topic 33	Patient advocacy
			Topic 34	Organ transplantation
			Topic 35	Autonomy and treatment refusal
			Topic 36	Death and dying

4. General Learning Opportunities:

Formal training time should be supplemented by other practice-based learning such as

4.1 Journal Club:

A journal club is an educational tool aimed at enhancing knowledge of certain related topics and keeping trainees updated on new trends and evidence-based practices. This will promote their research skills by encouraging them to critique and evaluate current research findings.

4.2 Continuous professional development activities relevant to the specialty (conferences and workshops)

Continuous professional development involves lifelong learning. Trainees will have the opportunity to update their knowledge, sharpen their skills, and/or refresh existing information by attending conferences, symposiums, workshops, scientific meetings, or short courses on relevant topics.

XI. ASSESSMENT AND EVALUATION

1. Purpose of Assessment

Assessments play a vital role in postgraduate training success. Assessment guides trainees and trainers in achieving defined standards, learning outcomes, and competencies. However, assessments provide feedback to learners and faculty regarding curriculum development and implementation, teaching methods and the quality of the learning environment. A reliable and valid assessment is essential to evaluate curriculum alignment with respect to objectives, learning methods, and assessment tools. Finally, the assessment ensures that health professionals are safe and competent.

Assessment can serve the following purposes:

1.1 **Assessment for learning**: Trainers use information from trainees' performances to inform their learning for improvement. This enables educators to use information about trainees' knowledge, understanding, and skills to provide feedback on learning and ways to improve.

1.2 **Assessment as learning** involves trainees in the learning process while enabling them to monitor their progress. Trainees use self-assessment and educator feedback to reflect on their progress. It develops and supports trainees' metacognitive skills. Learning assessment is crucial for helping residents/fellows become lifelong learners.

1.3 **Assessment of learning** used to demonstrate the achievement of trainees' learning. This is a graded assessment that usually counts toward the trainees' end-of-training degree.

1.4 **Feedback and evaluation** as assessment outcomes represent quality metrics that can improve the learning experience.

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

2. General Principles:

- Trainees, as adult learners, should strive to seek and develop their performance based on feedback throughout their journey of competency from the "novice" to "master" level.
- Assessment should be continuous and strongly linked to curriculum and course content.
- There is no single approach to competency-based assessment; each must be responsive to the needs of the situation.
- The assessment must not discriminate against individuals or groups.
- The assessment will be reviewed periodically by the diploma training committee to identify aspects that may require further emphasis or counseling.
- The Saudi Diploma in Sleep Studies program evaluation consists of formative and summative assessments. Formative assessments include portfolios, CBD, attendance, and Direct Observation of Procedural Skills (DOPS). Summative assessment includes the final written examination and the final clinical/practical examination in accordance with the current approved SCFHS examination blueprint.
- The trainee and trainer must review the portfolios and logbooks every three months. Trainees should be provided with feedback in formal sessions throughout the rotation to explore their strengths and weaknesses, and improvement plans should be revealed in the ongoing learning contracts.
- Guidance and training for trainers/evaluators should be provided for better use of workplace-based assessment (WPBA), CBD, and DOPS tools for each trainee according to their level.

- A portfolio is a prerequisite for summative assessment and will not be included in the final score. Candidates must score 70% or higher in their portfolios to be eligible for summative assessment.

3. Formative Assessment

A Formative assessment is an assessment component distributed throughout the academic year. The primary aim of Formative Assessment is to provide trainees with healthy, and helpful feedback. The annual summation of the overall productive assessment tools will be used at the end of each year to determine whether individual trainees will be promoted to the next level of training. Formative assessment will be based on scientific committee recommendations (usually updated and announced for each program at the beginning of the academic year).

Gen./Sub.	Level	Knowledge			Skills				Attitude
		Academic Activities	CBD	Progress written exam	Research	DOPS	Logbook	Other	ITERS
	First Year	✓	✓	✓	✓	✓	✓		✓
	Second Year	✓	✓		✓	✓	✓		✓

ITERS: In-Training Evaluation Forms

Description Table of Formative Assessment Tools:

Learning Domains	Assessment Tool	Requirements
Knowledge	Academic Activities	D1–D2: Trainees must attend scheduled academic activities. Any excused absence must be approved by the program director
	CBD	D1–D2: Trainees are required to do a minimum of six CBD/academic year. Results on forms are for formative feedback purposes and improvement
	Progress test/exam	D1: Trainees are required to take the progress test/exam according to SCFHS criteria
Skills	Research	D1–D2: ❖ (First year): Trainees are required to complete at least one proposal writing **and** submit it to the PD for promotion. The results on the evaluation form are for formative feedback purposes only and not pass/fail. Idea formation: 10% Proposal writing: 50% Submitting: 40% ❖ (Second Year): Trainees are required to complete data collection, data analysis, write up, **and** submit to the TPC (Training Program Committee) for completion of training. Data collection: 10% data analysis: 20%

Learning Domains	Assessment Tool	Requirements
		Write up: 40% Submission: 30%
	Logbook	D1–D2: Trainees are required to fill the logbook as per the logbook (**Assessment system**) and complete the requirements (by number of procedures) that will be translated to the SCFHS criteria.
	DOPS	D1–D2: Trainees are required to do a minimum of four satisfactory DOPS/academic year
Attitude	ITER	D1–D2: All ITERs must be completed. ITERs are used as end-of-rotation evaluations following SCFHS policies and criteria for ITERs.

According to the executive policy on continuous assessment (available online: www.scfhs.org), formative assessments (Appendix H) have the following features:

A. **Multisource: Minimum of four tools.**
B. **Comprehensive: Covers all learning domains (knowledge, skills, and attitudes).**
C. **Relevant: Focus on workplace-based observations.**
D. **Competency-milestone oriented: Reflecting on the expected competencies of a trainee to match the developmental level of the trainee.**

Trainees should actively seek feedback during their training. Trainers are expected to provide timely formative assessments. The SCFHS provides an e-portfolio system to enhance communication and analyze data arising from formative assessments.

The WPBAs will be composed of the following:

3.1.1 CBD: Three every 6 months

3.1.2 DOPS:

- Minimum two every 6 months (four per academic year)

1.2 CBD (6 per year)

The CBD assesses the performance of a trainee in the management of a patient to provide an indication of competence in areas such as clinical reasoning, decision-making, and the application of medical knowledge in relation to patient care. Moreover, it serves as a method to document conversations, presentations, and cases by trainees. The CBD should include a discussion about a written record (such as written case notes, outpatient letters, and discharge summaries) (**Appendix D**).

Basic Topics of CBD

3.2.1 Interprofessional relationships

3.2.2 Doctor/patient relationships

3.2.3 Record keeping

3.2.4 Appropriate referrals

3.2.5 Recognition, assessment, and management of critical change in patient pathway

3.2.6 Shared care in different settings

3.2.7 Management of concurrent clinical problems

3.2.8 Discipline and reliability

3.2.9 Ethical standards

3.2.10 Teamwork and leadership

1.3 DOPS (4 per year)

The DOPS is an assessment tool designed to assess the performance of a trainee undertaking a practical procedure using a structured checklist. The trainees received immediate feedback to identify their strengths and areas for development (Appendix E).

List of DOPS

3.3.1 Patient Preparation for PSG Study

3.3.2 10—20 system electrodes application

3.3.3 EOG electrodes applications

3.3.4 ECG electrodes applications

3.3.5 Respiratory effort monitoring belts applications

3.3.6 Limb electrodes applications

3.3.7 PSG montage

3.3.8 Signal recording for PSG: Calibration and recording

3.3.9 Artifacts troubleshooting

3.3.10 Adult Sleep Stage Scoring

3.3.11 Apnea/Hypopnea Scoring

3.3.12 Periodic Limb Movement Scoring

3.3.13 CPAP and Bilevel PAP Titration

3.3.14 Sleep parameters calculations

3.3.15 Low-flow oxygen therapy during PSG

3.3.16 Capnography and pulse oximetry during PSG

1.4 Logbook

Academic and clinical logbook assignments should be documented annually on an electronic tracking system (eLogbook, when applicable). Evaluations are based on accomplishing the minimum requirements for procedures and clinical skills as determined by the program (**Appendix C**).

1.5 Portfolio

A portfolio is a collection of trainees' work that provides evidence of their knowledge, skills, and professional growth through self-reflection. The portfolio should be assessed every 3 months by a supervisor or mentor (**Appendix F**).

1.6 ITER

At the end of each rotation, an evaluation form (ITER) should be completed, and the trainee should receive rotation feedback.

1.7 Research project

- The final study proposal describes the trainees' research plan. It is designed to convince the advisor that the trainee has a clear research plan and has started the research process (**Appendix G**).
- All trainees are required to conduct a research project during their training.
- In each academic year, two research days are held–mid-year research day and end-year research day–where the research project for each trainee is evaluated.

1.8 Research project Evaluation

The defense panel members will evaluate both the final written report and oral presentation. The grades will be distributed in the fourth rotation as follows:

- Final research proposal form (10% of the total grade) by the end of week 5.
- Final research report (60% of the total grades) by the end of week 18.
- Final research oral presentation and discussion (30% of the grade) in week 20.

1.9 First Year Promotion Examination

This written examination comprises multiple-choice questions (MCQs) and is conducted at the end of the first year. The number of exam items, eligibility requirements, and passing scores are determined according to the applicable SCFHS training and examination regulations.

Contents					
Categories	Sections	Proportions	Medical science	Diagnosis	Interpretation/Management
Physiology (10%)	Sleep Physiology	10%	10	0	0
Technology (30%)	Polysomnography	20%	5	5	10
	PAP Devices	10%	2	4	4
Sleep Disorders (60%)	Sleep-related breathing disorders	30%	10	10	10
	Sleep-related movement disorders	10%	4	4	2
	Central hypersomnia	5%	1	2	2
	Parasomnia	5%	2	1	2
	Circadian rhythm	5%	2	1	2
	Other sleep disorders	5%	1	2	2
Total	100%				

Requirements for Each Year

- By the end of the first year, trainees should gain experience in the initial assessment and management of patients with common sleep disorders.

By the end of year 1, competence must be demonstrated via:

CBD

DOPS

By the end of year 2, trainees should be autonomously competent in the assessment and management of patients with sleep disorders.

By the end of year 2, competence must be demonstrated via:

CBD

DOPS

Assessment	Year 1	Year 2
DOPS	Demonstrated competence in four DOPS	Demonstrated competence in four DOPS
CBD	Six CBDs satisfactorily completed	Six CBDs satisfactorily completed
Research	Select the research topic/problem, write the proposal, apply for IRB, and start initial data collection	Complete data collection, data analysis, and prepare the manuscript for submission
Examination	Pass promotion exam	Passed the final written examination and final clinical/practical examination

4. Summative Assessment

Summative assessment primarily aims to make informed decisions about trainees' competency. Unlike formative assessments, summative assessments do not aim to provide constructive feedback. For further details, please refer to the General Bylaws of Training in Postgraduate Programs and General Assessment Bylaws (available online: www.scfhs.org). To be eligible to appear for the final exams, trainees will be granted a "Certification of Training Completion" upon successful completion of all training rotations.

Learning Domain	Summative Assessment Tools	Passing Score
Knowledge	- Final Written Examination	At least borderline pass in each tool in accordance with the standard setting method used by the executive administration of assessment
Skills	- Objective Structured Clinical Examinations (OSCE)	At least borderline pass in each tool in accordance with the standard setting method used by the executive administration of assessment
	- Structured Oral Examinations (SOE)	
Attitude	- FITER: In-Training Evaluation Report	Successfully pass FITER

5. Final In-Training Evaluation Report (FITER)

In addition to the approval of the completion of clinical requirements by the supervising committee, the FITER is prepared by the program directors for each trainee at the end of their final year of training. This report shall be the basis for obtaining a Training Program Completion certificate and qualification to sit for promotion/final examinations.

According to the executive policy of continuous assessment, trainees must earn a specified minimum grade (borderline pass) in every component of the continuous assessment tools to be eligible for promotion.

6. Objective Structured Clinical Examinations

An OSCE usually comprises a circuit of short (usually 5–15 min) stations in which each trainee is examined on a one-to-one basis with one or two impartial examiner(s) and either real or simulated patient(s). A different investigator will examine each station separately. The trainees rotate through the stations, completing all the stations in their circuit. Thus, all trainees take the same station.

7. SOEs

The final clinical/practical examination consists of four graded Structured Oral Examination (SOE) stations, each with a 10-minute encounter and 1–2 examiners. The examination format should follow the current approved SCFHS examination blueprint.

8. Final Specialty Examination

The final specialty examination is a summative assessment component that grants trainees certification of the specialty. It comprises the following two elements:

a. Final written exam

b. Final clinical/practical exam

- Exam eligibility: As per SCFHS general exam rules and regulations (scfhs.org.sa).
- Exam rules: As per SCFHS general examination rules and regulations (scfhs.org.sa).
- Exam format: As per SCFHS general exam rules and regulations (scfhs.org.sa).
- The questions cover all aspects of sleep studies, as shown in the blueprint.
- Passing score: In accordance with the training and examination rules and regulations of the Commission. No negative marking will be provided, according to the SCFHS rules.

Blueprint Outlines:

Blueprint of the final written exam is shown in the following table:

Contents					
Categories	Sections	Proportions	Medical science	Diagnosis	Interpretation /Management
Physiology (5%)	Sleep Physiology	5%	5	0	0
Technology (45%)	Polysomnography	30%	10	10	10
	PAP Devices	10%	2	4	4
	Ancillary Tests	5%	1	2	2
Sleep Disorders (45%)	Sleep-related Breathing Disorders	20%	10	5	5
	Sleep-related Movement Disorders	5%	2	2	1
	Central Hypersomnia	5%	1	2	2
	Parasomnia	5%	2	1	2
	Circadian Rhythm	5%	2	1	2
	Insomnia	5%	1	2	2
Psychiatry (5%)	Psychological Disorders	5%	2	2	1
Total	100%				

For further details on the final exams, please refer to the General Bylaws of Training in Postgraduate Programs and General Assessment Bylaws (available online: www.scfhs.org).

Certification of training completion to be eligible to sit for the final specialty examinations:

Each trainee is required to obtain a Certification of Training Completion. Based on the training bylaws and executive policy, trainees will be granted Certification of Training Completion upon the successful completion of all training rotations.

XII. PROGRAM AND COURSE EVALUATION

The SCFHS will apply various measures to evaluate the implementation of the curriculum. The training outcomes of this program will follow the quality assurance framework endorsed by the Central Training Committee of 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:

- Report of the annual trainees satisfaction survey.
- Reports from trainees' evaluations of faculty members.
- Reports from trainees' evaluations of rotations.
- Reports from the annual surveys of program directors.
- Data available from program accreditations.
- Reports from direct field communications with trainees and trainers.

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 using 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 use all data available during its revision in the future.

XIII. POLICIES AND PROCEDURES

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 and 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, which can be accessed online (via the official SCFHS website).

XIV. APPENDICES

A. Scope of Practice

B. Lectures of Half-Academic day

C. Logbook

D. Case-Based Discussion

E. Direct Observation of Procedural Skills

F. Portfolio Assessment

G. Research Project Proposal Form

H. Formative Assessment

I. References

Appendix A

Scope of Practice:

PSG is an allied healthcare profession that embraces unique knowledge and skillsets. Sleep disorder practitioners work as part of a team under the supervision of a licensed physician to assist in the diagnosis, treatment, education, and follow-up of patients of all ages with sleep disorders.

Sleep disorder professionals are trained to perform PSG and other tests to diagnose and treat sleep disorders.

PSG involves the monitoring, interpretation, and recording of physiological data during sleep and wakefulness. Moreover, it provides safe, preventive, and therapeutic PSG services.

The scope of practice of a licensed polysomnographic practitioner includes the following:

- Analyzing, monitoring, scoring, and recording the physiological data of the patient during sleep.
- Assisting with the diagnosis and treatment of patients with sleep disorders.
- Titration of PAP devices setting.
- Supplemental low-flow oxygen therapy during PSG.
- Capnography and pulse oximetry during PSG.
- pH probe placement and monitoring.
- Sleep stages, including surface electroencephalography, surface electrooculography, and surface submental electromyography.
- Electrocardiography.
- Monitoring the respiratory effort of the patient, including thoracic and abdominal signals.
- Plethysmography blood flow.

- Nasal and oral airflow monitoring.
- Body temperature monitoring.
- Audio/video surveillance of movement and behavior during sleep.
- Monitoring various modalities of PAP used to treat sleep-related breathing disorders.
- Observing and assessing physical signs and symptoms, general behavior, and overall physical responses during PSG, educating patients and caregivers.

Appendix B

Lecture for half-academic day:

Wake-Sleep Mechanisms
Control of Breathing during Sleep
Cardiovascular Physiology during Sleep
Endocrine Gastrointestinal Physiology
Temperature and Thermoregulation
Circadian Rhythm in Humans
Pharmacology of Sleep and Wakefulness (Hypnotics and Stimulants)
Approach to Patients with Disordered Breathing
Approach to Patients with Excessive Sleepiness
Polysomnography
Portable Monitoring
MSLT and MWT
Anatomy and Physiology of the Upper Airway

Obstructive Sleep-Disordered Breathing
PAP Therapy for OSA
Alternative Treatment for OSA (Surgical and Oral Appliances)
Central Sleep Apnea and Cheyne-Stroke Respiration
Obesity Hypoventilation Syndrome
Sleep in Other Respiratory Disorders
Narcolepsy
Other Causes of Hypersomnia
Overview and Diagnosis of Insomnia
Management: Behavioral and Pharmacological
Circadian Rhythm Disorders
RLS and PLMs
Epilepsy and Sleep
Sleep in Other Neurological Disorders
NREM Sleep Arousal Parasomnias

REM Sleep Parasomnias
Safety of the Patient
Education Level of the Patient
Sleep Center Administration

Appendix C

Log Book:

1. Record and document all academic activities (e.g., procedures, lectures, journal clubs, meetings, training courses, workshops, symposia, and case presentations) undertaken during the training program.
2. Assist the trainee in identifying deficiencies in specific areas.
3. Assist the program director/evaluator in documenting the contributions and evaluations of trainees.
4. Provide the evaluator with guidance on appropriate and fair assessment of trainees.
5. Provide the program director with guidance on deficiencies in training.

Guidelines for trainee:

1. Trainees are required to maintain log books for the entire training period.
2. Logbook entries concerning recorded activities should be completed on the day the activities are conducted.
3. All entries must be signed by a mentor within 1 week.
4. Trainees must discuss their training progress, as indicated in the logbook, with their mentors and/or program directors every month.
5. Trainees should submit their completed logbooks to the program director at the end of the rotations and training for subsequent submission to the Scientific Committee.
6. If the program director does not sign the logbook, the trainee will be ineligible for the end-of-training certification and final examinations.

Procedures Logbook

Date	MRN	Age/Sex	Procedure Name	Supervising Consultant	Comments

Trainee Name: ..... Signature: .....

Appendix D

Case-Based Discussion

The purpose of this encounter is to evaluate the level of professional judgment exercised by trainees in clinical cases.

The CBD is designed to:

- Guide the learning of trainees through structured feedback.
- Help improve clinical decision-making, clinical knowledge, and patient management.
- Provide the trainee with the opportunity to discuss their approach to the case and identify strategies to improve their practice.
- Be a teaching opportunity that enables the evaluator to share their professional knowledge and experience.

Overview:

A CBD encounter involves a comprehensive review of clinical cases between a trainee and evaluator. The trainee is given feedback from an evaluator across a range of areas related to clinical knowledge, clinical decision-making, and patient management. A CBD encounter takes approximately 20–30 min.

Trainee responsibilities:

- Arrange a CBD encounter with an evaluator.
- Provide the evaluator with a copy of the CBD rating form.

Evaluator responsibilities

- Choose the case(s) for discussion.
- Use the CBD form to rate the trainee.
- Provide constructive feedback and discuss improvement strategies.
- Provide an overall judgment of clinical decision-making skills of the trainee

Case-Based Discussion Rating Form

Trainee name: .....

Registration no: .....

Level: ..... Date: .....

Brief summary of case:

□ New example □ Follow-up case

□ Inpatient	□ Ambulatory	□ Emergency	□ Department	□ Other	
Complexity					
□ Low	□ Moderate	□ High			
Focus					
□ Data	□ Gathering	□ Diagnosis	□ Therapy	□ Counseling	□ Other

Assessment Score for the Stage of Training:

Questions	Unsatisfactory			Satisfactory			Superior		
	1	2	3	4	5	6	7	8	9
Clinical assessment									
Investigation and referrals									
Treatment									
Follow-up and future planning									
Professionalism									
Clinical judgment									
Leadership/managerial skills									
Overall performance									
Suggestions for improvement									

.....

.....

.....

Evaluator name: .....

Signature:

.....

.....

Appendix E

Direct Observation of Procedural Skills

Direct Observation of Procedural Skills (DOPS) Assessment Form			
Trainee's name:			
Registration no:			
Observation		Registration #	
Observed by		Date	
Signature of supervising doctor			

Description	Satisfactory	Unsatisfactory	Comment
Understands the indications for the procedure and clinical alternatives			
Clearly explains plans and potential risks in a manner that the patient understands			
Possesses a good understanding of the theoretical background of the procedure including anatomy, physiology, and imaging			
Demonstrates good advance preparation for the procedure			

Direct Observation of Procedural Skills (DOPS) Assessment Form			
Communicates plan for procedure to relevant staff			
Demonstrates awareness of risks of cross-infection and effective aseptic technique during procedure			
Understands procedure success or failure in the current setting			
Copes well with unexpected problems			
Handles patients gently and skillfully			
Maintains accurate and legible records including descriptions of problems or difficulties			
Issues clear post-procedure instructions to patient and/or staff			
Seeks at all times to work at the highest professional standards			

ASSESSMENT	
Practice was satisfactory	
Practice was unsatisfactory	
Examples of good practice: .... Areas of practice requiring improvement: .... Focus areas for further learning and experience:	
ASSESSMENT	

Appendix F

Portfolio Assessment

(This form is to be completed at least every 3 months during the mentoring/supervision meetings with the trainee)

Trainee Name: ..... Level: .....

Mentor Name: .....

Date: ..... Time: .....

Clinical Rotation: ..... Rotation: .....

Duration: .....

Domain		Achievement Required	Scoring 0 = Poor ↔ 4 = outstanding					Remarks
Mini-CEX (1/3 months)	Minimum Number Achieved	Did the trainee complete a minimum of two Mini-CEX in the last 3 months?	0	1	2	3	4	
	Competency Assessment Score	What were the average assessment results?	0	1	2	3	4	
DOPs (1/3 months)	Minimum Number Achieved	Did the trainee complete a minimum of one DOPS in the last 3 months?	0	1	2	3	4	
	Competency Assessment Score	What were the average assessment results?	0	1	2	3	4	
Learning objectives (2–3 objectives/week)		Did the trainee complete at least one sheet for the learning objectives, for an average of 2–3 objectives every week, with feedback signed by the trainer?	0	1	2	3	4	
Evidence of self-directed learning		Did the trainee show any documentation of self-directed learning (CME, topic review, course, and workshop)?	0	1	2	3	4	
Overall assessment of portfolio			/18					/50

Comments:

.....

.....

.....

.....

.....

Original for program secretary/trainee file

Copy for the trainee

Appendix G

Research Project Proposal Form

FINAL PROJECT PROPOSAL FORM
Trainee Name: .....
Project Advisor: .....
Project Title: .....
Written Component (research question):
....
Project Goal (expectations and benefits of this project):
....
Project Design and Methods:
....

FINAL PROJECT PROPOSAL FORM	
Trainee Signature:	Date: .....
Project Advisor Signature:	Date: .....
☐ Project Approved:	
Faculty Member Signature:	Date: .....
Project Advisor Signature:	Date: .....

☐ Project Rejected:		
Faculty Member Signature:		Date: .....
Project Advisor Signature:		Date: .....
REASONS FOR REJECTION:		
☐ Topic too broad	☐ Inappropriate topic	☐ Others (Please specify)
.....		
.....		
.....		
.....		
.....		

Progress Report Form	
Trainee Name:	
Project Advisor:	
Project Title:	
Project Achievements:	
....	
Trainee Signature:	Date: .....
Project Advisor Signature:	Date: .....
Trainee Signature:	

Appendix H:

Formative Assessment Tool

Milestone Code	Milestone	Stage: Junior (Y1)					Stage: Senior (Y2)						
		Y1	Y1	Y1	Y1	Y1	Y2	Y2	Y2	Y2	Y2	Y2	Y2
		Introduction	Polysomnography	Portable Sleep Medicine	CPAP and NIV Devices	Research	Pediatric Sleep	Ancillary Tests	Polysomnography	PAP Clinics	EEG (Elective)	Pulmonary Function Tests	General Respiratory Therapy course
		1 block	6 blocks	2 blocks	2 blocks	1 block	1 block	1 block	6 blocks	2 blocks	1 block	1 block	1 block
ME-K1	Identify the purpose and minimum parameters of attended PSG and related in-lab tests (MSLT, MWT); explain procedures to patients/family.	CbD × 1	CbD × 1					CbD × 1	CbD × 1		CbD × 1	CbD × 1	
ME-S1	Apply 10–20 system electrode placement and run biocalibration. Set sampling rates and filters appropriately		DOPS × 2; CbD × 1						DOPS × 2; CbD × 1				

Milestone Code	Milestone	Stage: Junior (Y1)					Stage: Senior (Y2)						
		Y1	Y1	Y1	Y1	Y1	Y2	Y2	Y2	Y2	Y2	Y2	Y2
		Introduction	Polysomnography	Portable Sleep Medicine	CPAP and NIV Devices	Research	Pediatric Sleep	Ancillary Tests	Polysomnography	PAP Clinics	EEG (Elective)	Pulmonary Function Tests	General Respiratory Therapy course
		1 block	6 blocks	2 blocks	2 blocks	1 block	1 block	1 block	6 blocks	2 blocks	1 block	1 block	1 block
ME-P1	Troubleshoot artifacts and optimize recording quality during polysomnography.		DOPS × 2; CbD × 1						DOPS × 2; CbD × 1				
COM-A1	Provide clear patient instructions and consent/education for sleep testing and portable monitoring.		CbD × 1	CbD × 1				CbD × 1	CbD × 1		CbD × 1	CbD × 1	
ME-S2	Perform PAP titration, modify settings per AASM guidance, and provide oxygen when indicated.				DOPS × 1; CbD × 1					CbD × 1			CbD × 1
HA-P1	Adhere to infection control, electrical/fire	CbD × 1	CbD × 1						CbD × 1				CbD × 1

Milestone Code	Milestone	Stage: Junior (Y1)					Stage: Senior (Y2)						
		Y1	Y1	Y1	Y1	Y1	Y2	Y2	Y2	Y2	Y2	Y2	Y2
		Introduction	Polysomnography	Portable Sleep Medicine	CPAP and NIV Devices	Research	Pediatric Sleep	Ancillary Tests	Polysomnography	PAP Clinics	EEG (Elective)	Pulmonary Function Tests	General Respiratory Therapy course
		1 block	6 blocks	2 blocks	2 blocks	1 block	1 block	1 block	6 blocks	2 blocks	1 block	1 block	1 block
	safety, and patient safety protocols in the laboratory.												
ME-S3	Score sleep–wake stages and respiratory events; calculate indices; document results per the AASM.		DOPS × 2; CbD × 1						DOPS × 2; CbD × 1				
ME-S4	Set up, calibrate, and operate portable sleep test devices and troubleshoot technical issues.		CbD × 1	CbD × 1					CbD × 1				
COM-COL1	Communicate results and handover effectively to interdisciplinary teams;		CbD × 1		DOPS × 1; CbD × 1			CbD × 1	CbD × 1	CbD × 1	CbD × 1	CbD × 1	CbD × 1

Milestone Code	Milestone	Stage: Junior (Y1)					Stage: Senior (Y2)						
		Y1	Y1	Y1	Y1	Y1	Y2	Y2	Y2	Y2	Y2	Y2	Y2
		Introduction	Polysomnography	Portable Sleep Medicine	CPAP and NIV Devices	Research	Pediatric Sleep	Ancillary Tests	Polysomnography	PAP Clinics	EEG (Elective)	Pulmonary Function Tests	General Respiratory Therapy course
		1 block	6 blocks	2 blocks	2 blocks	1 block	1 block	1 block	6 blocks	2 blocks	1 block	1 block	1 block
	document accurately.												
ME-S5	Select PAP interfaces, maintain devices, and troubleshoot adherence and equipment issues.				DOPS × 1; CbD × 1					CbD × 1			CbD × 1
ME-PED1	Prepare pediatric patients, perform pediatric PSG, and score pediatric respiratory events.						DOPS × 1; CbD × 1						
SCH-RES1	Develop research proposal, collect/analyze data, and present findings, and					Portfolio; CbD × 1							

Milestone Code	Milestone	Stage: Junior (Y1)					Stage: Senior (Y2)						
		Y1	Y1	Y1	Y1	Y1	Y2	Y2	Y2	Y2	Y2	Y2	Y2
		Introduction	Polysomnography	Portable Sleep Medicine	CPAP and NIV Devices	Research	Pediatric Sleep	Ancillary Tests	Polysomnography	PAP Clinics	EEG (Elective)	Pulmonary Function Tests	General Respiratory Therapy course
		1 block	6 blocks	2 blocks	2 blocks	1 block	1 block	1 block	6 blocks	2 blocks	1 block	1 block	1 block
	appraise literature.												
P-LOG1	Maintain an e-logbook of procedures and academic/clinical activities with signatures.	Logbook	Logbook	Logbook	Logbook	Logbook	Logbook	Logbook	Logbook	Logbook	Logbook	Logbook	Logbook
P-PORT1	Maintain portfolio and attend quarterly reviews (≥70% for summative eligibility).	Portfolio (Quarterly)	Portfolio (Quarterly)	Portfolio (Quarterly)	Portfolio (Quarterly)	Portfolio (Quarterly)	Portfolio (Quarterly)	Portfolio (Quarterly)	Portfolio (Quarterly)	Portfolio (Quarterly)	Portfolio (Quarterly)	Portfolio (Quarterly)	Portfolio (Quarterly)
P-ITER1	Achieve ≥ borderline pass in end-of-rotation ITER with feedback.	ITER (per rotation)	ITER (per rotation)	ITER (per rotation)	ITER (per rotation)	ITER (per rotation)	ITER (per rotation)	ITER (per rotation)	ITER (per rotation)	ITER (per rotation)	ITER (per rotation)	ITER (per rotation)	ITER (per rotation)

Abbreviations Used:

EPA: Entrustable Professional Activities | MS: Milestones | Y1, Y2: Training Years

CbD: Case-based Discussion | DOPS: Direct Observation of Procedural Skills | ITER: In-Training Evaluation Report

Portfolio: Trainee portfolio (quarterly review) | Logbook: Procedural/clinical activities log

PSG: Polysomnography | PAP: Positive Airway Pressure | NIV: Noninvasive Ventilation | PFT: Pulmonary Function Tests

SDC: Sleep Disorders Center

Tool Utilization (COUNTIF across matrix):

DOPS	**10**	
CbD	**37**	
Portfolio	**12**	
Logbook	**11**	
ITER	**11**	

Appendix I

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