





To establish a state of the art center capable of diagnosing and treating all sleep disorders as well as to participate in the developing of sleep Medicine regionally.

#### MISSION

To provide comprehensive diagnosis and treatment of sleep / wake disorders to the community by maintaining the highest standards of care and embracing the visions and standards of KAUH.

مركبز طب ويحبوث النبوم Sleep Medicine & Reseach Center

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# SLEEP MEDICINE FELLOWSHIP (High Diploma) FOR PHYSICIANS

Sleep Medicine and Research Center

King Abdulaziz University Hospital







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## 1. INTRODUCTION

The sleep Medicine fellowship is of TWO (2) years duration for physicians. However, for those holding a pulmonary or intensive care board, the program can be waved for **ONE** (1) **year** only (See item number 10). It is composed of theoretical didactic part and practical part help in building good experiences in a variety of clinical settings involving real patients with sleep problems.

Our program accepts one new (1) fellow at a time each year. The fellow will be expected to show increasing level of knowledge and skill in areas of basic medical and clinical assessment, differential diagnosis, appropriate testing and analysis, patient care management, and high leadership quality. At the end of 2 years the trainee is expected to achieve the level of independence to practice as a trained and certified sleep physician and able to diagnose and treat most sleep disorders.

## **Program Director:**

Dr. Siraj O. Wali Consultant in Pulmonary and Sleep Medicine

## **Training Committee:**

Prof. Siraj O. Wali

Dr. Faris Alhujaili

Dr. Haitham O. Tayeb

Dr. Ayman Badr Krayem

Dr. Alaa Ghabashi

## Other services and staff members participating in the program:

- **ENT service:** Prof. Khalid Alnour

- **Neurology Service:** Dr. Omar Ayoub

- **Psychiatry / Neuropsychiatry:** Dr. Haitham O. Tayeb

- **Dental Service:** Dr. Maisaa Alsebaie







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### 2. OBJECTIVES:

The objectives of Sleep Medicine Fellowship is to provide candidates with learning experiences which will ensure that they will be competent in the discipline of sleep medicine with special skills in the diagnosis and management of Sleep Disorders at a specialist level. Specifically, candidates at the end of their training will be able to perform the following skills in a manner expected from a sleep specialist:

- Participate in an interdisciplinary care of patients of all ages that incorporates aspects of psychiatry, neurology, internal medicine, epidemiology, surgery, paediatrics and basic science;
- Learn the physiology and neurobiology underlying sleep and wakefulness:
- Diagnose and manage sleep disorder patients in outpatient and inpatient settings.

## 3. PRE-ENTRY REQUIREMENTS (Admission Criteria):

According to the requirements of the SCHS rules and regulations, the candidates can be admitted to the program provided the following conditions are met. The candidates must

- Possess a certificate of the Saudi Board in Internal Medicine, Psychiatry, Neurology, or Family Medicine or its alternative.
- Pass successfully an interview and/or a selection examination.
- Provide 3 letters of recommendations from 3 consultations with whom the candidate has recently worked with, for a minimum of six months, to be sent directly to the program director.
- Register at the SCHS for this program and pay the annual registration fee.
- Provide a written permission (a release letter) from the sponsoring institution of the candidate allowing him/her to participate, on full time basis, for the entire period of the program.
- Adhere with the rules and regulation of the SCHS.







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## 4. PROGRAM STRUCTURE:

## 4.1. Sleep Medicine Rotation

This field is the bulk of this fellowship program. A fellow must spend a period of **nine months** in this rotation. It consists of several items/sessions that are summarized in table 1:

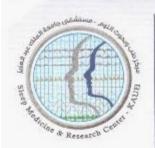
## 4.1.1 Instrumentation and Tools

## **Objectives**:

The aim of this session is to introduce fellows to the different devices, tools, and tests used in sleep medicine. It includes training on the 10-20 electrode placement system, identifying artifacts and their correction. Furthermore, familiarizing fellows with sleepiness evaluating questionnaires as well as those used for assessing the risk of sleep apnea.

## 4.1.2 Polysomnography (PSG) Scoring

- 1. This aims at enabling fellows to understand how sleep disorders are diagnosed on both, the theoretical and practical levels.
- 2. Interpreting sleep studies based on scoring sleep stages and variables such as: breathing pattern, snoring events, arousals, and cardiac rhythm.
- 3. Fellows will train on the interpretation of electroencephalography and identifying all brain waves and eventually be able to generate polysmnographic reports.
- 4. It enables the fellows to practice and interpreting different sleep studies. This requires full PSG recording of at least 30 cases, scoring, interpreting and reporting at least 100 PSG, plus at least 10 multiple sleep latency tests (MSLT), and maintenance wakefulness tests (MWT) over the two years period.







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## 4.1.3 Academic half-day session:

This is a **MANDATORY** educational session through out the 2 years of training. It covers important topics that may present by fellows as well as teaching staffs. It should cover the followings:

- 1. Reviews normal human sleep physiology, and the normal adaptations of different organ systems during sleep. Such as those that occur in the respiratory, cardiac, muscular, nervous, and endocrine systems.
- 2. Acknowledging changes in these physiological parameters with different sleep disorders such as Sleep apnea and parasomnia.
- 3. Enable fellows to deal with sleep complaints, understand the different types of sleep disordered breathing, neurological disorders and their effects on sleep, limb movement disorders, insomnia and its non pharmacological treatments, sleep disorders related to psychological diseases, hypersomnias such as narcolepsy, parasomnias, and pediatric sleep disorders

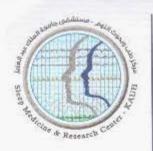
Please see attached list of educational activities; appendix A.

## 4.1.4 Outpatient Clinical Experience

## **4.1.4.1. Sleep Medicine and Research Center (SMRC) General Sleep Clinic:**

This is one clinic per week, and is **MANDATORY** throughout the 2 years of fellowship.

- 1. The fellow will have opportunity to see and follow sleepdisordered cases through outpatient clinics under supervision of the assigned sleep medicine consultant.
- 2. To see new patients, take history, psychical examination, review the appropriate investigations and put forward the management plan which will be reviewed and approved by the consultant.
- 3. Follow-up of patients seen in subsequent visits to the clinics, under supervision of the consultant.
- 4. By the end of the program the candidate should have experienced the treatment of at least 100 patients with sleep/wake disorders.







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## 4.1.4.2. SMRC-CPAP Clinic

This is **mandatory**, **one** clinic **per week**, while doing Sleep Medicine rotations only.

## **Objectives:**

- 1. Appreciate the basics of positive airway pressure (PAP) therapy.
- 2. Master all the pits and falls of using PAP devices.
- 3. Augment the fellow's knowledge regarding the types of masks available.
- 4. Recognize difficult cases and understand the indications for more advanced devices such as adaptive pressure support servo ventilation (ASV).
- 5. Educating patients regarding PAP devices.

### 4.1.5. Consultation service

During sleep medicine rotations, fellows are expected to see all inpatients referrals from other services regarding sleep related disorders.

- 1. To become familiar with more complicated cases of obstructive sleep apnoea syndrome. For example sleep apnea with asthma, COPD, or stroke.
- 2. Understand the common causes of Central sleep apnoea syndromes particularly Cheyne Stokes Respiration and its management.
- 3. Recognize the causes of hypoventilation syndromes, diagnosis, and treatment; particularly obesity hypoventilation syndrome







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## 4.1.6 Fellowship weekly activity during Sleep Medicine rotation at a glance (table 1):

	Sunday	Monday	Tuesday	Wednesday	Thursday
AM	Patient review and Scoring Sleep Consultation	Review and Scoring	Academic Day Venue: Clinical Skills Center	Patient review and Scoring Venue: SMRC	CPAP Clinic
PM	Free Reading	Sleep Clinic	Research Clinic (Optional/if applicable)	Free reading	Practical Hook Up Training Venue: SMRC 20:00 22:00

## 4.2 Mandatory Rotations Outside Sleep Medicine and Research Center:

All mandatory rotations must be taken in the first year of fellowship.

## 4.2.1 Psychiatry service:

This is a one-month CLINICAL-BASED rotation.

- 1. To have experience of common psychiatric disorders that may affect sleep, including: Mood disorders, Anxiety disorders, Somatoform disorders, and Schizophrenia.
- 2. To understand the management of insomnia from the psychiatry point of view.
- 3. To understand the basic and clinical aspects of Cognitive Behavior Therapy for Insomnia (CBT-I) and train on implementing it practically.
- 4. Familiarize with the pharmacotherapy used for the treatment of insomnia particularly and psychiatry related sleep disorders in general.







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## 4.2.2 Pediatric sleep medicine:

This is a two weeks rotation.

## **Objectives:**

By the end of this rotation the fellow should augment his/her knowledge in the following pediatric related sleep issues:

- 1. Development of sleep pattern.
- 2. The basic of sleep scoring in children.
- 3. Sleep related respiratory disorders particularly sleep apnoea in infants and children.
- 4. Circadian rhythm disorders in children
- 5. Common parasomia in children and adolescents

## 4.3 Elective Rotations:

Six weeks of elective rotation is allowed in the second year of fellowship; a minimum of two-weeks period is permitted per service. The following services are recommended:

## 4.3.1 Ear, Nose and Throat Service:

## **Objectives:**

This service provides an understanding of upper airway abnormalities and their relation to sleep disordered breathing. In addition, this rotation should provide an overview of the different surgical approaches in treating obstructive sleep apnea.

## 4.3.2 Oral-facial Maxillary Surgery Service

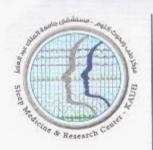
## **Objectives:**

This service is to ensure students have an outline of the different surgical treatments of obstructive sleep apnea other than approaches through nose and throat, as well as their prognosis and complications.

## 4.3.3 Orthodontics Service:

## **Objectives**:

This service provides an overview of the oral appliances used in the treatment of obstructive sleep apnea. Furthermore, fellow should be able to understand the indications and side effects of these oral appliances as well as how to overcome them.







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## 4.4 Pulmonary Service

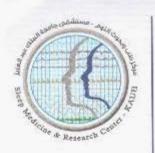
This is a **MANDATORY** rotation of six months duration for those **NOT holding the pulmonary or the intensive care board ONLY**. This must be taken during the first year of fellowship. It can be taken as one block or get distributed during the first year of the program.

## **Objectives:**

- 1. Get familiar with common respiratory diseases including airway diseases (e.g. asthma and COPD), and interstitial lung diseases (e.g. idiopathic pulmonary fibrosis) that may get worse with a coexisting sleep related breathing disorders.
- 2. Understand respiratory pump failure, which would get worse during sleep as in neuromuscular diseases, kyphoscoliosis, and severe COPD.
- 3. Recognize the pathophysiological background of central apnoea and respiratory hypoventilation syndromes.
- 4. Appreciate the mechanism of action of positive airway pressure therapy as well as the types and indications of non-invasive ventilators.

## 4.5 Research

The fellow will be expected to do a scholarly project. It is mandatory for each fellow to conduct a research project at the beginning of the 2<sup>nd</sup> year of the program. The proposal of the research project is desired to be ready by med of first year and to be in process by the beginning of 2nd year.







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## 4.6. Outline of program structure (Table 2):

		Six months	Three months	One month	2 weeks	2 weeks	One month
-	First Year	Pulmonary Consultation Services	Sleep Medicine	Psychiatry Clinics	Pediatric Sleep Medicine	Public Holidays	Annual Leave
	Second Year	Sleep Medicine	Research Period	Elective Rotations		Public Holidays	Annual Leave

## 5. RESPONSIBILITIES OF THE FELLOW:

Postgraduate trainees are nondependent practitioners. They are pursuing their objectives towards independence in a graded fashion providing health care service under appropriate supervision of their assigned clinical teachers. The final goal of the program is to bring all trainees to the point where they can act independently and demonstrate special competence in sleep medicine. Candidates must use a logbook to record all activities performed throughout the 2 years. Please see *Appendix B* for a logbook sample that can be used by candidates. The following highlight the responsibilities of the fellows:

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## **5.1 Outpatient Service:**

- 1. The fellow will have opportunity to see and follow sleepdisordered cases through outpatient clinics under supervision of the assigned sleep medicine consultant.
- 2. He/She **MUST** attend the general sleep clinic weekly over the period of two year.
- 3. His/Her responsibilities during outpatient clinics is to see new patients, take history, psychical examination, review the appropriate investigations and put forward the management plan which will be reviewed and approved by the consultant.
- 4. He/She will continue follow-up of patients seen in subsequent visits to the clinics, under supervision of the consultant.
- 5. By the end of the program the candidate should have experienced the treatment of at least 100 patients with sleep/wake disorders.

## **5.2 Inpatient and Consultation Services:**

- 1. It is the responsibility of the fellow to attend all bedside rounds (if any) on inpatients with the consultant.
- 2. The fellow will see all consultations referred to the service at any time during the day.
- 3. He/She will assess the patients initially and put forward the appropriate management and arranged for special investigations.
- 4. It is the responsibility of the fellow to follow up all consultations to the sleep service and discuss them with the assigned consultant.

## 5.3 Participation of the fellows in teaching activities

The fellow is expected to be fully involved in the educational activities of the sleep division including:

- 1. Participation in the Half Academic Day activities.
- 2. Participate actively in Jeddah Sleep Club
- 3. Contribute in resident teaching activities; in the form of approaches to common sleep problems, MCQs sessions and supervising resident rotating in sleep service.







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## **5.4 Pre-Requisite for Final Exam:**

The program will follow the training proposal made by the SCHS; Each fellow is expected to complete the following minimum requirements to graduate:

- 1. A full PSG recording procedure in a minimum of 30 patients.
- 2. The scoring, interpretation, and reporting of a minimum of 100 PSGs comprising a spectrum of neurological, cardiorespiratory, and psychiatric disorders in adults and children.
- 3. A full Multiple Sleep Latency Test (MSLT)/Maintenance of Wakefulness Test (MWT) procedure in a minimum of 10 patients.
- 4. The interpretation of relevant questionnaires and sleep/wake diaries.
- 5. Experience in treating a minimum of 100 patients with sleep/wake disorders.

### 6. CURRICULUM

## 6.1 Topics

The candidate should know the following subjects in great depth including definition, etiology, pathology, pathogenesis, physiological changes, clinical features, appropriate investigations, management and prognosis of the following major subjects.

- Physiology of sleep
- Sleep-related breathing disorders.
- Parasomnias
- Circadian rhythm disorders
- Insomnia
- Narcolepsy and related excessive daytime sleepiness disorders.
- Sleep problems related to medications.
- Sleep disorders related to psychiatric and medical disorders.

For topics to be covered during the half academic day see Appendix A

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## **6.2 Procedures and Diagnostic Tests**

The following procedures and diagnostic tests for the evaluation of sleep disorders are necessary for fellows to understand and be able to interpret, including:

- Polysomnography
- Multiple sleep latency testing
- Multiple wake testing
- Portable sleep monitoring
- Actigraphy

## 7. TEACHING ACTIVITIES

Special lectures and tutorials will run through the period of training through the Half Academic Day. This is a **MANDATORY** educational session through out the 2 years of training. It covers important topics that should present by fellows as well as teaching staffs. It should cover the followings:

- 1. Reviews normal human sleep physiology, and the normal adaptations of different organ systems during sleep. Such as those that occur in the respiratory, cardiac, muscular, nervous, and endocrine systems.
- 2. Acknowledging changes in these physiological parameters with different sleep disorders such as Sleep apnea and parasomnia.
- 3. Enable fellows to deal with sleep complaints, understand the different types of sleep disordered breathing, neurological disorders and their effects on sleep, limb movement disorders, insomnia and its non pharmacological treatments, sleep disorders related to psychological diseases, hypersomnias such as narcolepsy, parasomnias, and pediatric sleep disorders

Please see attached list of educational activities; Appendix A.

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## 8. VACATION

The fellow is entitled for one-month vacation per year as well as two weeks for Eid holidays per year of training. Educational/academic leave of one-week duration per year is arranged internally within the rotations. The educational leave should be in the field of sleep medicine and should be approved by the program director and service's head; the fellows must provide certificate of attendance. Failure to bring proof of attendance will result in subtracting these days from regular vacations.

#### 9. ASSESSMENT

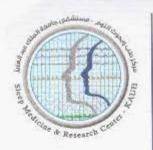
### 9.1 Continuous Assessment

The evaluation of the fellows will be a continuous process throughout the program. The fellow will be assessed based on basic and clinical medical knowledge, clinical judgment, clinical skill (medial interview, psychical examination, and procedure skills), humanistic quality, professionalism, and provision of medical care. This assessment will be documented at end of each rotation or at two months interval for long rotations. The aim of such assessment is to ensure feedback to the trainee as part of educational process and to explore weak points and focus on resolutions. The data provided by the logbook will be taken into consideration as part of continuous assessment.

## Please see Appendix C regarding the evaluation form.

- This periodic continuous assessment will be added together and the average mark will be the overall annual assessment. The overall annual assessment is expected to exceed 70%.
- In order to step up to the second year of the fellowship the candidate has to get 70% or more in the overall annual assessment. Failure to do so requires repeating the first year.
- To be eligible to entry for the final written examination, the fellow must achieve at least 70% in the continuous assessments of the 2<sup>nd</sup> year of the program.

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## **9.2 Final Written Examination and Certification of Competence**

To be eligible to entry for the final written examination, the fellow must achieve at least 70% in the continuous assessments of the  $2^{nd}$  year of the program. Failure to meet this requirement would necessitate extending his/her training for another year.

Final written examination will be prepared and supervised by the training committee and consists of one paper of 50 MCQs distributed as follows:

- 20% Basic physiology of sleep
- 20% Comprehensive questions
- 40% Clinically based questions.
- 20% Problem solving questions.

The passing mark for the final written examination is 70%. Failure to pass the written exam, require reentry to the exam in 6-month time. No limitation for the exam entry trials.

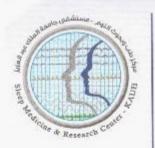
Upon passing the exam the candidate will get a **DIPLOMA CERTIFICATE** in sleep medicine from King Abdulaziz University.

## 10. FELLOWS WITH PUMONARY /INTENSIVE CARE BOARD:

The sleep fellowship program is waved for one-year only for those holding a pulmonary or intensive care board. The structure of the program will be as follows (Table 3):

Eight months	4 weeks	One month	2 weeks	2 weeks	One month
Sleep Medicine	Electives	Psychiatry Clinics	Pediatric Sleep Medicine	Public Holidays	Annual Leave

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## 11. PRIMARY REFERENCE MATERIAL

- LHSC Sleep Lab Polysomnographic Technician Training Manual.
- American Academy of Sleep Medicine (AASM) Practice Parameters and Clinical Guidelines.
- American Academy of Sleep Medicine. (2005). International classification of sleep disorders, 2<sup>nd</sup> ed.: Diagnostic and coding manual.
- American Academy of Sleep Medicine. (2007). The AASM Manual for the Scoring of Sleep and Associated Events, Rules Terminology and Technical Specifications.
- American Academy of Sleep Medicine (2009). A Technologist's Handbook for Understanding and Implementing the AASM Manual for the scoring of sleep and associated events.
- American Academy of Sleep Medicine. The Accredited Sleep Technologist Education Program (A-Step) Modules.
- Board of Registered Polysomnographic Technologists (BRPT), RPGST Candidate Handbook.
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