



CLINICAL NEUROPHYSIOLOGY FELLOWSHIP PROGRAM

NEUROPHYSIOLOGY SECTION

KING FAISAL SPECIALISTS HOSPITAL & RESEARCH CENTER- RIYADH

DR. AMAL MOKEEM





## CLINICAL NEUROPHYSIOLOGY FELLOWSHIP PROGRAM

### TABLE CONTENTS

	SECTIONS
I	Introduction
II	General Objectives
III	Specific Objectives
IV	Admission Process A. Eligibility B. Acceptance and Appointment C. Clinical Privileging
V	Structure of the Training Program A. Duration B. Training Capacity C. Qualification D. Program Content E. Staff qualification F. Training Committee G. Program organization & Responsibility H. Appeal Mechanism I. Stress management J. Educational Program
VI	On Call Duties
VII	Performance Evaluation Process
VIII	Promotion
IX	Training Completion
X	Program Interruption
XI	Training Extension
XII	Leaves and Holidays
XIII	Activation Neurophysiology Can-Med Structure



Clinical Neurophysiology Fellowship Program  
Neurophysiology Section  
King Faisal Specialists Hospital & Research Center- Riyadh

I. Introduction

This fellowship is designed to provide advanced and comprehensive postgraduate education in the field of Clinical Neurophysiology. Outstanding teaching staff and facilities support this training program. The Research Center provides learning opportunities on basic and advanced research.

II. General Objectives

1. To train Neurophysiology Specialists that are greatly needed in the Kingdom of Saudi Arabia.
2. To promote neurophysiology research in the Kingdom of Saudi Arabia.

III. Specific Objectives

1. The trainee should be able to independently read, interpret and report Neurophysiological studies (electroencephalography, evoked potentials, nerve conductions and electromyography).
2. The trainee should be able to handle all troubleshooting in the lab during inpatient and outpatient recording.
3. The trainee should be able to construct a research proposal, collect data and publish results.

IV. Admission Process

A. Eligibility

1. Candidates must have completed an accredited residency program in either adult or pediatric Neurology and must possess a Saudi Specialty certificate (or equivalent). Candidates who passed the written examination and are registered for final parts may also be accepted.





2. Candidates must have passed the subspecialty's Saudi Commission for Health Specialties (SCHS) admission interview.
3. Two Letters of recommendation and other documentation required to support the candidate's application.

#### B. Acceptance and Appointment

1. Academic & Training Affairs (ATA) preforms preliminary review of applications and verification of eligibility before forwarding them to the training department.
2. An interview will be conducted by the program director, chairman of the departmental fellowship program, members of the section, and the department chairman.
3. Two recommendation letters are needed to support the candidate request for acceptance and will be forwarded to ATA & SCFHS for processing of training contract.
4. Upon appointment the Fellow is required to register with SCHS (as applicable).
5. International Fellows are not entitled for rotation outside the hospital.
6. Sponsored fellows must submit a sponsorship letter, indicating that they are allowed full time training for the entire duration of the program.

#### C. Clinical Privileging

Fellows will be required to apply to the credentialing committee for clinical privileges through the program director, section head, and department chairman.

1. Fellows will participate in performing procedures during their rotation in EMG, NCS, and IOM under the supervision of the consultant on duty.
2. Fellows will interpret EEG of neonatal and pediatric and adult under the supervision of the consultant on duty.
3. Interpreting evoked potentials in infants and children and adults under the supervision of the consultant on duty.
4. Video EEG monitoring of epileptic patients.

#### V. Structure of the Training Program

A. Duration: Two years.

B. Training Capacity: The program will accept one candidate per year.

C. Qualification: Adult/Pediatric Neurologist.

D. Program Content:

- A. Clinical Program (in and outpatient recordings)
  1. Digital Video Electroencephalography (EEG).
  2. Evoked Potentials: Visual, brainstem auditory and somatosensory evoked potentials (VEP, BAEP, SEP).





3. Electromyography (EMG) and nerve conduction study (NCS).
  4. Video electroencephalography (EEG) in epilepsy monitoring unit (EMU).
  5. Intraoperative monitoring procedures, Electrocochography (ECoG), invasive subdural recording, cortical mapping and deep brain stimulation.
  6. End of the year exam includes both multiple-choice questions and clinical cases.
- B. Clinical Research
- Fellowship offers formulation of an independent research project in the subspecialty of the clinical neurophysiology/ Electrophysiology.

C. Design of the Fellowship, Rotation and Leaves

<b>1<sup>st</sup> Year</b>	
<b>Rotation</b>	<b>Duration</b>
1. EEG /EP Orientation	1 month
2. EEG /EP	4 months
3. EMG/NCS Orientation	1 month
4. EMG/NCS	3 months
5. EMU Orientation	1 month
6. IOM Orientation	1 month
7. Vacation	1 month
	<b>Total: 12 months</b>

<b>2<sup>nd</sup> Year</b>	
<b>Rotation</b>	<b>Duration</b>
1. Advance EEG/EP	3 months
2. Advance EMG/NCS	3 months
4. Advance EMU	2 month
5. Intermediate IOM	2 month
5. Elective	1 month
6. Vacation	1 month
	<b>Total: 12 months</b>

First Year Fellowship Rotation Details:

2. EEG /EP Orientation (1 month); A. Observe recordings.  
B. Master Head measurement (International 10/20 System).





- C. Place electrodes and record two EEGs (staff or patients).
  - D. Introduction to EEG/ EP interpretation/ classification.
  - E. Attend all EEG/EP reading sessions.
3. EEG/EP (4 months);
- A. Attend all EEG/EP reading sessions.
  - B. Independently read, classify, and form preliminary reports for all EEGs/ EP prior to reading sessions.
  - C. Master criteria for normal and abnormal EEG/EP results.
4. Electromyography {EMG} /nerve conduction study {NCS} Orientation (1 month);
- A. Observe recordings.
  - B. Master electrode locations.
  - C. Place electrodes and record two NCS.
  - D. Introduction to EMG/NCS interpretation.
  - E. Attend all EMG/NCS studies.
5. EMG/ NCS (3 months);
- A. Attend all recordings.
  - B. Form preliminary reports.
  - C. Master criteria for normal and abnormal results.
6. Epilepsy Monitoring Unit (EMU) Orientation (1 month); A. Attend EMU patient rounds.  
B. Read, classify, and interpret EMU studies with supervision.
7. Intraoperative monitoring (IOM) Orientation (1 month); A. Attend all IOM procedures.  
B. Learn the fundamental methods and interpretive principles of IOM.
8. Vacation (1 month);
- A. Fellows will be in title for one month vacation per year.
  - B. This one month can be divided as per the ATA policies.
  - C. Carry over in the first year will be allowed as per ATA policies.
9. Research (Throughout the year);





- A. By the end of the 3d month the trainee should formulate a research proposal and submit it. B. Begin data collection.

2<sup>nd</sup> Year Fellowship Rotation Details:

1. Advance EEG/EP (3 months);
  - A. Read, classify, interpret and report all EEG/EP studies.
  - B. Master independent EEG/EP practice.
  
2. Advance EMG/NCS (3 months);
  - A. Progressively master independently EMG/NCS practice.
  
3. Advance EMU (2 month);
  - A. Read, classify, interpret and report EMU studies independently.
  - B. Attend any epilepsy surgeries having ECoG and /or intraoperative monitoring (IOM) required for epilepsy cases.
  
4. Intermediate IOM (2 months);
  - A. Become familiar with pertinent technical aspects of each test, thus being able to perform them, starting with the set up.
  - B. Able to accurately interpret most of neurophysiological tests used during monitoring
  - C. Learn how to write a comprehensive and informative IOM reports.
  
5. Elective (1 month);
  - A. The program will provide an adequate opportunity for fellows to pursue elective educational experiences within the Neurophysiology Lab.
  - B. Fellows can choose to spend his/her elective duration in another recognized center, if a joined program developed in the country.
  
6. Vacation (1 month);
  - A. Fellows will be in title for one month vacation per year.
  - B. This one month can be divided as per the ATA polices.
  
7. Research (Throughout the year);
  - A. Complete data collection.
  - B. Analyze results.
  - C. Write and submit manuscript.



E. Staff Qualification

1. Dr. Amal Mokeem, MD, (Program director). Board certified clinical neurophysiologist and pediatrician.
2. Dr. Bent Stigsby, MD, PhD, (Section head). Board certified clinical neurophysiologist.
3. Dr. David MacDonald, MD, FRCP(C), ABCN. Board certified clinical neurophysiologist and neurologist.
4. Dr. Iftetah Alhomoud, MD, Board certified clinical neurophysiologist and neurologist.
5. Dr. Tariq Abalkhail, MD, Board certified clinical neurophysiologist and neurologist.

F. Training Committee:

All scientific members have had contributed and reviewed the manual design and authorize it.

The fellowship program committee will assist the program director in the planning, organization, and supervision of the program.

1. This committee should include a representative from each participating site and each major component of the program.
2. This committee will include representation from the fellows in the program; if there is more than one fellow in the program, at least one must be elected by his or her peers.
3. The fellowship program committee will meet regularly, at least quarterly, and keep minutes that reflect the activity of the committee.
4. The fellowship program committee will communicate regularly with members of the committee, the department or division, and fellows.
5. The program director, assisted by the fellowship program committee and/or program subcommittees will plan, organize, and supervise the program.
6. The program must provide opportunities for residents to attain all competencies as outlined in the objectives of training.
7. The fellowship program committee or a subcommittee thereof will select candidates for admission to the program in their institution/center.
8. The fellowship program committee or a subcommittee thereof will be responsible for the assessment of fellows and for the promotion of fellows in the program according to the Training Evaluation Report.





## G. Program Organization & Responsibility

### A. Program Director Responsibilities

The fellowship program director shall be responsible for the following:

1. Interview and recommendation for acceptance of fellow applicants.
2. Orientation of fellows.
3. Fellow's registration with the SCHS (if applicable).
4. Fellow's compliance with the program curriculum.
5. Planning and organizing fellow's educational activities, including monitoring of attendance, on call duty, rotation schedule, leaves, and monitoring of compliance with leave policy.
8. Counseling of fellows.
9. Administration of fellowship program examination.
10. Choose the members of training committee.

### B. Consultant Staff

1. The consultant staff will supervise the fellows closely, promoting proficiency in clinical skills and procedures pertinent to the subspecialty.
2. The consultant staff will devote time to teaching fellows, monitor their performance and progress.
3. Identify their weakness and provide counseling and guidance as necessary.
4. The consultant staff will encourage research project.
5. The consultant will participate in the evaluation of fellows.

### C. Fellow

1. The fellows must be committed to the training program and must achieve competence in the subspecialty.
2. They will participate in teaching and clinical research.
3. It will be mandatory for the fellows to abide by the rules and regulation of the institution and the SCHS (including prompt compliance with registration, if applicable).

## H. Appeal Mechanism:

1. The fellowship program committee will maintain and follow the appeal mechanism consistent with SCFHS policies.





2. The fellowship program committee and/or a subcommittee thereof should receive and review appeals from fellows and, where appropriate, refer the matter to the local training committee and the scientific council (board) of training then to Academic and Training Affairs.
3. Further action to be taken as required as per KFSHRC established grievance processes (Ref EPM).

I. Stress management:

1. The fellowship program committee will establish and maintain mechanisms for fellows to access services to manage stress and similar issues.
2. The fellowship program committee will make sure that the fellows are aware of these available services and how to access them.
3. Further action to be taken as required as per KFSHRC established processes.
  - a) The fellowship program committee will establish and maintain mechanisms by which fellows receive ongoing career counselling.

J. Educational Program:

1. Fellows will have fixed academic teaching activity day.
2. At least one neurophysiology staff will attend the meeting as per The schedule which will be made by a member of the training Committee.

Day	Time	Topic
Every Tuesday	8-9 Am	Short cases discussion
Every Tuesday	11-12 Am	Case Presentation
4 <sup>th</sup> week Tuesday	4-5 pm	Journal club discussion

VI. On Call Duties

1. After the first month of EEG rotation, candidate is expected to take EEG on call with the staff on call every three weeks for a full week including weekends.
2. Fellow is expected to perform regular duty the day after call and ensure continuity of care for their patients.





3. Fellows are should reply to the order of EEG/NCS/EMG/IOM, Coordinated with staff on-call
4. Fellow is expected to review all EEG records during the on call and discuss them all with the staff on call.
5. Trainee will be paged during on call by technologist or referring physician to accept doing EEG after hours.
6. Trainee should be able to give a preliminary report of all EEGs during the on call after discussing the result with the staff on call.

## VII. Performance Evaluation Process

1. The fellowship program committee or a subcommittee will be responsible for the assessment of fellows and for the promotion of fellows in the program according to the In Training Evaluation Report.
2. The fellowship program committee or a subcommittee will discuss the evaluation with the fellow if there is an acute issue if needed.
3. The fellowship program committee or a subcommittee will review the fellow's evaluation and recommend action to ATA if needed.

## VIII. Promotion

A. Promotion to next training year will be based on meeting all the following requirements:

1. Fellows will be promoted when total performance evaluation throughout the year is 60% or more.
  - a. Border line evaluation performance will be promoted only if 60% of fellowship program committee or a subcommittee agreed.
2. Candidates are required at least 70 % pass mark as a total of all examinations as follow:
  - a. Multiple choice questions (MCQs)
  - b. Long case (EEG/ NCS/EMG) review
  - c. Short case (s) (EEG/ NCS/EMG/IOM) review
  - d. OSCE exam (EEG/ NCS/ EMG/ IOM)
  - e. Oral exam
3. Candidates who fail the examination are allowed to reset for the exam as per fellowship program committee or a subcommittee.





4. Fellows required completing a log book to be eligible to sit for final examination year.
    - a. The log book must document at least 500 reported EEG cases and at least 200 reported EMG/NCS cases by the fellow.
    - b. The fellowship program committee or a subcommittee must ratification the log book of fellows 6 months the second year final exam.
  5. A valid BLS certification is required.
  6. Candidates who didn't complete research project are allowed to reset for the exam as per fellowship program committee or a subcommittee.
- B. In the event of not meeting the above criteria for promotion, the fellow will be placed on a three-months' probation period. Failure to pass this probation period will result in repeating the training year. The fellow will be terminated if the promotion criteria are not met during this repeated year.

#### IX. Training Completion

1. Completion of training will be based on satisfactory performance evaluation, passing the final examination, and meeting all other requirements of training completion.
2. Fellowship program committee or a subcommittee will prepare the fellow's final evaluation summary, covering the entire training period. This will be submitted to ATA at least one month prior to training completion.
3. The fellow's sponsor (if applicable) must be informed of the training completion with a copy of the final evaluation summary.
3. A graduation ceremony is held annually in spring. Graduations are recognized and certificate of training completion are handed to graduates. Graduated between July 1 and June 30 of the subsequent year are included.
4. Graduates will be strongly encouraged to pursue post-training board certification in clinical neurophysiology to complete their credentials.

#### X. Program Interruption

1. Any interruption/s within a training year without a valid excuse will result in termination.
2. A training year with interruption of three months or less with valid excuse and upon approval by Academic & Training Affairs (ATA) and Saudi Commission for Health Specialties (SCHS) will be considered a full training year. However, the Fellow must compensate the absence during the remaining period or immediately after completion of the training program.





3. A training year will repeat if interrupted for any length of time between three and twelve months during the year. The Fellow will repeat the training level at the beginning of the subsequent academic year.

XI. Training Extension

1. Training extension request is submitted to ATA six months prior to completion of the program.
2. The overall performance evaluation and justification for extension must be accompanying the request.

XII. Leaves and Holidays

1. Fellows enrolled in SCHS Program are entitled for four weeks' vacation annually and 10 days of either Ramadan or Hajj holiday per year.
1. Fellows are entitled to one paid professional leave each year (7days).
2. Sponsored Fellows however are entitled to only paid professional leave during their training period.
3. Fellow shall compensate for sick leave or maternity leave during or immediately after the training year.

XIII. Activation Neurophysiology Can-Med Structure

1. Please review our activated CAN-med. Structure of the Neurophysiology Fellowship Program.

NOTE

1. For details please read fellowship training program policy manual-Academic and training affairs, KFSHRC.

