The Arab League
Council of Arab Health Ministers
The Arab Board of Health Specializations
General Secretariat

جامعة الدول العربية
مجلس وزراء الصحة العرب
المجلس العربي للاختصاصات الصحية
الأمانة العامة

المجلس العلمي للأمراض الباطنة

Scientific Council of Internal Medicine

دليل اختصاص الأمراض العصبية

Guidebook of Neurology

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Neurology Residency Training Program

NRTP

Section One

Introduction

Neurology Residency Training Program under the Arab Board of Health Specializations is a structured five-year postgraduate curriculum accredited by the Arab Board of Health Specializations, designed to develop competent specialists in neurological diseases. The program includes one year of core internal medicine training followed by four years of intensive neurology training, encompassing applied basic neurology sciences, clinical care in different health service levels, neurophysiology, and supporting neurological services such as neurocritical care, neurosurgery, neuroradiology, epilepsy, neurooncology and pediatric neurology. As specialty specifications are outlined in this document, NRTP also follows the Arab Board bylaws and academic regulations, emphasizing competency-based education, continuous programmatic formative and summative assessments, and standardized examinations. Residents are encourage to complete a research project and demonstrate proficiency in patient care, medical knowledge, professionalism, and systems-based practice. Successful completion of the program and passing the final written and practical exams lead to the award of the Arab Board Certificate in Neurology, ensuring graduates meet regional and international standards for specialized neurological care.

Rationale and Justification

Neurology is a rapidly evolving medical specialty that addresses disorders of the nervous system, including the brain, spinal cord, peripheral nerves, and muscles. The increasing prevalence of neurological diseases such as stroke, epilepsy, neurodegenerative disorders, neuromuscular conditions and other systemic neurological disorders underscores the need for highly trained specialists capable of delivering comprehensive and evidence-based care. This curriculum is designed to prepare residents for independent clinical practice in neurology, integrating advanced diagnostic and therapeutic skills with professionalism, research, and lifelong learning. The program emphasizes competency-based education, aligning with international standards and the Arab Board of Health Specializations bylaws competency framework.

The burden of neurological disorders is significant worldwide and particularly impactful in the Arab region, where demographic changes and lifestyle factors contribute to rising incidence rates. Neurology requires specialized knowledge and skills beyond general internal medicine, including neuroimaging, neurophysiology, and management of complex neurological emergencies.

As per the Arab Board policy, the neurology program is established under the umbrella of the Internal Medicine Council, with structured training that maintains continuity with foundational neurological principles. After that, Neurology will be a standalone specialty to include the national and international need for other sub-specialties

under neurology, such as Epilepsy, demyelinating disorders, stroke, etc. This approach addresses the growing demand for specialized neurologists and supports health systems in improving patient outcomes through specialised care.The

NRTP Competency-based Medical Education

NRTP follows the competency-based medical education elements, which include the Competency-Based Framework, residency-structured teaching and learning, and programmatic assessment.

The six core competencies (patient care, medical knowledge, practice-based learning, communication, professionalism, and systems-based practice) are mandated by the international ACGME COMPETENCIES and the Arab Board standards.

Structured Training Pathway: Five-year program with one year in internal medicine and four years in neurology, ensuring comprehensive exposure to both general and specialized care.

Assessment and Certification: Standardized formative and summative evaluations, including written and practical exams, aligned with Arab Board regulations.

Research Integration: Mandatory research project to foster scholarly activity and evidence-based practice.

Alignment with Arab Board Bylaws: All examinations, rotations, and evaluation methods comply with the Arab Board's academic regulations and certification requirements.

Quality and Accreditation Mandate

By implementing this curriculum, institutions will meet regional and international benchmarks for neurology training, ensuring graduates are competent, ethical, and prepared to address the neurological health needs of their communities.

Eligibility for NRTP Enrollment

- Doctors who Hold a medical degree from a university recognized by the country participating in the program.
- The applicants should have completed the internship program.
- The number of years of training is five years: Training in the first year will be in general medicine, and training in neurology will be completed for four years of training.
- Programmatic Assessment:
    - Adoption of the initial examination within the conditions for obtaining the specialty of neurological diseases, and it shall be standardized with the internal disease's examination, and the doctor is entitled to apply at the end of the first year.
    - The necessity of conducting evaluation examinations for doctors during the four years of training in neurological diseases. The method of examinations to be approved by the General Secretariat can be relied upon within the general policy of the Council.
    - The written final exam will be in the same way as in internal medicine (multiple choice questions) at the end of the fifth year.
    - Practical exam: The trainees should sit for the practical examination after passing the written final exam, which is performed by the neurology committee and according to the instructions and regulations of the Scientific Council of Internal Medicine.

Section 2

Mission Statement, Goals and Objectives.

Educational Mission Statement

The educational mission of the Division of Neurology is to provide an optimal educational environment to prepare the neurology resident for the independent practice of Clinical Neurology and Neurophysiology and enhance the educational experience of the neurology resident. Our residents are trained to communicate effectively with patients and their families in a caring and respectful manner. Residents are trained to apply knowledge of study designs and statistical methods to the appraisal of clinical studies, assessing diagnostic and therapeutic effectiveness. They learn how to practice cost-effective health care and allocate resources without compromising quality of care.

Educational Goals

The educational goals of the program are to:

- Train clinicians for independent practice of Neurology and Neurophysiology.
- Provide the educational background for lifelong learning in Neurology.
- Encourage participation in clinical research during training.
- Train our residents to provide compassionate care for the patients and their families.

Section Three

Milestones and Neurology Core Competencies

There are six core competencies as part of post-graduate training for residents:

1.Patient Care:

Residents must be able to provide patient care that is both appropriate and compassionate and that is effective for the promotion of health and the treatment of health problems and disease.

Residents must:

- Use all sources to gather essential and accurate information about their patients, including medical interviews, medical examinations, and medical records.
- Make informed recommendations to patients and their families regarding-treatment plans and recommended diagnostic and therapeutic interventions that are based upon patient preference, scientific evidence, and clinical judgment.
- Develop and carry out patient management plans, counsel and educate patients and their families, and collaborate with other health care professionals (including those from different disciplines) to provide patient-focused care.
- Competently perform all essential medical and invasive procedures.

2.Medical Knowledge

Residents must demonstrate knowledge about current and established clinical, biomedical, epidemiological, and social behavioral sciences and will apply this knowledge to patient care.

Residents must:

- Learn the clinical aspects of adult and pediatric neurological disorders and the basis for working-up these conditions.
- Utilize readings to learn the causes of neurological conditions and apply this knowledge in a clinical setting.
- Learn the appropriate use of diagnostic procedures used to detect common and uncommon neurological disorders

3.Practice-Based Learning and Improvement

Residents must develop the capacity to investigate and evaluate their clinical practice, assess, incorporate scientific evidence, and to transfer their achievements to their own patient care and to their colleagues.

Residents must:

- Use information technology, scientific methods, and scientific evidence to evaluate, investigate and improve patient care.
- Identify areas for self-improvement and facilitate learning among students and other health care professionals.
- Implement strategies to enhance patient care.
- Analyze practice experience and perform practice-based improvement activities using a systematic methodology.
- Find and evaluate evidence from scientific studies related to patient health problems and incorporate findings into patient care.
- Obtain and utilize information about their population of patients as well as the larger population from which their patients are drawn.

4.Interpersonal and Communication Skills

Residents must demonstrate interpersonal and communication skills resulting in effective communication with patients, families and other medical professionals.

Residents must:

- Create and sustain a therapeutic and ethically sound relationship with patients.
- Use listening, nonverbal, explanatory, questioning and writing skills to effectively provide information to and elicit information from patients, families, and other medical professionals.
- Work effectively with health care teams and other colleagues as a member or as a leader

5.Professionalism

Residents have an obligation to professionalism and sensitivity and must adhere to ethical principles within a diverse patient population.

Residents must:

- Demonstrate accountability, respect, integrity, and empathy toward patients and their families and to society.
- Demonstrate openness and sensitivity to the culture, age, gender, disabilities, socioeconomic status, beliefs and behaviors of patients, patients' families, and professional colleagues.
- Adhere to ethical principles concerning the withholding of clinical care, confidentiality of patient information, informed consent, and business practices.
- Be able to communicate with patients, families, members of the health care team, and colleagues in clear Arabic or other languages.

- At all times interact with patients, their families, and the staff with a pleasant demeanor, in a calm fashion, and with respect.
- Work with each other to provide cross coverage for hospital and clinic patients and for educational activities.

6. Systems-Based Practice:

Residents must be responsive and aware of the larger health care system and framework and will effectively utilize system resources to provide superior patient care.

Residents are expected to:

- Practice cost-effective health care and resource allocation that does not compromise the patient's quality of care or the health care system.
- Assist patients and their families who are navigating complex health care systems.
- Analyze the different types of health care systems and be able to work with other medical professionals to improve system performance.
- Explain how their patient care affects the patient and the patients' families, society, the health care system and other medical professionals.

Section 4

Work Environment

The Division of Neurology will:

- Use its best efforts, within the limits of available resources, to provide an educational training program.
- Use its best efforts, within the limits of available resources, to provide the resident with adequate and appropriate support staff and facilities in accordance with state.
- Provide the resident with appropriate and adequate faculty and Medical Staff supervision and guidance for all educational and clinical activities commensurate with an individual resident's level of advancement and responsibility.
- Allow the resident to participate fully in the educational and scholarly activities of the Program and Medical Center and in any appropriate institutional medical staff activities, councils, and committees, particularly those that affect Graduate Medical Education and the role of the resident staff in patient care subject to these policies and procedures.
- Through the officers of the program and the attending medical staff clearly communicate to the resident any expectations, instructions and directions regarding patient management and the resident participation therein.
- Maintain an environment conducive to the health and well-being of the resident.
- Through the Program Director and Program faculty, evaluate the educational and professional progress and achievement of the resident on a regular and periodic basis. The Program Director shall present to and discuss with the resident a written summary of the evaluations at least semi-annually.

Section 5

Didactics

Academic productivity is one of the metrics that are used to measure both residents and faculty. Towards that end, we developed a weekly series of meetings and lectures. Residents take more responsibility for formal teaching as they progress through their training.

Residents are expected to attend at least 70% of the lectures during their residency. The 70% benchmark takes into account vacation and sick leave.

Meetings

The following type of lectures/seminars/interactive sessions are part of the educational program:

➢ Morning Report

During the morning report residents present a variety of cases for discussion led by a member of faculty. The goal is to review the presentation and course of a recent or current patient seen in the inpatient, highlighting the details of history taking, physical exam, investigations, and management.

More evolved cases may be presented to review specific neurological conditions and to engage in a more expanded discussion of pathophysiology and the most recent literature relevant to the case.

➢ Lectures

Several weekly lectures are provided covering most of adult neurology. Some of these topics incorporates the basic science, anatomy, neurophysiology, genetics, neuropharmacology, and clinical aspects of sub-discipline of neurology. These are given by the faculty and by the residents.

Topics include headache and pain disorders, vascular neurology, degenerative disorders, demyelinating disorders, epilepsy, neuromuscular disorders, movement disorders, neuropsychological assessment, evidence-based medicine and other topics.

➢ Journal Club

In the Journal Club a resident presents an article about their choice mentored by a faculty member.

Journal Club enhances the practical understanding of evidence-based neurology and provides an informal setting for the discussion of journal articles with the active involvement of attending.

➢ Bedside Rounds

Bedside rounds are effective for the delivery of patient-centered care and are necessary in helping trainees acquire competence in clinical care. During this activity the resident will be able to display his skills in summarizing clinical information and demonstrate his/her examination skills. At the same time, the management plan of the patient can be reviewed.

➢ Death conference

During this activity the resident will be able to display his skill in summarizing clinical information about cause of death and difficulties face them to save life.

Educational sessions per PGY:

PGY-1

PGY-1run by faculty of internal medicine and quarter year report adopted to Neurological department or Unit.

PGY 2-5

➢ Morning Report Neurology:

a) Discussion group
b) Required PGY-2, PGY-3, PGY-4 and PGY-5
c) All residents and students at the inpatient services are required to attend. The conference is moderated by different faculty member each day. Residents present a variety of cases for discussion. The goal is to review the presentation and course of a recent or current patient seen in the inpatient, highlighting the details of history taking, physical exam, investigations, and management. More evolved cases may be presented to review specific neurological conditions and to engage in a more expanded discussion of pathophysiology and the most recent literature relevant to the case.
d) Daily from on weekdays and runs over the whole year.

➢ Out-patient Morning Report Neurology

a) Discussion group
b) Required PGY-2, PGY-3, PGY-4 and PGY5; who are assigned to out-patient service on the day.
c) Occurs on a daily basis.

➢ Neurology Grand Rounds

a) Required PGY-2, PGY-3, PGY-4 and PGY 5
b) The residents along with faculty present interesting cases, followed by brainstorming discussion. These are assigned in advance and the resident is expected to prepare a 30-minute presentation. The format is usually a brief history of the case, a discussion led by a faculty member on the localization and differential diagnosis, followed by the rest of the presentation. Residents are encouraged to seek out the faculty members (responsible for the case) to assist them in the presentation and discussion.

➢ Neuroscience Multi-disciplinary Grand Round

a) Lecture
b) Required PGY-2, PGY-3, PGY-4 and PGY 5
c) Basic or clinical neuroscience (neuroradiological, neurosurgical, neurological) topics are discussed in a multi-disciplinary fashion by faculty from different specialties.

Mortality and Morbidity Conference Neurology

a) Case-based discussion
b) Required PGY-2, PGY-3, PGY-4 and PGY 5
c) This activity is a highly interactive conference focused on clinical challenges and medical errors, where the presenters review the hospital records of a single patient with significant morbidity and/or mortality that was taken care of by neurology residents and faculty to learn from events that transpired and improved future care.
d) Once every month.

Journal Club Neurology

a) Seminar
b) Required PGY-2, PGY-3, PGY-4 and PGY-5
c) Residents are given the assignment to review a landmark and/or recently published article that may have relevance to the current care of patients that is likely to be under the care of the residents. These sessions are supervised by senior faculty members who stimulate and directs discussion, critique, and appraisal of research articles.
d) Once weekly.

Board Review Neurology

a) Interactive discussion
b) Required PGY-3, PGY-4 and PGY-5
c) This activity aims to prepare the residents for their final board exams, presented by faculty from all medical specialties
d) Starting two months before board exam

Neurophysiology conference

a) Interactive discussion
b) Required PGY-3 and PGY-4 and PGY- 5
c) These are formal lectures on all aspects of neurophysiology including EEG, EMG, EP presented by faculty

Section Six

Training Overview

PGY-1 Learning Objectives (= Internal Medicine Core Training)

- Gather accurate, essential information from all sources, including medical interviews, physical examinations, medical records, and diagnostic/therapeutic procedures.
- Make informed recommendations about preventive, diagnostic, and therapeutic options and interventions that are based on clinical judgment, scientific evidence, and patient preference.
- Develop, negotiate, and implement effective patient management plans and integration of patient care.
- Perform competently the diagnostic and therapeutic procedures considered essential to the practice of internal medicine.
- Access and critically evaluate current medical information and scientific evidence.
- Develop clinically applicable knowledge of the basic and clinical sciences that underline the practice of internal medicine and apply this knowledge to clinical problem-solving, clinical decision making, and critical thinking.
- Identify areas for improvement and implement strategies to enhance knowledge, skills, attitudes, and processes of care.
- Apply evidence-based, cost-conscious strategies to prevention, diagnosis, and disease management.
- Collaborate with other members of the health care team to assist patients in dealing effectively with complex systems and to improve systematic processes of care.

PGY-2 Learning Objectives (= 1st year Neurology)

- To develop proficiency in the neurological interview and examination.
- To use these findings to generate a broad differential diagnosis starting with the most likely diagnosis.
- To understand the appropriate use of clinical and laboratory testing, and their indications, cost, specificity, and sensitivity.
- To treat, stabilize and manage patients presenting to the ER with acute neurological disease.
- To conduct appropriate literature searches and understand electronic patient information systems.
- To explain to the patient and family in a clear and respectful manner, information about the patient's disease and prognosis.
- To present a case presentation with a review of the literature at the Grand Rounds.

- Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, patient confidentiality, and informed consent.

PGY-3 Learning Objectives

- To further refine the neurological interview and examination and to demonstrate a problem focused approach.
- To demonstrate a broadening fund of knowledge in neurological disease.
- To develop skill in reading electroencephalograms and evoked potentials.
- To develop skill in the performance and interpretation of electro diagnostic testing (EMG/NCV).
- To acquire proficiency in reading CT, MRI, and plain film studies.
- To understand gross and microscopic pathology and correlate it with clinical and neuroimaging information.
- To demonstrate knowledge of the principles of evidence-based medicine.
- To learn the basic principles of research under the guidance of a faculty mentor.
- To make informed decisions about diagnostic and therapeutic interventions based on patient preferences, current scientific evidence and clinical judgment.
- To competently perform lumbar punctures and basic electro diagnostic studies.
- To develop and to sustain a therapeutic and ethically sound relationship with patients.

PGY-4 – 5 learning Objectives

- To demonstrate an increasing ability to function independently as a neurologist.
- To demonstrate an extensive fund of knowledge of common neurological disorders, some familiarity with rare disorders, and the ability to research the differential of a rare disorder based upon his/her own clinical evaluation.
- To provide advanced teaching of neurological disorders and exam techniques and to mentor junior neurology residents.
- To demonstrate proficiency in reading EEGs, neuroimaging studies, and performing EMG/NCV studies.
- To apply the methods of evidence-based medicine to the analysis of medical literature.

Section Seven

Practicalities

Inpatient and outpatient Rotations

The Division of Neurology has an in-and out-patient consultation service, a 24 hour on-call service, The in-patient team consists of two PGY-2 residents, rotating residents from Internal Medicine. They are supervised by a senior (PGY3, PGY4 or PGY 5) neurology resident and one of several consultants, who cover the service for a week at a time. Morning rounds are held daily. On the weekends and holidays, residents are assigned to short and to long call to provide for continuity of care.

The on-call service, consisting of one or more neurology residents, responds to all consultants from the hospital and the Emergency Department (ED).

Other Mandatory Rotations

Neuroradiology

During PGY-2 our residents spend one month working with neuroradiology.

Neuro ICU

Residents in PGY-3 or -4 spend one month in the Intensive Care Unit (ICU). On the rotation residents provide care for patients with severe and life-threatening neurological problems.

Neuro intensivist staff the ICU and Neurology staff provide consultations.

Epilepsy I EEG

During PGY-3 or -4 each resident completes a one-month rotation that concentrates on the technical aspects of EEG and the management of patients with epilepsy or suspected epilepsy. They read EEGs daily, admit, evaluate, manage and discharge the Epilepsy Monitoring Unit (EMU) patients.

Neuromuscular Medicine / EMG

During PGY-3 or -4 each resident completes a one-month rotation that concentrates on the technical aspects of nerve conduction studies and electromyography (NCS and EMG) and in the evaluation and management of clinic and hospital consult patients with neuromuscular or suspected neuromuscular disorders.

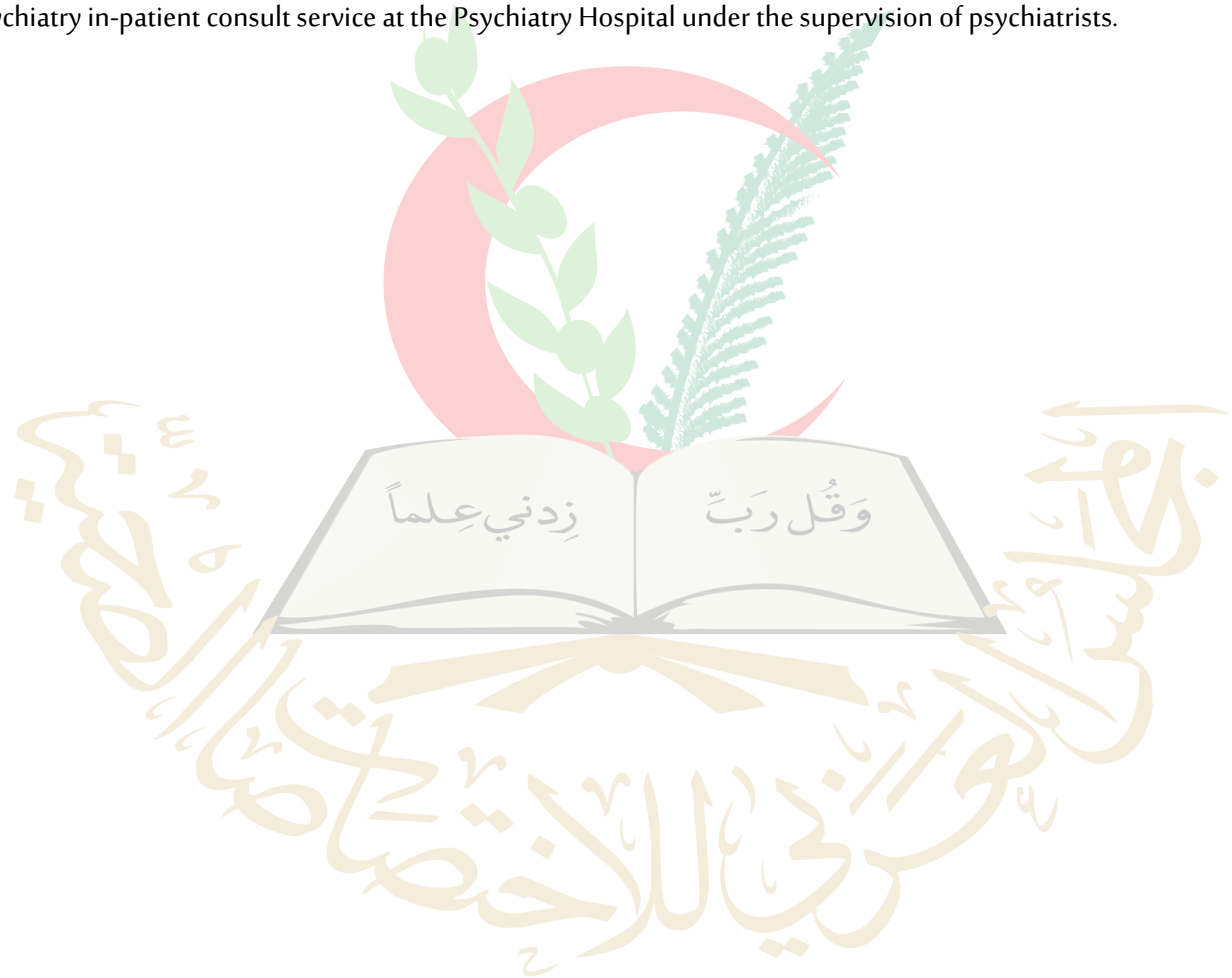
Pediatric Neurology

During PGY-4 the adult neurology residents spends three consecutive months in pediatric neurology. Under the supervision of faculty pediatric neurologists and working with the pediatric neurology fellows.

The residents are not responsible for the overall care of pediatric patients. Residents on this rotation are on rotating call under the supervision of the faculty pediatric neurologists.

Psychiatry

A mandatory, two-months rotation in Psychiatry is taken by our residents during PGY-4. This month is spent on the psychiatry in-patient consult service at the Psychiatry Hospital under the supervision of psychiatrists.



Section Eight

Evaluations

Patient Care

- Goal

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

- Objectives

The PGY-2-5 resident in neurology will:

- Perform an efficient and thorough general physical and neurological examination.
- Competently perform all essential medical and invasive procedures.

Medical Knowledge

- Goal

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care.

- Objectives

The PGY-2 -5 resident will:

- Improve their fund of knowledge appropriate for the PGY-2 -5 level
- Become familiar with the principles of bioethics.
- Provide cost effective evaluation and treatment.

Practice-Based Learning and Improvement

- Goal

Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning. Residents are expected to develop skills and habits to be able to:

- Objectives

The PGY-2 -5 resident will:

Incorporate formative evaluation feedback into their daily practice of neurology.

Participate in the education of patients, families, students, residents and other health professionals.

Systems Based Practice

- Goal

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

Residents are expected to:

- Objectives

The PGY-2-5 resident will;

Coordinate patient care within the health care system.

Advocate for quality patient care and optimal patient care systems.

Professionalism

- Goal

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to demonstrate:

- Objectives

The PGY-2-5resident will demonstrate:

- In the process of providing care to inpatients, the residents have to demonstrate sensitivity to patient privacy, autonomy and diversity.
- Be responsive to patient primary and autonomy

Interpersonal and Communication Skills

- Goal

Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates.

- Objectives

The PGY-2-5resident will:

- Communicate effectively with patients and their families.
- Work effectively as a member of a health care team.
- The resident maintains the medical record in a comprehensive, timely and legible manner.

Program Evaluation

- Monthly evaluation of the rotation by the resident.
- Yearly program evaluation.

- Twice-yearly evaluation of the resident and solicitation of feedback.

Level of Supervision

- Daily direct supervision by ward attending and other faculty.
- The resident reviews every admission and consultation with the attending in a timely fashion.
- Attending neurologists are available 24 hours a day, 365 days a year.

F = faculty

R = senior resident

Primar supervision

Secondary supervision

Resident Portfolio

A portfolio is a collection of products prepared by the resident that provides evidence of learning and achievement related to a learning plan. A portfolio typically contains written documents but can include video- or audio-recordings, photographs, and other forms of information.

Reflecting upon what has been learned is an important part of constructing a portfolio. In addition to products of learning, the portfolio can include statements about what has been learned, its application, remaining learning needs, and how they can be met.

In graduate medical education, a portfolio might include a log of clinical procedures performed; a summary of the research literature reviewed when selecting a treatment option; a quality improvement project plan and report of results; ethical dilemmas faced and how they were handled; a computer program that tracks patient care outcomes; or a recording or transcript of counselling provided to patients.

The resident is responsible for maintaining the portfolio. Items to be included in the Neurology Resident Portfolio are:

- Curriculum Vitae letters of recommendation and biannual evaluations.
- Neurology Grand Rounds
- Resident research project results
- Abstracts presented at national meetings
- Papers published during the residency
- Listening to meetings attended each year
- Case Log, reported semi-annually
- Written one-page semi-annual self-reflection with an individualized learning plan, including answers to the following three questions:

1. What are your strengths?
2. What are areas for your development?
3. What are your plans to achieve these goals?
4. The Neurology Residency Program Director reviews the Portfolio with the resident semi-annually.

Section Nine

Research Initiatives (Optional)

The philosophy of the Division of Neurology is that research should be part of each resident's educational experience, residents are required to participate in a clinical or basic research project during their residency, culminating in a formal departmental presentation. Abstract submission to an international meeting is also highly encouraged.

Each resident will under supervision a faculty mentor to support this project. In addition to overseeing the specific project, the mentor will instruct the resident in more general issues of study design, implementation, and reporting relevant to the research project. Inform the Program Director of your project and mentor

Completion of the scientific research project is a prerequisite for graduation from the program. Trainees are allowed to choose the type of research that aligns with their interests and clinical experience under the supervision of an approved faculty member.

Research Preparation Requirements

1. **Choosing the research topic:**
    - The topic must be relevant to the specialty or one of its branches.
    - It is preferable that the topic addresses a common or practically applicable health problem.
2. **Obtaining ethics committee (IRB) approval** if the research involves collecting patient data.
3. **Developing the research proposal:**
    - Title
    - Introduction and literature review
    - Research hypothesis or question
    - Objectives
    - Methodology (design, sample, analytical methods)
    - Ethical considerations
    - Timeline
4. **Data collection and analysis:**
    - Use appropriate statistical tools for data analysis.
    - Maintain scientific integrity and complete confidentiality when handling information.
5. **Writing the final research paper:**
    - Follow the scientific structure: abstract, introduction, methodology, results, discussion, conclusions, references.
    - Write in clear, unbiased scientific language.

Procedures

- The trainee begins work on the research project in the second year of training. The research proposal, along with academic and ethical approvals, must be submitted to the General Secretariat through the training canter during the second year.
- The research project is completed during the third year of training.
- The research is reviewed by the Programs and Training Committee during the fourth year (classified as "satisfactory" or "unsatisfactory") and is one of the prerequisites for taking the final cognitive exam.
- The approved standards for recognizing research completion are as follows:

    1. Publication in the Arab Board Journal or any peer-reviewed scientific journal, or presentation at a scientific conference.
    2. Discussion and approval of the research by an academic committee in the training canter.
    3. Review and approval of the research by the Programs and Training Committee.

Section Ten

Programmatic Assessment

Competency-based training is monitored by the program director and the clinical competency committee at the training center through periodic and continuous formative assessment to ensure the trainee achieves the required competencies to practice the profession efficiently and safely. This evaluation relies on clear, predefined criteria and focuses on measuring the trainee's acquisition of the necessary knowledge, skills, and professional behaviors as defined in the training curriculum. A combination of tools is used to measure performance, including direct supervision, self-assessment, peer evaluation, practical and theoretical exams, daily logs, and clinical simulation during training stages, to ensure the trainee's professional progress according to the training plan and to provide feedback to ensure assessment quality. The program also includes an evaluation of the trainee's research contributions as part of the curriculum.

Assessment Methods and tools

First: Workplace-Based Assessment and End of Rotation Evaluation

These assessments are carried out by the attending consultant responsible for the resident during the training unit. Preferably, this happens at the end of each unit (every four weeks) and should not be less than once every eight weeks. The process is carried out according to a pre-established mechanism with known criteria for the instructor and the resident, based on the instructor's observations throughout the training period, and may include an evaluation of clinical skills at a time known in advance by the resident. There should also be mechanisms to communicate the results to the resident and discuss with them strengths and areas needing improvement. Evaluation of educational activities presented by the resident during a given unit is also possible.

Second: Formative Assessment

This takes the form of examinations, whether written or clinical, with the aim of giving the resident feedback about performance, knowledge level, and skills.

In CBME residency programs, assessment is continuous, frequent, and criterion-based, focusing on measuring trainees' progress toward specific training and learning objectives.

- Multiple workplace-based assessment tools are used, including:
- Mini-Clinical Evaluation Exercise (mini-CEX)
- Direct Observation of Procedural Skills (DOPS)
- Case-based discussions
- Multi-source feedback (MSF)
- Record reviews
- Clinical Encounters

Assessments are conducted regularly (often monthly or per rotation) and documented systematically, with feedback provided to residents to guide their learning and improvement. Residents' performance is reviewed by Clinical

Competency Committees (CCC) at least twice a year, using milestones and other performance data to track progress and identify areas needing support or remediation.

Third: Assessment of Professional and Behavioral Performance

This includes patient satisfaction surveys, peer assessments, evaluations by support staff, direct observation of patient interactions, and student evaluations.

Fourth: Summative Assessment

These take the form of written (knowledge) and clinical (practical) exams based on the learning outcomes for each stage of training.

Primary (Cognitive) Exam at the End of Year One

A knowledge exam designed to ensure trainees have obtained the necessary knowledge in basic and applied health sciences relevant to the specialty and general professional principles. The format, number of questions, number of allowed trials and details are determined by the relevant scientific council according to general principles in cooperation with the measurement and evaluation administration and the Arab Board bylaw of academic regulations.

This exam is held twice a year on the electronic examination platform at accredited exam centers simultaneously. The passing mark is set according to the bylaws of the Arab Board following standard settings.
The primary exam of neurology consists of a single paper containing 100 questions aligning with the training curriculum map.

Final Exam: Consists of Two Parts: knowledge and practical clinical exams.

Final knowledge Exam:
Ensures the trainee's knowledge and cognitive competence in advanced applied and clinical sciences relevant to their specialty. This is taken before the final practical exam. The format, number of questions, number of allowed trials and details are determined by the internal medicine with specifications from the neurology committee according to general principles in cooperation with the measurement and evaluation administration and the Arab Board bylaw of academic regulations.

The final knowledge exam is held once a year on the electronic examination platform at accredited centers in the last quarter of the year, concurrently with the second round of the primary exam. An exceptional round may be held with first round timing upon request by the scientific council chair. The passing mark is set according to the bylaws of the Arab Board following standard settings.
The written exam will contain all knowledge domains in 120 to 200 A Type Best of Four MCQs: which will cover in percentages topics according to the blueprint based on the priority indices of each tailored to what is stated in the Learning objectives and the mentioned competencies

Final Practical Clinical Exam:

A clinical-practical test to ensure the candidate possesses the knowledge, capabilities, skills, and professional behaviors necessary for safe and competent independent practice. The candidate must pass the final written exam before attempting this exam, which takes place one to two times a year, as set by the Arab Board.

The exam consists of the following assessment formats:

A. The OSLER (Objective Structured Long Examination Record) 60-70% of the time is to take the history and clinical examination, and the other part is to interact it with the exam committee.
B. 10 OSCE stations include all neurology domains such as Stroke, Epilepsy, Movement disorders, Neuroimmunology, Neurophysiology, peripheral neuropathy, Genetics, Dementia and neurodegenerative diseases, myopathies, NMJ disorders, Spinocerebellar disorders.

The pass mark in this exam is set according to the regulation of Arab board which apply standard settings and specifications of conditions based on standard setting set by the neurology committee

Upon completion the training program successfully and fulfilling all the requirements and passing the final exams, the physician is awarded the Arab Board specialty certificate.

Section Eleven

Educational Resources

List the educational resources

- Aminoff M., Neurology in General Medicine, Churchill Livingstone.
- Neurology. Queen Square text book
- Flaherty, A. The Massachusetts General Hospital Handbook of Neurology, Lippincott Williams & Wilkins.
- Marshall RS and Mayer SA. On Call Neurology: On Call Series, Saunders.
- Plum F and Posner J. The Diagnosis of Stupor and Coma, 3rd edition, Oxford University Press, 1982.
- Practice Parameters from the American Academy of Neurology, are available for a large range of conditions, therapies, and assessment tools at AAN.com.
- Ropper AH and Brown RH. Adams and Victor's Principles of Neurology, 8-, the edition, McGraw-Hill Professional, 2005.
- Strunk W, White EB, and Kalman M. The Elements of Style Illustrated, Illustrate edition, The Penguin Press HC, 2000.
- Trusse L. Eats, Shoots & Leaves: The Zero Tolerance Approach to Punctuation, Reprint edition, Gotham, 2006.
- Aids to the Examination of the Peripheral Nervous System, Saunders Limited, 4th edition, 2000.

Journals:

- Neurology
- Archives of Neurology
- Journal of Neurology, Neurosurgery, and Psychiatry
- Annals of Neurology
- Brain
- Stroke
- Continuum
- Practical neurology
- Lancet Neurology

Neurology Residency Training Program

NRTP

Name of Certificate (English)

Arab board of Health Specializations - NEUROLOGY

(ABHS-Neuro)

اسم الشهادة باللغة العربية:

شهادة المجلس العربي للاختصاصات الصحية

اختصاص في الأمراض العصبية