

NEUROLOGY

POST-IMM FELLOWSHIP TRAINING

N

TOTAL DURATION OF TRAINING FIVE YEARS (INCLUDING THREE YEARS OF NEUROLOGY TRAINING)

NOTE: THE CURRICULUM IS APPLICABLE TO BATCHES ENTERING NEUROLOGY TRAINING IN JANUARY 2025 & ONWARDS



**COLLEGE OF
PHYSICIANS AND
SURGEONS
PAKISTAN**

2025

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The College of Physicians and Surgeons Pakistan would appreciate any criticism, suggestions, advice from the readers and users of this document. Comments may be sent in writing or by e-mail to the CPSP at:

DIRECTORATE OF NATIONAL RESIDENCY PROGRAM (DNRP)

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ABOUT THE COLLEGE

The College was established in 1962 through an ordinance of the Federal Government. The objectives/functions of the College include promoting specialist practice of Medicine and Allied, Surgery and Allied, Obstetrics & Gynaecology, and other specialties by securing improvement of teaching and training, arranging postgraduate medical, surgical and other specialists training, providing opportunities for research, holding and conducting examinations for awarding College diplomas and admission to the fellowship of the College.

Since its inception, the College has taken great strides in improving postgraduate medical & dental education in Pakistan. Competency-based structured Residency Programs have now been developed, along with criteria for accreditation of training institutions, and for the appointment of supervisors and examiners. The format of examinations has evolved over the years to achieve greater objectivity and reliability in methods of assessment. The recognition of the standards of College qualifications nationally & internationally, particularly of its fellowship, has enormously increased the number of trainees and consequently the number of training institutions and the supervisors. The rapid increase in knowledge base of medical sciences and consequent emergence of new sub-specialties have gradually increased the number of CPSP fellowship disciplines to eighty five including specialties in dentistry.

After completing two years of core training during IMM, the trainees are allowed to proceed to the advance phase of FCPS training in the specific specialty of choice for 2-3 years. However, it is mandatory to qualify IMM examination before taking the FCPS-II exit examination. The work performed by the trainee is to be recorded in the e-logbook on daily basis. The purpose of the e-log is to ensure that the entries are made on a regular basis and to avoid belated and fabricated entries. It will hence promote accuracy, authenticity and vigilance on the part of trainees and the supervisors.

The average number of candidates taking CPSP examinations each year is to a minimum of 32,000. The College conducts examinations for FCPS-I (11 groups of disciplines), IMM, FCPS-II (85 disciplines), MCPS (22 disciplines), including MCPS in Health Professions Education & Health Care System Management. A large number of fellows and senior medical teachers from within the country and overseas are involved at various levels of examinations of the College.

The College, in its endeavor to decrease inter-rater variability and increase fairness and transparency, is using TOACS (Task Oriented Assessment of Clinical Skills) in IMM and FCPS-II Clinical examinations. Inclusion of foreign examiners adds to the credibility of its qualification at an international level. It is important to note that in the overall scenario of health delivery over 85% of the total functioning and registered health care specialists of the country have been provided by the CPSP. To coordinate training and examination, and provide assistance to the candidates stationed in cities other than Karachi, the College has established 14 Regional Centers (including five Provincial Headquarter Centers) in the country. The five Provincial Headquarter Centers, in addition to organizing the capacity building workshops/short courses also have facilities of libraries, I.T, and evaluation of synopsis along with providing guidance to the trainees in conducting their research work. The training towards fellowship can be undertaken in more than 341 accredited medical institutions throughout the country and 93 accredited institutions abroad. The total number of trainees in these institutions is over 38,270 who are completing residency programs with around 6,048 supervisors. These continuous efforts of the College have even more importantly developed a credible system of postgraduate medical education for the country. The College strives to make its courses and training programs 'evidence' & 'needs based' so as to meet international standards as well as to cater to the specialist healthcare needs not only for this country but also for the entire region.

Prof. Mohammad Shoaib Shafi

President,

College of Physicians and Surgeons Pakistan

FELLOWSHIP DISCIPLINES

The list of fellowship programmes, first & second fellowship, are given below:

Disciplines for First Fellowship

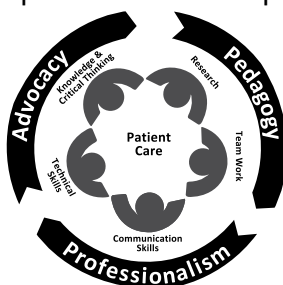
- | | |
|--------------------------------|--|
| 1. Anatomy | 24. Nuclear Medicine |
| 2. Anesthesiology | 25. Obstetrics And Gynaecology |
| 3. Biochemistry | 26. Operative Dentistry & Endodontics |
| 4. Cardiac Surgery | 27. Ophthalmology |
| 5. Cardiology | 28. Oral & Maxillofacial Surgery |
| 6. Cardio Thoracic Anaesthesia | 29. Orthodontics |
| 7. Chemical Pathology | 30. Orthopaedic Surgery |
| 8. Clinical Haematology | 31. Otorhinolaryngology (ENT) |
| 9. Community Medicine | 32. Paediatric Surgery |
| 10. Dermatology | 33. Paediatrics |
| 11. Diagnostic Radiology | 34. Periodontology |
| 12. Emergency Medicine | 35. Pharmacology and Therapeutics |
| 13. Family Medicine | 36. Physical Medicine & Rehabilitation |
| 14. Forensic Medicine | 37. Physiology |
| 15. Haematology | 38. Plastic Surgery |
| 16. Histopathology | 39. Prosthodontics |
| 17. Immunology | 40. Psychiatry |
| 18. Medicine | 41. Pulmonology |
| 19. Medical Oncology | 42. Radiation Oncology |
| 20. Microbiology | 43. Surgery |
| 21. Nephrology | 44. Thoracic Surgery |
| 22. Neurology | 45. Urology |
| 23. Neurosurgery | 46. Virology |

Disciplines for Second Fellowship

- | | |
|---|--|
| 1. Breast Surgery | 21. Paediatric Critical Care Medicine |
| 2. Child and Adolescent Psychiatry | 22. Paediatric & Congenital Cardiac Surgery |
| 3. Clinical Cardiac Electrophysiology | 23. Paediatric Endocrinology & Diabetes |
| 4. Community & Preventive Paediatrics | 24. Paediatric Dermatology |
| 5. Colorectal Surgery | 25. Paediatric Gastroenterology and Hepatology |
| 6. Critical Care Medicine | 26. Paediatric Haematology Oncology |
| 7. Cytopathology | 27. Paediatric Infectious Diseases |
| 8. Developmental and Behavioural Paediatrics | 28. Paediatric Nephrology |
| 9. Endocrinology | 29. Paediatric Neurology |
| 10. Gastroenterology | 30. Paediatric Ophthalmology and Strabismus |
| 11. Gynecological Oncology | 31. Pain Medicine |
| 12. Hepato-Pancreato-Biliary and Liver Transplant Surgery | 32. Palliative Medicine |
| 13. Infectious Diseases | 33. Reproductive Endocrinology and Infertility |
| 14. Interventional Cardiology | 34. Rheumatology |
| 15. Interventional Radiology | 35. Spine Surgery |
| 16. Maternal and Fetal Medicine (MFM) | 36. Surgical Oncology |
| 17. Molecular Pathology and Cytogenetics | 37. Urogynaecology |
| 18. Neonatal Paediatrics | 38. Vitreo Retinal Ophthalmology |
| 19. Orbit And Oculoplastics | 39. Vascular Surgery |
| 20. Paediatric Cardiology | |

CPSP COMPETENCY MODEL

College of Physicians and Surgeons Pakistan has moved to competency-based medical education and has developed its own competency model shown below. A generic explanation of the model is given below and it is expected that all its residency training programmes follow the components of this model in accordance to the requirements of each specialty.



Patient or population care occupies the pivotal center. Patient care includes all clinical skills such as history taking, physical examination, ordering investigations, making diagnoses and managing the care. The inner leaves of the model represent the five major competencies directly related to patient care, while the three competencies in the outer circle are mega-competencies related to patient care and also incorporate education, professionalism, leadership, advocacy and population health.

By the end of the Residency Programme, residents are expected to acquire these competencies and their constituent learning outcomes, and provide promotive, preventive, curative and rehabilitative patient-centered (or population-centered) care.

Inner Leaves:

1. Knowledge and Critical Thinking
2. Technical Skills
3. Communication Skills
4. Teamwork
5. Research

Outer Leaves:

6. Professionalism
7. Pedagogy
8. Advocacy

1. Knowledge and Critical Thinking

- Demonstrate application of wide and current readings to critical thinking and problem solving
- Relate the alteration of body function to the presenting condition
- Interpret and integrate history and examination findings to arrive at an appropriate provisional and credible differential diagnoses
- Sequentially order, justify and interpret appropriate investigations
- Apply knowledge and reasoning skills to
 - Analyze data for problem identification and to rule in and rule out contending conditions
 - Synthesize and evaluate solutions for decision-making in solving familiar and less familiar problems based on best current evidence
 - Prioritize different problems within a time frame
 - Select, outline and provide, with evidence-based justifications, appropriate pharmacological and non-pharmacological management strategies
 - Assess new medical knowledge and apply it to resolve patient problems (Evidence-based practice)
 - Apply quality assurance procedures in daily work (Professionalism)
 - Demonstrate shared-decision-making with the patient or family
 - Provide cost-effective care while ordering investigations and in management
 - Use resources appropriately
 - Demonstrate awareness of bio-psycho-social factors in assessment and management of a patient

2. Technical Skills

- Demonstrate International Patient Safety Goals (IPSG)
- Demonstrate competent performance of all required technical skills and procedures in the specialty, including:
 - Obtaining informed consent
 - Preoperative planning
 - Pre-interventional care and preparation
 - Intra-Intervention techniques including exposure and closure, global & task specific items, and communication and teamwork skills
 - Post-interventional care
 - Follow-up care

3. Communication Skills

Written Communication Skills:

- Maintain clear, concise, accurate & updated medical records
- Write:
 - Cogent, clear progress notes documenting working diagnosis & status of diagnostic evaluation
 - Clear, focused, evidence-based & logical management plans and discharge summaries
 - Respectful, clear & focused letters and referrals to other colleagues

Verbal and other Non-verbal Communication Skills:

- Clear, focused and logical presentation of cases
- Demonstrate:
 - Effective interpersonal communication skills by being clear, considerate and sensitive towards patients, their relatives, other physicians, health professionals, team members, colleagues, students and the public
 - Empathy & respect towards patients & their relatives
 - Effective counseling of the patient and the family with cultural sensitivity by explaining options, educating them & promoting joint decision-making
 - Appropriate verbal & body language on the campus and all work situations including seminars, bedside sessions, outpatient sessions and others
 - Respect and tolerance for all health care professionals, including peers, juniors and seniors
 - Appropriate conflict resolution & management skills

4. Teamwork

- Demonstrate constructive team-communication skills
- Facilitate collaborative group interaction as a team member to build strong teams demonstrating respect, tolerance and interdependence
- Support other team members to grow
- Demonstrate willingness to assume responsibility and leadership as needed

5. Research

- Conduct a research study individually or in a group by using appropriate
 - Selection of research question(s) and objectives
 - Research design and statistical methods to answer the research question
 - REU approval of the synopsis
- Demonstrate competence in academic writing by publishing research article(s) as a step towards resolving issues or concerns in their specialty
- Guide others in conducting research by advising about research methodology including study designs and statistical methods
- Demonstrate clear, focused & logical presentations of their research
- Interpret & use results of various research studies (critical appraisal)

6. Professionalism

- Demonstrate the highest level of personal integrity: honesty, punctuality, regularity, timely task completion
- Deal with all patients in a non-discriminatory, prejudice-free manner, demonstrating the same level of care for every human being irrespective of gender, age, ethnic background, culture, socioeconomic status & religion
- Establish a trusting relationship with patients, their relatives and care-givers
- Deal with all patients with honesty, empathy & compassion, putting patients' needs first (altruism)
- Facilitate transfer of information important for promotion of health, prevention and management of disease

- Encourage questioning by the patient and be receptive to feedback
- Pursue self-directed and life-long learning. Keep abreast of medical literature and assess new knowledge and apply it to resolve patient problems
- Know one's limitations and ask for help as needed from colleagues, consultations or referrals
- Apply quality assurance procedures for improvement in daily work
- Be a role model for others

Ethics

- Maintain patient autonomy by demonstrating shared-decision-making with the patient and/or family
- Obtain informed consent, maintain patient confidentiality and do no harm
- Provide cost-effective care while ordering investigations and in management and use resources appropriately

Leadership

- Demonstrate accountability for their decisions and actions, and that of their team
- Demonstrate willingness to assume leadership role(s) when needed in given situations or events (rush call/code)
- Change and bring about change as necessary, as a leader or supportive leader

7. Pedagogy

- Demonstrate effective teaching skills, including clinical and community-based teaching, using diverse strategies
- Apply theories regarding learning & education in teaching practices
- Practice effective teaching methods, including the use of technology and multimedia tools to enhance learning experiences
- Mentor junior colleagues and residents, providing guidance and support
- Provide constructive feedback to resident learners
- Participate in continuous professional development through workshops and courses

- Reflect on teaching experiences for personal growth and improvement
- Lead educational initiatives & foster an inclusive learning environment

8. Advocacy

Advocacy is needed at multiple levels.

- Advocacy for the Patient:
 - Act as advocates for patients to ensure they are not lost in the system
 - Deliver timely care, prioritizing the patient's needs first
- Advocacy for the Practice:
 - Highlight limitations & issues within the service or practice
 - Identify solutions to problems and recommend and implement improvements for the practice(s) and institutional system(s)
- Advocacy for the Health System and Society:
 - Describe one's role in the health system(s) & contribute to building strong referral systems
 - Prioritize patient and community interests above personal or professional interests
 - Advocate for the elimination of social determinants of ill health
 - Advocate for the prevention of serious illnesses within one's specialty/sub-specialty
- Advocacy for the Profession:
 - Strive to build public trust in the medical & dental profession
 - Demonstrate efforts to improve and enhance the profession, specialty, and sub-specialty
 - Serve as conscientious gatekeepers of one's profession, specialty, and sub-specialty

GENERAL REGULATIONS

Candidate will be admitted to the examination in the name (surname and other names) as given in the MBBS degree. CPSP will not entertain any application for change of name on the basis of marriage/divorce/deed.

ELIGIBILITY REQUIREMENTS FOR ENTERING FCPS-II TRAINING PROGRAM IN NEUROLOGY

- Passed FCPS Part-I in General Medicine or granted exemption by CPSP
- Completed two years of RTMC registered training of IMM in Medicine & Allied

DURATION OF TRAINING

Total duration of the training is 5 years divided into following two phases:

- Intermediate Module in Medicine & Allied for first two years, after which the trainee is eligible to appear in the Intermediate Module Examination. For further details about the Intermediate Module refer to the booklet titled "Intermediate Module in Medicine & Allied" published separately by the College
- Last three years consists of FCPS-II training in Neurology with prescribed rotations

All training inclusive of rotations is to be completed one month before the date of theory examination for FCPS-II.

REGISTRATION AND SUPERVISION

All training must be supervised and residents are required to register with the Research & Training Monitoring Cell (RTMC) and submit the name of their supervisor(s) by the date indicated on the registration form. The supervisor will normally be a fellow of the College.

APPROVED TRAINING CENTRES

Training must be undertaken in units/departments/institutions approved by the College. A current list of approved locations is available from the College and its regional offices as well as on the College website: www.cpsp.edu.pk

RESEARCH

Vide notification numbers CPSP/Sec/2024/45 dated 15th March, 2024, F-1/Exam-24/CPS/3008-A dated 30th August, 2024, and CPSP/Sec/2024/454 dated 09th September, 2024.

- Residents inducted in the CPSP 1st fellowship programs from January 2025 and onwards, will be required to provide evidence of publication of one research paper in a CPSP approved journal, for appearing in final fellowship examination
- Synopsis duly approved by the supervisor must be submitted to the REU of CPSP:
 - Before six (06) months of scheduled IMM examination (for straight track)
 - In the first six (06) months of 3rd year of residency training (for specialty candidates of Medicine & Surgery)
- Synopsis of the research paper must be approved by the Research & Evaluation Unit (REU) of CPSP before starting the research work
- The evidence of publication of one research paper in a CPSP approved journal must be submitted along with the final FCPS-II examination form

ROTATIONS

The specialty of Neurology prescribes its residents to acquire competencies in following areas in addition to the training in the primary specialty:

- | | |
|---|------------------|
| • Neurophysiology | 04 Months |
| (This training is to be conducted in-house within one of the sections of Neurology) | |
| • Psychiatry | 02 Months |
| • Neurosurgery | 02 Months |
| • Diagnostic Radiology (Neuroradiology) | 03 Months |
| • Ophthalmology (Neuro-ophthalmology) | 01 Month |

Rotational Policy:

CPSP wishes to be more Resident friendly in its policies regarding rotations as given below:

- CPSP prefers that all rotations must be completed within the same hospital in which the primary specialist training unit is located.
- In case, a specific rotational unit is not present in a given hospital but the primary unit is capable to deal with competencies related to those rotations, the parent supervisor can verify the entries for those rotational competencies and there will be no need to send the residents to a rotational unit outside the parent hospital
- The Residents will be sent for rotations outside the parent hospital only in cases where the acquisition of rotational competencies in parent hospital is not possible. The rotational competencies are laid down in the curriculum by the Faculty of the program. The parent supervisor shall make the requisition for the rotation to a specific center within the same city, preferably to a hospital with which an MoU is already signed. The duly approved supervisor of that rotational unit will supervise and verify the entries made by the resident and, shall also issue a rotation completion certificate (to be countersigned by the parent supervisor)
- The primary responsibility of verification of e-portal entries shall be of the rotational supervisor (if any), but the e-portal entries shall also be visible to the parent supervisor
- No resident, including for elective rotation, will be sent for rotation outside the city without prior permission of the Competent Authority, processed through NRP committee

MANDATORY WORKSHOPS AND COURSE

It is mandatory for all residents to attend the following CPSP certified workshops in the first two years of Intermediate Module training:

1. Introduction to Computer and Internet
2. Research Methodology and Dissertation Writing
3. Communication Skills
5. Basic Life Support (BLS) Course

Any other workshop/s as may be introduced by the CPSP.

NOTE:

1. The workshops are conducted by the Department of Medical Education and the residents are advised to get registered online. The BLS course is conducted by the Advanced Skills Department (ASD) and the registration form is to be submitted with the ASD separately.
2. No resident will be allowed to appear in IMM examination without attending the above mentioned workshops and BLS course.

E-LOGBOOK

The CPSP council has made e-logbook system mandatory for all Residency program trainees inducted from July 2011. Upon registration with RTMC each trainee is allotted a registration number and a password to log on and make entries of all work performed and the academic activities undertaken in e-logbook on a daily basis. The concerned supervisor is required to verify the entries made by the trainee. This system ensures timely entries by the trainee and prompt verification by the supervisor. It also helps in monitoring the progress of trainees and the vigilance of the supervisors.

AWARD OF FELLOWSHIP

Fellowship of the College of Physicians and Surgeons Pakistan is awarded to those applicants who have:

- A recognized medical degree
- Completed one year house job in an institution recognized by PMDC/PMC
- Passed the relevant FCPS Part-I examination or granted exemption
- Registered with the Research & Training Monitoring Cell (RTMC)
- Undergone specified years of supervised accredited Training on whole time basis
- Passed IMM examination in Medicine and Allied
- Declared successful in final fellowship examinations carried out by the examination department of the CPSP
- Submitted evidence of publication of one research paper in a CPSP approved journal
- Elected by the college council

It is important to note that all applicants must undergo a formal examination before being offered fellowship of the relevant specialty, except in case of fellowship without examination.

TRAINING ENQUIRES AND REGISTRATION

All residents should notify the College in writing of any change of address and proposed changes in training (such as change of Supervisor, change of department, break in training etc.) as soon as possible.

ROLES AND RESPONSIBILITIES SUPERVISOR

Supervision of a resident is a multifaceted job. Arbitrarily the task is divided into the following components for the sake of convenience. This division is by no means exhaustive or rigid. It is merely meant to give semblance to this abstract and versatile role.

EXPERT TRAINER

- This is the most fundamental role of a supervisor. S/he has to not only ensure and monitor adequate training but also provide continuous helpful feedback (formative) regarding the progress of the training
- This would entail observing the resident's performance and rapport with all the people within his/her work environment
- S/he should teach the residents and help them overcome the hurdles during the learning process
- It is the job of the supervisor to make the residents develop the ability to interpret findings in their patients and act suitably in response
- The supervisor must be adept at providing guidance in writing a research article (which is an essential component of training)
- Every supervisor is required to participate actively in Supervisors' workshops, conducted regularly by CPSP, and do his/her best to implement the newly acquired information/skills in the training. It is his/her basic duty to keep abreast of the innovations in the field of expertise and ensure that this information percolates to residents of all years under him/her

RELIABLE LIAISON

- The supervisor must maintain regular contact with the College regarding training and the conduct of various mandatory workshops and courses
- It is expected that the supervisor will establish direct contact with relevant quarters of CPSP if any problem arises during the training process, including the suitability of resident
- S/he must be able to coordinate with the administration of his/her institution/organization in order to ensure that his/her residents do not have administrative problems hampering their training

PROFICIENT ADMINISTRATOR

- The supervisor must ensure that the residents regularly fill their e-logbook
- S/he must provide quarterly feedback regarding each resident through e-log system
- S/he might be required to submit confidential reports on resident's progress to the College
- The supervisor should notify the College of any change in the proposed approved training program
- In case the supervisor plans to be away for more than two months, he/she must arrange satisfactory alternate supervision during the period

ROLES AND RESPONSIBILITIES RESIDENT

Given the provision of adequate resources by the institution, residents should

- Accept responsibility for their own learning and ensure that it is in accord with the requirements of the particular discipline
- Play an informed role in the selection of the supervisor
- Seek reasonable infrastructure support from their Institution and supervisor, and use this support effectively
- Ensure that all outlined aspects of training are covered during the defined training period
- Work with their supervisors in writing the synopsis and submit the synopsis duly approved by the supervisor with the REU department before six (06) months of their scheduled IMM examination (for straight track) / in the 1st six (06) months of 3rd year of their residency (for specialty candidates of Medicine and Surgery)
- Accept responsibility for the research and plan to execute it within the time limits defined
- Be responsible for arranging regular meetings with the supervisor to discuss and document progress. If the supervisor is not able/willing to meet with the resident on a regular basis, he/she must notify the college
- Provide the supervisor with word processed updated synopsis subsequent research paper draft (ensure it has been checked for spelling, grammar and typographical errors, prior to submission) and provide the raw data to the supervisor if required
- Submit evidence of publication of one research paper in a CPSP approved journal, along with examination form
- Follow the College complaint procedure if serious problem arises

INTRODUCTION

The last few decades were marked by outstanding advances in the field of Neurology and related sciences leading to development of newer diagnostic modalities and therapeutic interventions for the common and rarer neurological conditions. This makes Neurology a very exciting field to choose currently.

Neurology encompasses disorders of the brain, spinal cord, nerves, and muscles and is therefore a very diverse field.

The College started structured Neurology training program in 1992 and is considered one of the premier specialty training programs in the country. Upon completion of the residency, the candidate is expected to become be a well-trained and competent clinician qualified to practice Neurology.

The FCPS Neurology Training Program is a three-year structured program of the College of Physicians and Surgeons, Pakistan. This Training Program is designed for education and training of physicians to make them competent in diagnosis and management of various Neurological Disorders, through training in the fields of Clinical Neurology, Clinical Neurophysiology, Neuroradiology, Psychiatry and Neurosurgery. This program aims at not only proficiency in professional and technical skills related to Neurology but also to enhance skills to be effective teachers and to enable our students to meet the health care and research needs of the country.

CURRICULUM: AIM AND OBJECTIVES

AIM

The aim of the fellowship in Neurology is to produce specialists & academicians who have attained the required competencies.

OBJECTIVES

By the end of the Fellowship program, the resident will be able to:

General Neurology

- Localize the lesion, diagnose and justify
- Develop a plan of investigation and management
- Perform a detailed screening neurological examination with correct technique
- Formulate an approach towards neurological diagnoses & propose general & special management plans

Disorders of Consciousness & Epilepsy

- Identify, differentiate, and manage different types of coma and relate them to different disorders of consciousness
- Identify the causes and manage delirium and other acute confusional states
- Identify the semiology and type of epilepsy and other seizure disorders, diagnose different epileptic syndromes, and formulate appropriate management plans
- Distinguish between various causes of faintness and syncope and, differentiate them from epileptic attacks
- Correlate sleep cycle phases and physiology with different sleep disorders and manage sleep cycle-related abnormalities

Disorders of Special Senses

- Differentiate, diagnose, and treat disorders of deafness, dizziness, and equilibrium
- Categorize and manage neurological causes of disorders of vision, extra-ocular movements, and pupillary function
- Identify the ophthalmological causes of visual impairment and refer accordingly
- Diagnose and treat disorders of smell
- Diagnose and treat disorders of taste

Pain and other Disorders of Somatic Sensation

- Identify and manage somatic pain and various types of neuralgia
- Describe the pathophysiology of various types of headaches
- Diagnose and manage primary & secondary headaches & cranio-facial pain syndromes
- Diagnose and treat pain in the back, neck & extremities, with appropriate referrals when necessary
- Identify & treat disorders of non-painful somatic sensations

Derangements of Intellect, Behavior, and Language caused by Diffuse and Focal Cerebral Disease

- Describe neurology of intelligence, memory, emotions, and limbic system
- Diagnose, differentiate, and manage different types of dementia and other amnesic syndromes
- Identify and treat disorders of speech and language

Growth and Development of the Nervous System and the Neurology of Aging

- Describe normal development of the nervous system
- Recognize deviations in the development of the nervous system and develop an appropriate management plan
- Predict the effects of aging on structural neurology of nervous system

Infections of Nervous System

- Diagnose, differentiate, and manage common causes and complications of acute and chronic infections of the nervous system

Neoplasms of the Nervous System

- Identify and differentiate various tumors of the central and peripheral nervous system, provide conservative management, when necessary, with timely referral
- Diagnose and manage different para-neoplastic syndromes
- Identify neuro-cutaneous syndromes and devise an appropriate management plan

Cerebrovascular Disorders

- Classify strokes on clinical grounds
- Recommend appropriate primary prevention of stroke
- Provide pharmacological treatment & neuro-intervention techniques in acute stroke
- Advise appropriate secondary prevention and control of risk factors of stroke
- Emphasize the role of chronic rehabilitation in cerebrovascular disorders and refer accordingly

Traumatic Brain Injury

- Diagnose and initially manage traumatic brain injuries and their complications with timely referral

Parkinson's Disease and other Movement Disorders

- Describe the semiology of various abnormal movements
- Differentiate and manage various inherited & acquired movement disorders ranging from hypo-kinetic to hyper-kinetic presentations

Demyelinating Disorders of Central Nervous System

- Diagnose and differentiate demyelinating disorders and, plan their short & long-term management

Diseases of Spinal Cord

- Diagnose and manage the full spectrum of diseases of spinal cord and their complications

Neuromuscular Disorders

- Diagnose & manage the complete range of diseases of the nerves, neuromuscular junctions and muscles along with their complications

Neuropharmacology

- Prescribe drugs for neurological disorders applying the fundamental pharmacological principles of mechanism of action, ensuring accurate dosage calculations & considering potential adverse effects

Neuro Critical Care

- Identify and promptly treat red flag headaches
- Diagnose and take immediate measures to treat raised intra-cranial pressure
- Manage emergent conditions such as status epilepticus, acute stroke, myasthenic crisis, guillain-barre syndrome, acute CNS infections and cervical cord pathologies
- Identify and treat hypertensive emergencies
- Formulate diagnostic and management plans for an unconscious patient
- Manage respiratory failure by invasive and non-invasive ventilation
- Offer/Provide end of life care and palliative support
- Examine the signs of brain-stem function and determine brain-stem death accurately

Systemic Disorders including Nutritional Deficiencies & Toxicological Issues

- Identify the manifestations of different nutritional deficiencies in the nervous system and manage them appropriately
- Recognize the neurological effects of various toxins and provide appropriate management plans
- Diagnose and appropriately manage the inborn errors of metabolism affecting the nervous system
- Identify & manage developmental disorders of the nervous system

SYLLABUS

THE CLINICAL METHODS IN NEUROLOGY

- Basic concepts in neurology
- Neuroanatomy
- Neurophysiology
- Neuropathology
- Localization of lesion

HEADACHE & OTHER PAIN DISORDERS OF NERVOUS SYSTEM

- Headache
- Other craniofacial pains
- Pain in the back, neck, and extremities
- Disturbances of CSF circulation

EPILEPSY AND DISORDERS OF CONSCIOUSNESS

- Epilepsy and other seizure disorders
- Coma and related disorders of consciousness
- Encephalopathies
- Sleep and its abnormalities

DERANGEMENTS OF INTELLECT AND BEHAVIOR

- Delirium and other acute confusional states
- Dementia
- Other amnesic syndromes

INFECTIONS OF THE NERVOUS SYSTEM

- Bacterial
- Fungal
- Parasitic
- Viral
- Prion diseases
- Sarcoidosis

CEREBROVASCULAR DISEASES

- Infarction
- Hemorrhage
- Venous sinus thrombosis

DEMYELINATING DISORDERS OF CENTRAL NERVOUS SYSTEM

- Multiple sclerosis
- Neuromyelitis optica spectrum disorders
- Other demyelinating disorders

DISORDERS OF CEREBELLUM AND EQUILIBRIUM

- Ataxia
- Vertigo

MOVEMENT DISORDERS

- Parkinson's disease
- Parkinson plus syndromes
- Other movement disorders

DISEASES OF THE SPINAL CORD

- Compressive myelopathies
- Non-compressive myelopathies

NEOPLASTIC AND PARANEOPLASTIC SYNDROME

- Primary tumors of the nervous system
- Neurocutaneous syndromes
- Metastatic disease of the nervous system
- Paraneoplastic syndromes

DISEASES OF THE CRANIAL NERVES**NEUROMUSCULAR DISORDERS**

- Myopathy
- Neuropathy
- Neuromuscular junction disorders
- Anterior horn cell disorders

NEURO-ELECTROPHYSIOLOGY

- Basic concepts in neurophysiology
- Electroencephalography (EEG)
- Nerve conduction studies and electromyography
- Evoked potentials
- Sleep studies
- Autonomic functions tests

METABOLIC DISORDERS OF THE NERVOUS SYSTEM

- Inherited metabolic disorders
- Acquired metabolic disorders

NEUROPHARMACOLOGY

- Disorders of the nervous system due to drugs, toxins and other chemical agents

NEUROLOGICAL MANIFESTATIONS OF SYSTEMIC DISORDERS AND PREGNANCY

- Systemic autoimmune disorders
- Metabolic disorders
- Systemic infections
- Endocrine disorders
- Disorders related to pregnancy and postpartum state

MISCELLANEOUS

- Nutritional deficiencies
- Developmental disorders of the nervous system

INSTRUCTIONAL METHODOLOGIES

The training program is expected to arrange the following teaching activities for all trainees as their routine instructional methods during a typical working week.

- Case Based Discussions: cases presented by residents before the faculty of Neurology of the training center. All trainees are expected to take turns in the presentation
- Journal Club
- Clinical Neurophysiology Conference
- Neurology, Neurosurgery and Radiology meetings (The consultants from radiology, neurology & neurosurgery are required to participate in this teaching activity for the trainees, in which all interesting cases along with laboratory results, CT scans and MRI images are discussed)

Other Instructional Methodologies:

- Morbidity / Mortality review meetings
- Seminars, Conferences & Lectures
- Research Projects

CORE COMPETENCIES

The competencies, a specialist must have, are varied and complex. A list of the core competencies required during training in the department of Neurology is given below. The level of competencies to be achieved each year is specified according to the key, as follows:

1. Observer Status
2. Assistant Status
3. Performed under Direct Supervision
4. Performed under Indirect Supervision
5. Performed Independently

COMPETENCIES	THIRD YEAR								TOTAL NO. OF CASES
	01-03 MONTHS		04-06 MONTHS		07-09 MONTHS		10-12 MONTHS		
	LEVEL	CASES	LEVEL	CASES	LEVEL	CASES	LEVEL	CASES	
HISTORY & EXAAMINATION	3	25	4	25	4	25	5	25	100
LUMBAR PUNCTURE	2	2	3	3	4	4	4	5	14
NASOGASTRIC INTUBATION	3	4	4	6	4	8	4	8	26
ENDOTRACHEAL INTUBATION	3	3	3	5	3	7	3	8	23
CVP LINE INSERTION	3	3	3	5	3	5	3	5	18
CT SCAN (INTERPRETATION)	1	5	1	5	1	5	2	5	20
MRI SCAN (INTERPRETATION)	1	5	1	5	1	5	1	5	20
ANGIOGRAPHY (INTERPRETATION)	-	-	1	5	1	5	1	5	15
ELECTROENCEPHALOGRAPHY (EEG)	-	-	1	5	1	10	2	15	30
NERVE CONDUCTION STUDIES (NCS)	-	-	1	5	1	10	2	15	30
ELECTROMYOGRAPHY (EMG)	-	-	1	5	1	10	1	15	30
EVOKED POTENTIALS	-	-	1	2	1	2	1	2	6

COMPETENCIES	FOURTH YEAR								TOTAL NO. OF CASES
	13-15 MONTHS		16-18 MONTHS		19-21 MONTHS		22-24 MONTHS		
	LEVEL	CASES	LEVEL	CASES	LEVEL	CASES	LEVEL	CASES	
HISTORY & EXAMINATION	5	25	4	25	4	25	4	25	100
LUMBAR PUNCTURE	4	10	4	10	4	10	4	10	40
NASOGASTRIC INTUBATION	4	15	4	15	4	15	4	15	60
ENDOTRACHEAL INTUBATION	3	5	4	5	4	5	4	5	20
CVP LINE INSERTION	3	5	4	5	4	5	4	5	20
CT SCAN (INTERPRETATION)	3	15	3	20	3	20	3	25	80
MRI SCAN (INTERPRETATION)	3	10	3	10	3	15	3	15	50
ANGIOGRAPHY (INTERPRETATION)	3	3	3	5	3	5	3	7	20
ELECTROENCEPHALOGRAPHY (EEG)	2	20	2	20	3	20	4	40	100
NERVE CONDUCTION STUDIES (NCS)	2	15	3	20	4	25	4	30	90
ELECTROMYOGRAPHY (EMG)	3	15	3	20	3	25	3	30	90
EVOKED POTENTIALS	2	3	2	3	2	5	2	5	16
SLEEP STUDIES (INTERPRETATION)	1	1	1	1	2	1	2	2	5

COMPETENCIES	FIFTH YEAR								TOTAL NO. OF CASES
	25-27 MONTHS		28-30 MONTHS		31-33 MONTHS		34-36 MONTHS		
	LEVEL	CASES	LEVEL	CASES	LEVEL	CASES	LEVEL	CASES	
HISTORY & EXAMINATION	5	25	5	25	5	25	5	25	100
LUMBAR PUNCTURE	4	10	4	15	4	15	4	15	55
NASOGASTRIC INTUBATION	4	10	4	10	4	10	4	10	40
ENDOTRACHEAL INTUBATION	4	5	4	5	4	5	4	5	20
CVP LINE INSERTION	4	5	4	5	4	5	4	5	20
CT SCAN (INTERPRETATION)	3	20	3	20	4	20	4	20	100
MRI SCAN (INTERPRETATION) ANGIOGRAPHY (INTERPRETATION)	3	20	3	20	3	20	3	20	100
ELECTROENCEPHALOGRAPHY (EEG)	3	10	3	10	3	10	3	10	40
NERVE CONDUCTION STUDIES (NCS)	3	25	3	25	3	25	3	25	105
ELECTROMYOGRAPHY (EMG)	3	25	3	25	3	25	3	25	105
EVOKED POTENTIALS	3	10	3	10	3	10	3	10	20
SLEEP STUDIES (INTERPRETATION)	2	2	2	2		2	3	2	8

ROTATIONAL COMPETENCIES

NEUROPHYSIOLOGY (4 MONTHS)

COMPETENCIES		
	LEVEL	CASES
UTILIZE BASIC PHYSIOLOGICAL CONCEPTS IN CARRYING OUT FOLLOWING NEURO-ELECTROPHYSIOLOGY CLINICAL INVESTIGATIONS:		
• ELECTROENCEPHALOGRAPHY (EEG)	4	100
• NERVE CONDUCTION STUDIES (NCS) & ELECTROMYOGRAPHY (EMG)	4	90
• EVOKED POTENTIAL STUDIES	3	90
• AUTONOMIC TESTING	4	16
• SLEEP STUDIES IN HEALTH & DISEASE STATES	2	5

PSYCHIATRY (2 MONTHS)

OBJECTIVE:

- IDENTIFY, DIAGNOSE, AND MANAGE COMMON PSYCHIATRIC DISORDERS AND APPROPRIATELY REFER WHEN NECESSARY

COMPETENCIES		
	LEVEL	CASES
HISTORY TAKING, PERFORMING EXAMINATION, ORDERING INVESTIGATIONS, AND FORMULATING A DIAGNOSIS OF PATIENTS WITH:		
• ANXIETY	3	20
• DEPRESSION	3	25
• SCHIZOPHRENIA	3	10
• DELUSION	3	5
• PERSONALITY DISORDERS	3	5
DEVELOPING A MANAGEMENT PLAN FOR PATIENTS AND REFERRING THEM AS NECESSARY:		
• ANXIETY	3	20
• DEPRESSION	3	25
• SCHIZOPHRENIA	3	10
• DELUSION	3	5
• PERSONALITY DISORDERS	3	5

NEUROSURGERY (2 MONTHS)

OBJECTIVES:

- EVALUATE PATIENTS FOR MAJOR & MINOR NEUROSURGICAL INTERVENTIONS
- PROVIDE PATIENT EDUCATION REGARDING RISKS, COMPLICATIONS AND LIMITATIONS OF NEUROSURGICAL INTERVENTIONS
- PROVIDE POST-OPERATIVE CARE TO NEUROLOGICAL PATIENTS WHO HAVE UNDERGONE NEUROSURGICAL PROCEDURES
- EVALUATE & RESUSCITATE PATIENTS WITH HEAD INJURY
- PERFORM MINOR SURGICAL LIFE-SAVING PROCEDURES

COMPETENCIES		
	LEVEL	CASES
PRE-OPERATIVE EVALUATION FOR SURGERY	3	25
POST-OPERATIVE CARE OF PATIENTS	3	25
EARLY DETECTION OF POST-OPERATIVE COMPLICATIONS	3	20
EVALUATION & RESUSCITATION OF PATIENTS WITH HEAD INJURY	3	15
PATIENT SELECTION FOR BURR HOLE FOR DECOMPRESSION	2	10
PATIENT SELECTION FOR LUMBO-PERITONEAL SHUNT	2	5
PATIENT SELECTION FOR VENTRICULOPERITONEAL SHUNT	2	5

DIAGNOSTIC RADIOLOGY [NEURORADIOLOGY] (3 MONTHS)

OBJECTIVES:

- PLAN AND INTERPRET RELEVANT RADIOLOGICAL INVESTIGATIONS FOR NEUROLOGIC DISORDERS
- DISCUSS AND JUSTIFY INTERPRETATIONS WITH RADIOLOGIST
- RECOGNIZE THE INDICATIONS, RISKS & LIMITATIONS OF COMMON RADIOLOGICAL INVESTIGATIONS

COMPETENCIES		
	LEVEL	CASES
PLAN & INTERPRET:		
• PLAIN X-RAY	4	100
• CT SCAN	4	80
• MRI SCAN	4	100
• ANGIOGRAPHY	4	40

OPHTHALMOLOGY [NEURO-OPHTHALMOLOGY] (1 MONTH)

OBJECTIVE:

- IDENTIFY, DIAGNOSE AND PROMPTLY REFER OPHTHALMOLOGICAL DISORDERS LEADING TO VISUAL IMPAIRMENT

COMPETENCIES		
	LEVEL	CASES
IDENTIFY AND DIAGNOSE:		
• GLAUCOMA	3	15
• PUPILLARY ABNORMALITIES	4	30
• EXTRA-OCULAR MUSCLE (EOM) DISORDERS	4	50
• RETINOPATHIES	4	20
PERFORM FUNDOSCOPY	5	50
FIELD OF VISION TESTING	3	25

ASSESSMENT

FORMATIVE ASSESSMENT

College of Physicians and Surgeons Pakistan, in order to implement competency based education in letter & spirit, is introducing Work Place Based Assessment (WPBA) in addition to institutional/ departmental assessments. To begin with, College is introducing Mini-Clinical Evaluation Exercise & Direct Observation Procedural Skills to ensure that the graduates are fully equipped with the clinical competencies.

- Workplace-Based Assessment (WPBA) tools are entirely formative and should be accompanied by constructive feedback
- Each Mini Clinical Evaluation Exercise (Mini-CEX) or Direct Observation of Procedural Skills (DOPS) encounter lasts approximately 20 minutes, with an additional 5 minutes allocated for feedback and further action planning
- The topics given below are to be covered in any order as per availability of cases; however, each time focus should be on a different area/procedure/topic (**at least one Mini-CEX & one DOPS in each quarter**)
- The resident has the onus to report to the Parent Supervisor when they are prepared to appear for either a Mini-CEX or DOPS session
- The Parent Supervisor is responsible for arranging WPBA sessions and may conduct the assessment themselves or delegate it to another competent faculty member or assessor within the department
- Direct observation of the encounter by the Assessor is a must, followed immediately by specific and constructive feedback to the resident
- The prescribed assessment forms (sample provided below) are available on the e-portals of both the Parent Supervisors and the residents. If the Parent Supervisor conducts the assessment, they are responsible for completing the form and making digital entries via their e-portal. Digital entries can be made directly via a mobile phone or other digital device without the need to first fill out a hard copy. If the assessment is conducted by another assessor, the resident must retrieve the online form

from their e-portal and provide it to the assessor. After completing the assessment, the assessor will coordinate with the Parent Supervisor and hand over the filled form for digital entry

- Once the Parent Supervisor has entered the assessment details, the resident must provide their reflection and indicate their satisfaction with the encounter through their e-portal
- Entries from both the supervisor and the resident are saved in the e-portal database and are visible to both parties
- In case of unsatisfactory performance of the resident on any of the prescribed WPBAs, a remedial has to be completed within the stipulated time frame
- Non-compliance by the resident has to be reported in the quarterly feedback

MINI-CLINICAL EVALUATION EXERCISE (MINI-CEX)

Mini-CEX encounters will be arranged to cover/assess skills of History taking, Clinical Examination, Management & Communication Skills (including Counseling) [Any one of the above mentioned areas may be focused during a particular encounter].

Topics' List for Mini-CEX

All categories of topics given below will have to be covered at least once and minimum of one Mini-CEX may be performed in each quarter:

- Epilepsy
- Movement Disorders
- Headache
- Neuropathy
- Myopathy
- NMJ Disorders
- Demyelinating Disorders
- Stroke
- Dementia
- Myelopathy
- CNS Infections
- Systemic Diseases

- Miscellaneous (Cases of Trauma/Tumors/Paraneoplastic Syndromes/Mitochondrial Disorders)



COLLEGE OF
PHYSICIANS AND
SURGEONS
PAKISTAN

MINI CLINICAL EVALUATION EXERCISE (CEX)

SPECIALTY: FCPS NEUROLOGY

Time Duration = 20 mins (15 mins assessment and 5 mins feedback)

PLEASE COMPLETE THE QUESTIONNAIRE BY FILLING/CHECKING APPROPRIATE BOXES

Assessor: _____ Assessment Date: _____

Resident's Name: _____

Hospital Name: _____ R&RC Number: _____

Year of Residency: ☐ R3 ☐ R4 ☐ R5

Quarter: ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th

Setting: ☐ Ward ☐ OPD ☐ ER ☐ ICU Other: _____

Diagnosis of Patient: _____ Patient Age: _____ Sex: _____

Clinical Area: _____

Complexity of Case/ Procedure: ☐ Low/Easy ☐ Moderate/Average ☐ High/Difficult ☐ N/A

Focus of Clinical Encounters: ☐ History taking ☐ Clinical Examination ☐ Counselling

☐ Management ☐ Communication Skills ☐ Other: _____

PLEASE GRADE THE FOLLOWING AREAS ON THE GIVEN SCALE:

	NOT OBSERVED/ APPLICABLE	BELOW EXPECTATIONS		SATISFACTORY	ABOVE EXPECTATION	EXCELLENT
		1	2			
GENERAL ATTRIBUTES						
• INTRODUCTIONS (WITH PATIENTS & /OR ATTENDANTS)						
• INFORMED CONSENT						
• SYSTEMATIC PROGRESSION						
• PRESENTATION OF POSITIVE & SIGNIFICANT NEGATIVE FINDINGS						
• JUSTIFICATION OF ACTIONS						
• PROFESSIONALISM						
• ORGANIZATION/EFFICIENCY						
HISTORY TAKING & PRESENTATION SKILLS						
• INTERVIEWING SKILLS						
• DEMONSTRATES ACTIVE LISTENING						
• EXPRESSES GRATITUDE AT THE END OF HISTORY						
• PRESENTS COMPLAINTS IN CHRONOLOGICAL ORDER						
• ELABORATES ON RELEVANT COMPLAINTS						
• MENTIONS IMPORTANT NEGATIVE POINTS IN HISTORY TAKING						
• ACTIVITIES OF DAILY LIVING						
• PAST HISTORY						
• SYSTEMIC INQUIRY						
• SOCIAL HISTORY						
• FAMILY HISTORY						
• DRUG HISTORY						
• ALLERGIES						
• OVERALL HISTORY TAKING						
CLINICAL EXAMINATION						
• ALL VITAL SIGNS RECORDED						
• GENERAL PHYSICAL EXAMINATION CONDUCTED						
• HIGHER MENTAL FUNCTIONS (HMF) ASSESSED						
• SPEECH ASSESSED						
• GAIT & STANCE ASSESSED						
• MOTOR EXAMINATION						
• BULK						
• TONE						
• POWER						
• REFLEXES						
• CEREBELLAR EXAMINATION						
• SENSORY EXAMINATION						
• RELEVANT SYSTEMIC EXAMINATION						
• OVERALL CLINICAL EXAMINATION						

COUNSELING SKILLS						
• PRIVACY WITH APPROPRIATE SEATING ARRANGEMENT						
• PRESENCE OF SIGNIFICANT OTHERS						
• INTRODUCTION & DEVELOPING RAPPORT						
• INQUIRES WHAT PATIENT KNOWS ABOUT THE CONDITION AND OPTIONS AVAILABLE						
• EXHIBITS EMPATHY TO THE PATIENT						
• EXPLAINS THE COURSE OF DISEASE IN LAYMAN LANGUAGE						
• EXPLAINS THE MANAGEMENT OPTIONS AVAILABLE AND THEIR OUTCOMES						
• ALLOWS THE PATIENT TO SELECT AN OPTION OF CHOICE FROM THE AVAILABLE OPTIONS						
• EXPLAINS THE POSSIBLE SUPPORT THAT CAN BE PROVIDED IN CASE OF SELECTED OPTION						
• ANSWERS PATIENT QUERIES WITH A CARING ATTITUDE						
• OVERALL PERFORMANCE OF THE COUNSELING						

Assessor's Satisfaction with Mini-CEX:

(Low) 1 2 3 4 5 (High)

Resident's Satisfaction with Mini-CEX:

(Low) 1 2 3 4 5 (High)

Strengths	Suggestions for Improvement

Encounter to be repeated ☐ YES ☐ NO

Signature _____

DIRECT OBSERVATION OF PROCEDURAL SKILLS (DOPS)

Topics' List for DOPS

Any one of the following procedures may be performed during an encounter (however, all types of procedures given below will have to be completed at least once on a patient and minimum of one DOPS may be performed in each quarter):

- Lumbar Puncture
- Motor or Sensory Nerve Conduction Study
- Electromyography
- Electroencephalography
- Evoked potentials
- Repetitive nerve Stimulation



DIRECT OBSERVATION OF PROCEDURAL SKILLS (DOPS)

SPECIALTY: FCPS NEUROLOGY

Time Duration = 20 mins (15 mins assessment and 5 mins feedback)

PLEASE COMPLETE THE QUESTIONNAIRE BY FILLING/CHECKING APPROPRIATE BOXES

Assessor: _____ Assessment Date: _____

Resident's Name: _____

Hospital Name: _____ R&RC Number: _____

Year of Residency: ☐ R5 ☐ R4 ☐ R3

Quarter: ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th

Setting: ☐ Ward ☐ OPD ☐ Procedure Room Other: _____

Diagnosis of Patient: _____ Patient Age: _____ Sex: _____

Name of Procedure: _____

Complexity of Case/ Procedure: ☐ Low/Easy ☐ Moderate/Average ☐ High/Difficult ☐ N/A

Number of times procedure performed by Resident: _____

PLEASE GRADE THE FOLLOWING AREAS ON THE GIVEN SCALE:

	NOT OBSERVED/ APPLICABLE	BELOW EXPECTATIONS		SATISFACTORY	ABOVE EXPECTATION	EXCELLENT
		1	2			
LUMBAR PUNCTURE						
• INTRODUCES SELF AND EXPLAINS PROCEDURE, INCLUDING POSSIBLE COMPLICATIONS, TO OBTAIN INFORMED CONSENT						
• REVIEWS INDICATIONS, RELEVANT ANATOMY, AND PROCEDURAL STEPS						
• CHECKS THE INSTRUMENTS, ACCOMPANIMENTS & REQUIRED STAFF						
• USES APPROPRIATE ANAESTHESIA, ANALGESIA OR SEDATION						
• PROPERLY POSITIONS THE PATIENT						
• OBSERVES ASEPTIC (DONS GLOVES & GOWN, APPLIES ASEPTIC SOLUTION IN CONCENTRIC MANNER FROM INSIDE OUT, DRIES THE AREA & DRAPES IN LAST)						
• IDENTIFIES ANATOMICAL LANDMARKS, PALPATES THE SPINE, & MARKS THE AREA OF NEEDLE INSERTION						
• PROPERLY INSERTS NEEDLE MAINTAINING CORRECT ANGLE, DIRECTION, PACE & AVOIDS TRAUMA						
• RECORDS CSF PRESSURE BY MANOMETER						
• COLLECTS CSF IN LABELED SYRINGES						
• APPLIES BANDAGE OVER INSERTION SITE AFTER NEEDLE IS WITHDRAWN						
• COVERS THE PATIENT & EXPRESSES GRATITUDE						
• PROPERLY DOCUMENTS THE PROCEDURE						
• EVALUATES RESIDENT'S OVERALL COMPETENCE IN PERFORMING THE PROCEDURE						
MOTOR OR SENSORY NERVE CONDUCTION STUDY						
• INTRODUCES SELF AND EXPLAINS PROCEDURE, INCLUDING POSSIBLE COMPLICATIONS, TO OBTAIN INFORMED CONSENT						
• REVIEWS INDICATIONS, RELEVANT ANATOMY, AND PROCEDURAL STEPS						
• ENSURES MACHINE CONNECTIONS & FUNCTIONALITY						
• POSITIONS GROUND, ACTIVE, AND REFERENCE ELECTRODES PROPERLY						
• LOCATES THE SPECIFIC NERVE BASED ON SURFACE ANATOMY						
• ELICITS SUBMAXIMAL POTENTIAL TO START WITH						
• ADEQUATELY MOVES THE STIMULATOR TO GENERATE HIGHEST AMPLITUDE OF SUBMAXIMAL STIMULUS						
• GRADUALLY INCREASES THE ELECTRICAL CURRENT TO GET SUPRA-MAXIMAL RESPONSE						
• REPEATS PROCEDURE AT PROXIMAL SITE						
• RECORDS LATENCY, AMPLITUDE, & CONDUCTION VELOCITY						
• INTERPRETS FINDINGS						
• REMOVES THE EQUIPMENT, COVERS THE PATIENT & EXPRESSES GRATITUDE						
• EVALUATES RESIDENT'S OVERALL COMPETENCE IN PERFORMING THE PROCEDURE						

ELECTROMYOGRAPHY									
• ENSURES MACHINE CONNECTIONS & FUNCTIONALITY									
• SELECTS & IDENTIFIES MUSCLE USING KNOWLEDGE OF SURFACE ANATOMY									
• DEMONSTRATES & PALPATES THE CONTRACTED MUSCLE									
• INSERTS NEEDLE INTO RELAXED MUSCLE									
• CONFIRMS CORRECT INSERTION AGAIN BY ACTIVATING MUSCLE & OBSERVING SHARP & CRISP MUAPS									
• ASSESSES INSERTIONAL & SPONTANEOUS ACTIVITY IN FULLY RELAXED MUSCLE (SWEEP SPEED: 10 MS/DIVISION, SENSITIVITY: 50 UV/DIVISION)									
• PERFORMS 5-10 BRIEF INSERTIONS IN ALL FOUR QUADRANTS									
• ASSESSES MUAPS (SWEEP SPEED: 10 MS/DIVISION, SENSITIVITY: 200 UV/ DIVISION) BY ASKING TO CONTRACT MUSCLE SLIGHTLY UNTIL MUAPS BECOME SHARPER, LOUDER & CRISPER									
• RECORDS MUAPS FROM SEVERAL LOCATIONS FOR DURATION, AMPLITUDE, PHASES, RECRUITMENT, & ACTIVATION									
• INTERPRETS FINDINGS									
• REMOVES THE EQUIPMENT, COVERS THE PATIENT & EXPRESSES GRATITUDE									
• EVALUATES RESIDENT'S OVERALL COMPETENCE IN PERFORMING THE PROCEDURE									
ELECTROENCEPHALOGRAPHY									
• ENSURES MACHINE CONNECTIONS & FUNCTIONALITY									
• IDENTIFIES ANATOMICAL LANDMARKS ACCORDING TO 10-20 SYSTEM									
• POSITIONS GROUND, ACTIVE, AND REFERENCE ELECTRODES USING CONDUCTIVE PASTE									
• RECORDS MACHINE CALIBRATION									
• CHECKS FILTER SETTINGS (7 UV/MM SENSITIVITY, 70 HZ HIGH FREQUENCY FILTER, & 1 HZ LOW FREQUENCY FILTER) & TIMES SCALE AS 10 SEC/ PAGE									
• ADJUSTS ELECTRICAL & PHYSIOLOGICAL ARTIFACTS (IF APPLICABLE)									
• RECORDS ELECTRICAL ACTIVITY ON ALL THREE MONTAGES									
• ADMINISTERS PROVOCATIVE MANEUVERS (HYPERVENTILATION & PHOTIC STIMULATION) & RECORDS POST PROVOCATIVE MANOEUVRES' ACTIVITY									
• INTERPRETS FINDINGS									
• REMOVES THE EQUIPMENT, COVERS THE PATIENT & EXPRESSES GRATITUDE									
• EVALUATES RESIDENT'S OVERALL COMPETENCE IN PERFORMING THE PROCEDURE									
EVOKED POTENTIALS									
• INTRODUCES SELF AND EXPLAINS PROCEDURE, INCLUDING POSSIBLE COMPLICATIONS, TO OBTAIN INFORMED CONSENT									
• REVIEWS INDICATIONS, RELEVANT ANATOMY, AND PROCEDURAL STEPS									
• ENSURES MACHINE CONNECTIONS & FUNCTIONALITY									
• POSITIONS GROUND, ACTIVE , AND REFERENCE ELECTRODES USING CONDUCTIVE PASTE									
• CHECKS FILTER SETTINGS									
• ADJUSTS ELECTRICAL & PHYSIOLOGICAL ARTIFACTS (IF APPLICABLE)									
• RECORDS ELECTRICAL ACTIVITY THROUGH STIMULUSISCREEN/ SOUND)									
• INTERPRETS FINDINGS									
• REMOVES THE EQUIPMENT, COVERS THE PATIENT & EXPRESSES GRATITUDE									
• EVALUATES RESIDENT'S OVERALL COMPETENCE IN PERFORMING THE PROCEDURE									
REPETITIVE NERVE STIMULATION									
• INTRODUCES SELF AND EXPLAINS PROCEDURE, INCLUDING POSSIBLE COMPLICATIONS, TO OBTAIN INFORMED CONSENT									
• REVIEWS INDICATIONS, RELEVANT ANATOMY, AND PROCEDURAL STEPS									
• ENSURES MACHINE CONNECTIONS & FUNCTIONALITY									
• POSITIONS GROUND, ACTIVE , & REFERENCE ELECTRODES USING CONDUCTIVE PASTE									
• CHECKS FILTER SETTINGS									
• ADJUSTS FOR ELECTRICAL & PHYSIOLOGICAL ARTIFACTS (IF APPLICABLE)									
• WARMS THE EXTREMITY TO 33°C									
• IMMOBILIZES THE MUSCLE AS EFFECTIVELY AS POSSIBLE									
• PERFORMS ROUTINE RNS FIRST TO CONFIRM NORMAL NERVE FUNCTION									

• CONDUCTS SLOW RNS AT REST. AFTER CONFIRMING SUPRAMAXIMAL STIMULUS, PERFORMS 3HZ RNS AT REST FOR 5-10 IMPULSES, REPEATED 3 TIMES, 1 MINUTE APART						
• IF > 10% DECREMENT IS OBSERVED & IS CONSISTENTLY REPRODUCIBLE: A. INSTRUCTS PATIENT TO PERFORM MAXIMAL VOLUNTARY EXERCISE FOR 10 SECONDS B. IMMEDIATELY REPEATS 3-HZ RNS TO ASSESS POST-EXERCISE FACILITATION AND REPAIR OF THE DECREMENT						
• IF <10% DECREMENT OR NO DECREMENTAL RESPONSE IS OBSERVED: A. INSTRUCTS PATIENT TO PERFORM MAXIMAL VOLUNTARY EXERCISE FOR 1 MINUTE, THEN PERFORMS 3HZ RNS IMMEDIATELY AND AT 1, 2, 3, & 4 MINUTES POST-EXERCISE TO DEMONSTRATE POST-EXERCISE EXHAUSTION B. IF A SIGNIFICANT DECREMENT OCCURS, HAS PATIENT REPEAT MAXIMAL VOLUNTARY EXERCISE FOR 10 SECONDS AND IMMEDIATELY REPEATS 3HZ RNS TO DEMONSTRATE REPAIR OF THE DECREMENT						
• PERFORMS RNS ON 1 DISTAL AND 2 PROXIMAL MOTOR NERVES, PRIORITIZING WEAK MUSCLES						
• INTERPRETS FINDINGS						
• REMOVES EQUIPMENT, COVERS THE PATIENT & EXPRESSES GRATITUDE						
• EVALUATES RESIDENT'S OVERALL COMPETENCE IN PERFORMING THE PROCEDURE						

Assessor's Satisfaction with DOPS:

(Low) 1 2 3 4 5 (High)

Resident's Satisfaction with DOPS:

(Low) 1 2 3 4 5 (High)

Strengths	Suggestions for Improvement

Encounter to be repeated ☐ YES ☐ NO_____
Signature

SUMMATIVE ASSESSMENT

Eligibility requirements for appearing in FCPS-II examination a candidate should have:

- Passed FCPS-I in Medicine & Allied, or been granted official exemption
- Undertaken two years training in Intermediate Module in Medicine & Allied
- Provide a certificate of having passed the Intermediate Module in Medicine and Allied
- Undertaken three years of RTMC registered training in Neurology
- Provide a certificate of attendance of mandatory workshops
- Completion of entries in e-logbook along with validation by the supervisor
- Completed CPSP mandated Mini-CEX & DOPS in e-logbook ***(applicable to residents entering Neurology training in January 2024 and onwards)***
- Provided evidence of publication of one research paper in a CPSP approved journal, along with the application form

EXAMINATION SCHEDULE

- CPSP theory examinations may be held once or twice a year depending upon the number of candidates.
- Theory examinations are held in various cities of the country usually at Abbottabad, Bahawalpur, Faisalabad, Hyderabad, Islamabad, Karachi, Lahore, Larkana, Multan, Peshawar, Quetta and Rawalpindi, centres. The College shall decide where to hold oral/practical examination depending on the number of candidates in a city and shall inform the candidates accordingly
- English shall be the medium of examination for the theory/practical/ clinical and viva examinations
- The College will notify of any change in the centres, the dates and format of the examination
- A competent authority appointed by the College has the power to debar any candidate from any examination if it is satisfied that such a candidate is not a fit person to take the College examination because of using unfair means in the examination, misconduct or other disciplinary reasons

- Each successful candidate in the Fellowship examination shall be entitled to the award of a College Diploma after being elected by the College Council and payment of registration fees and other dues.

EXAMINATION FEES

- Fees deposited for a particular examination shall not be carried over to the next examination in case of withdrawal/absence/exclusion.
- Applications along with the prescribed examination fees and required documents must be submitted by the last date notified for this purpose before each examination.
- The details of examination fee and fees for change of centre, subject, etc. shall be notified before each examination.

REFUND OF FEES

If, after submitting an application for examination, a resident decides not to appear, a written request for a refund must be submitted before the last date for withdrawal with the receipt of applications. In such cases a refund is admissible to the extent of 75% of fees only. No request for refund will be accepted after the closing date for receipt of applications.

If an application is rejected by the CPSP, 75% of the examination fee will be refunded, the remaining 25% being retained as a processing charge. No refund will be made for fees paid for any other reason, e.g. late fee, change of centre/subject fee, etc.

FORMAT OF EXAMINATIONS

Every candidate applying for the fellowship of the College of Physicians and Surgeons Pakistan must pass both parts of the Fellowship examination unless exemption is approved. Since the College is continually seeking to improve its examinations, changes are likely from time to time and candidates will be notified in advance of such changes.

PART-I THEORY EXAMINATION

Paper-I: 100 Single Best Type of MCQs

Paper-II: 100 Single Best Type of MCQs

Only those candidates who pass through the written examination will be allowed to appear in clinical examination.

PART-II CLINICAL EXAMINATION

The Clinical section comprises of two components:

- **First Component:**
 - TOACS (12-15 Stations)
- **Second Component:**
 - One Long Case
 - Four Short Cases

Only those candidates who pass through TOACS examination will be allowed to appear in the remaining components of clinical examination.

FORMAT OF TOACS

TOACS will comprise of 12 to 15 interactive stations of 6 minutes each with a change over time of one minute for the candidate to move from one station to the other. Structured clinical tasks will be set at each station. At the stations the candidate will have to demonstrate competency, for example, communication skills, interpreting the data, recent updates and procedural competency. It will also include one station on research paper. One examiner will be present at each station and will rate the performance of the candidate by asking questions, testing reasoning and problem-solving skills.

FORMAT OF LONG CASE

Each candidate will be allotted one long case of 60 minutes duration. The first 30 minutes are reserved for history-taking and clinical examination, during which the candidate will take a careful history from the patient (or relative), perform a thorough physical examination, and identify the patient's problems. During this period, the candidate will be observed by a pair of examiners. Case presentation and discussion on the long case will follow the 30-minute patient interaction session and will be conducted jointly by the pair of examiners for a further 30 minutes. The candidate is assessed on the following areas during the long case:

Interviewing Skills

- Introduces one self. Listens patiently and is polite with the patient
- Is able to extract relevant information

Clinical Examination Skills

- Takes informed consent
- Uses correct clinical methods in a systematic manner (including appropriate exposure and re-draping)

Case Presentation / Discussion

- Presents skillfully
- Gives correct findings
- Gives logical interpretations of findings and discusses differential diagnosis
- Enumerates and justifies relevant investigations
- Outlines & justifies treatment plan (including rehabilitation)
- Discusses prevention and prognosis
- Has knowledge of recent advances relevant to the case
- During case discussion the candidate may ask the examiners for laboratory investigations which shall be provided, if available. Even if they are not available and are relevant, candidates will receive credit for the suggestion

FORMAT OF SHORT CASES

Candidates will be examined in at least four short cases for a total of 40 minutes jointly by a pair of examiners. Candidates will be given a specific task to perform on patients, one case at a time. During this part of the examination, the candidate will be assessed in:

Clinical Examination Skills

- Takes informed consent
- Uses correct clinical methods
- Examines systematically

Discussion

- Gives correct findings
- Gives logical interpretations of findings
- Justifies diagnosis/es

As the time for this section is short, the answers given by the candidates should be precise, succinct and relevant to the patient under discussion.

Note: The candidate is required to fill a self-explanatory “feedback form” at the end of the examination.

THE COLLEGE RESERVES THE RIGHT TO ALTER/AMEND ANY RULES/REGULATIONS

Any decision taken by the College on the interpretation of these regulations will be binding on the applicant.

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