



SAUDI COMMISSION FOR HEALTH SPECIALTIES

SCIENTIFIC COUNCIL FOR PAEDIATRIC NEUROSURGERY FELLOWSHIP PROGRAM

Scientific Council for Neurosurgery
Pediatric Neurosurgery Fellowship Program proposal - 2010

INTRODUCTION

Pediatric neurological surgery is a subspecialty of Neurosurgery that deals with infants and children. It includes, but is not limited to, the medical and surgical treatment of congenital, degenerative, vascular, inflammatory and neoplastic disorders of the central and peripheral nervous system in the named age group.

The identity of Pediatric Neurosurgery first appeared in the early 1960s in developed countries (London, Paris, Buenos Aires, Boston, Chicago and Toronto) that had free-standing children's hospitals served by dedicated pediatric neurosurgeons. However, it was not uncommon then for a children's neurosurgeon, who had accumulated experience with the nuances of Pediatric Neurosurgery, to also manage a part-time practice in Adult Neurosurgery. Nonetheless, the momentum was underway with respect to the identity of the full-time pediatric neurosurgeon. The practice of Pediatric Neurosurgery as a sub-discipline of Neurosurgery was set in the 1970's. The International Society for Pediatric Neurosurgery was created in 1972 and shortly thereafter the American Society of Pediatric Neurosurgeons was formed, followed by both European and Japanese Societies for Pediatric Neurosurgery. Similarly, the American Association of Neurological Surgeons and the Congress of Neurological Surgery established a combined Section of Pediatric Neurosurgery.

By the early 1980's, neurosurgical practice groups had made the transition away from delegating Pediatric Neurosurgery to the most junior practitioner in the group, who may or may not have possessed experience in children's neurosurgery.

Now it is recommended in some developed countries, that a neurosurgeon who is to take responsibility for a child's structural disease within the nervous system should have additional training and holds special qualifications. North American programs consider one-year fellowship in Pediatric Neurosurgery adequate, and such fellowship encompasses:

- The necessary experience in an accredited institution
- Pass a written examination
- Receive a certificate of competence in the discipline of Pediatric Neurosurgery.

Alternatively, in some European countries the qualification in Pediatric Neurosurgery is acquired through:

- Formal lecture/seminar program & receiving a certificate of competence in the discipline of Pediatric Neurosurgery.

The population of the kingdom of Saudi Arabia is one of the fastest in growth in the world. More than half of the population is below the age of 15 years. Also, with the increase in the quality of medical services, particularly in high-risk pregnancy and neonatology, the need for qualified pediatric neurosurgeons is growing.

GENERAL PROGRAM OBJECTIVES

1. The aim of the Pediatric Neurosurgery Fellowship program is to provide a well-qualified pediatric neurosurgeon, who is capable of looking after children with neurosurgical problems. The Fellow will gain the required expertise in this field by spending enough time in one or more well staffed and equipped centers to allow him/her to develop appropriate competence in the period suggested
2. To acquire the required knowledge, skills professional judgment and attitudes needed to practice and teach Pediatric Neurosurgery, and to participate in the progress of pediatric Neurosurgery through research and publication:
 - 2.1.1. To familiarize himself/herself thoroughly with the clinical recognition, natural history and embryology of all conditions relevant to pediatric Neurosurgery.
 - 2.1.2. To acquire the pathophysiology of these conditions, and the physiological response of the child to trauma and surgery.
 - 2.1.3. To undertake comprehensive supportive care of pediatric neurosurgical patients, especially newborns.
 - 2.1.4. To be able to perform independently all surgical procedures in the field of pediatric Neurosurgery.
 - 2.1.5. To acquire the appropriate attitudes required to deal with specific personal stress involved in the practice of pediatric Neurosurgery and stress experienced by patients and their families.
 - 2.1.6. To reinforce the principles of ethical behavior previously acquired, and familiarize himself/herself with ethical issues of particular relevance to pediatric Neurosurgery.
 - 2.1.7. To develop the specific communication skills required to deal with children and their parents.
 - 2.1.8. To develop an awareness of quality Assurance issues specifically related to the specialty.
3. To be familiarized with the principles of research and publications in the field of Pediatric Neurosurgery

ADMISSION REQUIREMENTS

The prospective Fellow must meet the following requirements:

1. Have successfully completed a formal residency training program in Neurological Surgery and be certified in the specialty by the appropriate board such as the Saudi Fellowship in Neurological Surgery or its equivalent
2. Must be registered and licensed by the Saudi Commission for Health Specialties (SCHS)
3. Three confidential letters of reference.
4. The candidate must have successfully passed a personal interview by members of the pediatric neurosurgery board faculty.
5. Sponsorship for the entire training period.
6. Upon admission the fellow must sign a statement to abide by the rules and regulations of the SCHS

SELECTION OF THE CANDIDATE

The Fellowship Committee will interview the candidates and select the best candidate.

CURRICULUM

In order to promote high quality, safe care of pediatric neurosurgical patients, the curriculum specifies the parameters of knowledge, clinical skills, technical skills, professional behavior and leadership skills that are considered necessary to ensure patient safety throughout the training process and specifically at the end of training.

CURRICULUM OBJECTIVES

1. Knowledge:

- 1.1 Upon completion of the training program, the Fellow should be able to diagnose, manage, and prognosticate on the full spectrum of medical and surgical problems in the field of pediatric Neurosurgery

1.2 Will have both the technical expertise and intellectual maturity necessary for the practice of Pediatric Neurosurgery.

1.3 Should demonstrate teaching abilities.

1.4 Should be familiar with the principles of research.

2. Clinical Skills:

By the end of training the Fellow should have acquired skills appropriate to those of a junior consultant in the following areas:

2.1 Pre-operative care, which includes:

2.1.1 History and physical examination skills specific to the infant and child, and the skills necessary to interview parents to explain the diagnosis, the proposed treatment and the prognosis, and to obtain an informed consent.

2.1.2 Appropriate use and interpretation of diagnostic aids

2.1.3 Preparation of the patient for surgery, including assessment of anesthetic risk.

2.2 Operative care:

This includes both minor and major surgery, with the emphasis on index cases. The Fellow must demonstrate an ability to exercise judgment and control in unexpected situations, and ingenuity in dealing with “one-of-a-kind” problems. He/she should demonstrate an ability to assist more junior colleagues in the performance of procedures, and should be able to operate independently.

2.3 Postoperative care:

The main emphasis here is on maintenance of homeostasis (fluids and electrolytes, temperature control, monitoring, etc.) and on early recognition of complications, intracranial hypertension, pain control, etc.

2.4 Assessment of Clinical Progress:

This will be evaluated by direct supervision and reviewed at the time of ward rounds and formally reported on the evaluation form.

2.4.2 Log Book

All surgical cases must be documented in a log book which will be to the program at the end of each rotation period and should include the evaluation of the supervisor of the named period.

3) Attitudes:

The fellow will be expected to develop and demonstrate appropriate attitude and communication skills relative to the child and his family in the clinical context, and similar interpersonal skills with other caregivers and hospital staff.

The issues that are stressed are essential components of practice: these relate to communication skills, teaching skills, critical appraisal of the literature, lifelong learning skills, and knowledge of quality assurance, medico-legal and ethical issues. Some of this will have been acquired during medical school and General Neurosurgery training, but the following objectives are more or less specific to Pediatric neurology and neurosurgery:

Relative to communication skills, the ability to communicate with the child at his/her level in a non-threatening way is essential. Ability to anticipate and address parents' questions and concerns must be developed. The trainee must learn to accept that sometimes a large investment of time must be made in dealing with families, but that this is always rewarded later with a better therapeutic relationship. Relative to critical appraisal, the Fellow must have formed his/her own opinion, by the end of training, on what specific procedure he/she will use for what specific conditions, given the wide choice of accepted procedures for conditions such as Hydrocephalus, Neural tube defect, posterior fossa tumor, etc. He/she should be able to justify that choice and this will be tested on in-training examinations. He/she should be able to critically evaluate articles presented at the Journal Club.

Medico-legal and ethical issues sometimes overlap. However, the rules and regulations of the country apply. The following specific issues, among others, should be addressed through reading and attendance at ethics rounds and more informal discussions:

- a. Informed consent in children.
- b. Refusal of treatment, especially in situations where "quality of life" is a major issue.
- c. Inter-parental conflict in treatment decisions.
- d. Withholding of treatment.
- e. Parent-physician conflict in treatment decisions. Physician-physician conflict.
- f. Am I treating this child as I would want my own child to be treated?
- g. Ethics of research on children.

DUTIES OF THE TRAINEE

As a general principle, continuity of care should be emphasized. Ideally, the Fellow should seek to follow patients from the time of the pre-admission evaluation (consultation) or the admission

history/physical, through the in-hospital phase of treatment, including surgery and the follow-up visits. It is particularly important that he/ she remain intimately involved with the day to day care of neurosurgical patients in the PICU and the NICU, and attend all major neurosurgical cases.

- The Fellow is highly encouraged to attend outpatient clinics to see as many new patients as possible, and to follow up on all patients he/she has treated in hospital or out-patient surgery.

The Fellow is also encouraged to attend all surgical procedures of interest in other disciplines when relevant to the secondary objectives of training.

- The Fellow is expected to undertake one or more clinical or basic science research projects.

- The Fellow should attend and actively participate in the Neurosurgery Club meetings, and be responsible for organizing all academic activities within the department.

- The Fellow must play a major role in the teaching and supervision of the junior residents in their daily clinical work.

- The Fellow must be involved in all relevant clinical activities of the unit and run the day-to-day work of the unit.

The candidate will be granted four weeks of holiday per year, as well as one Eid holiday per year, as determined by the training Hospital concerned.

DURATION OF THE PROGRAM

This Fellowship Program consists of two years of full-time structured supervised training in Pediatric Neurosurgery. The candidate must be required to rotate in at least 2 accredited centers

Structure of the program

The 24 months period of the training shall be divided as follows

1. The first three months will be dedicated for Pediatric Neuroscience rotation, including neurology, neuroradiology and pathology.

During this rotation the Fellow would acquire the following skills:

- Clinical examination of infants and children of all age groups.
- Exposure to common pediatric neurological conditions.

- Interpretation of clinical, laboratory, and radiological findings.
 - To be able to manage common neurological emergency i.e. epilepsy, stroke, CNS infection.
2. Eighteen (18) months of clinical pediatric Neurosurgery in which the fellow will be exposed to all aspects of the non-operative neurosurgical management of children presenting with disorders of the nervous system. They will have detailed knowledge of pediatric neurointensive care, the principles of pediatric neuro-rehabilitation and of the management of non-accidental injury. The fellow will be able to undertake all aspects of the emergency neurosurgical operative care of children and will undertake a range of elective procedures in the following fields with appropriate supervision:
- Hydrocephalus: including the insertion and revision of ventriculo-peritoneal, ventriculo-atrial and lumbo-peritoneal shunts; endoscopic third ventriculostomy; image-guided placement of ventricular catheters; management of neonatal post-haemorrhagic hydrocephalus
 - Pediatric neuro-oncology: including stereotactic and image-guided biopsy of pediatric tumors; endoscopic biopsy of third ventricular tumors; resection of supratentorial and infratentorial intrinsic tumors; approaches to suprasellar, third ventricular and pineal tumors; management of spinal cord tumors
 - Pediatric head injury: including decompressive craniectomy; cranioplasty; management of growing fractures; craniofacial reconstruction; management of CSF fistulae
 - Spinal dysraphism: including the management of neonatal spina bifida, meningoceles and encephaloceles; spinal cord tethering syndromes
 - Congenital and acquired spinal deformity: including the management of syndromic spinal deformity and post-operative spinal deformity
 - Craniofacial disorders: including the management of simple craniosynostosis, syndromic craniosynostosis, post-traumatic deformity
3. Three (3) months research can be incorporated within or after the 18 months above used on the agreement between the fellow and the primary program director and should be approved by the program committee.

EVALUATION AND CERTIFICATION

The fellow will be evaluated according to the regulations of the Saudi Council for Health Specialties.

1. The promotion of the candidate from one level to another will be determined by:
 - a. Passing the in training assessment at the end of the year ,
 - b. Passing the continuous assessment during rotations
 - c. Approval of supervisory committee.
 - b) Pasing a written examination.
 - c) Passing an oral/clinical examination.
2. Upon completion of the 2nd year of fellowship the fellow will receive a certificate of completion of training.
3. Fellowship certificate will be awarded upon passing the final written and oral examination.
4. Unsuccessful candidates will be allowed to sit for two further attempts over a period of three years from the date of completion of their training.

PROGRAM DIRECTOR

Must be a certified, full time Pediatric Neurosurgery Consultant and have served in this capacity for a minimum of five years. He/she should also be approved by the Scientific Council of the Specialty and be able to:

- 1) Demonstrate commitment to the specialty.
- 2) Show the interest, authority and commitment necessary to fulfill teaching responsibilities in order to develop, implement and achieve the educational goals and objectives of the program.
- 3) Maintain an active clinical involvement in the service of Pediatric Neurosurgery.
- 4) Pursue continuing education in Pediatric Neurosurgery.
- 5) Must have contributions in medical research and publications related to Pediatric Neurosurgery.

THE TRAINER (INSTRUCTOR)

He/she should be a full time Pediatric Neurosurgery Consultant with 3 years experience. He/she should also be approved by the fellowship supervisory committee, and be able to:

1. Demonstrate commitment to the specialty.
2. Show interest and commitment to fulfill teaching and technical responsibilities.
3. Maintain an active clinical involvement in the service or Pediatric Neurosurgery.
4. Pursue continuing education in Pediatric Neurosurgery.

ACCREDITATION OF TRAINING CENTERS

The program is a national joint program. The hospital (s), which will be accredited for training, must fulfill the accreditation criteria set by the supervisory committee to ensure a high standard of training

The above named criteria include:

- 1) The general accreditation rules for the Saudi Council must apply.
- 2) A minimum of two full time qualified consultant pediatric neurosurgeons, with experience in teaching and commitment to carry out the training program as stipulated by the Saudi Council for Health Specialties.
- 3) Clinical Services (pediatric neurology , radiology, and pathology). Other subspecialty services such as Pediatric neuro-oncology, Pediatric neuroanesthesia, etc, must be fulfilled by the Joint program.
 - a) Inpatient Pediatric neurosurgery service with a minimum of ten beds per Fellow.
 - b) Outpatient service-minimum two per week.
 - c) Properly equipped OR which can cater to neonatal and critical pediatric care.
- 4) Curriculum-based teaching activities as approved by the Saudi Council for Health Specialties should be designed, so that each trainee will develop high quality practical and academic expertise. This should include:
 - a) Daily ward Rounds.
 - b) Weekly Grand Rounds.
 - c) Monthly Journal Club.
 - d) Monthly Combined Neurosurgery-Pathology Meeting.
 - e) Monthly Combined Pediatric Surgery-Radiology Rounds.

- f) Monthly Morbidity & Mortality Rounds.
- 5) Research-oriented activities that allow the Fellow sufficient exposure and participation in research.
 - 6) One Fellow will be selected per approved hospital every 2 years (depending on the requirement).
 - 7) The accredited hospital (s) will be reviewed regularly as per the Saudi Council for Health Specialties policy and accreditation will be renewed periodically.

DISCIPLINARY ACTIONS AND DISMISSAL

Disciplinary actions and dismissal from the program will be taken according to the Rules and Regulations of Saudi Council for Health Specialties and participating hospitals. Those actions should be approved by the fellowship supervisory committee of the training program.