



**ADULT & PEDIATRIC ORTHOPEDIC
SPINAL SURGERY
FELLOWSHIP TRAINING PROGRAM**
Department of Orthopedic Surgery

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I. INTRODUCTION

King Faisal Specialist Hospital and Research Centre (KFSH & RC) has for many years played a lead role in the field of adult and spinal surgery with well established tertiary level of spinal surgical services being rendered to patients referred from all areas of the Kingdom. KFSH & RC has been in the privileged position of continuously having orthopedic surgeons from abroad with vast experience and expertise to not only render outstanding tertiary clinical services but also institute research projects which have resulted in numerous publications.

KFSH & RC is therefore considered an appropriate institution where fellows could learn the basic skills as well as the subtleties and intricacies of adult and pediatric spinal surgery in order to equip them and be able to render quality clinical and surgical services to the community at large. Simultaneously, the fellowship program will offer an opportunity for academic interaction and research.

II. GENERAL OBJECTIVE

The Adult & Pediatric Orthopedic Spinal Surgery Fellowship Program will develop fellows' clinical skills who will also learn the principles of orthopedic management to the level of a subspecialist in comprehensive Spinal Surgery, mainly in Trauma, Deformities and Tumors. It will involve a focused exposure at the outpatient, inpatient, and operating room levels to the field of professional spinal surgery in adults and pediatrics. Included in this are investigative techniques appropriate to the field: regular and standardized radiographs, special views radiographs, CT, MRI, ultrasound, evaluation of skeletal diseases, syndromes, metabolic and relevant endocrine balance, with appropriate understanding of related bone and tissue biopsies.

The fellowship program will also expose the trainee to areas of pediatric orthopedics and their relation to the spine and its care. Metastasis, primary musculoskeletal tumors of the spine and acute trauma will also be included as implants are to be applied in reconstruction.

III. SPECIFIC OBJECTIVES

Included in the fellowship is the development of surgical skills and expertise beyond the level of Saudi/Arab Board Part II certification and to the level equivalent to American Boards or Canadian Fellowship in Spinal surgery, in adult and pediatric spinal trauma, spondylolysis and spondylolisthesis, spinal infection, vertebroplasty of cervical and lumbar spine, tumors resection, adult and pediatric Kypho-Scoliosis reduction and fixation, relatively minimally invasive procedures for the spine, i.e. VEPTR (Vertical Expandable Prosthetic Titanium Rib) application, lengthening and

exchange for pediatric age group, minimally invasive spinal surgical interventional procedures for adults, i.e. trans-sacral spondylolisthesis fixation, disc replacement procedures, vertebroplasty and spinal fixation, open posterior and anterior spinal release, fixation and fusion.

Also included will be an expectation to complete a research project at the basic or clinical level.

The fellowship program further aims to train an orthopedic surgeon's proficiency and competency in the following aspects:

- Comprehensive history taking.
- Selecting and prescribing appropriate investigation modalities such as radiologic, hematologic, and biochemical in order to reach or confirm specific diagnoses.
- Proposing the correct conservative or surgical management options appropriate for each individual patient, and be in a position to explain to the patient or family in detail the nature, objectives and implications of the procedures.
- Performing minor, moderate and major spinal surgical procedures:
 - Spinal trauma,
 - Spondylolysis and spondylolisthesis reduction, decompression and fixation,
 - Spinal infection debridement and fixation,
 - Vertebroplasty of cervical and lumbar spine,
 - Tumors resection and fixation,
 - Adult and Pediatric Kypho-Scoliosis, resection, reduction and fixation,
 - VEPTR application, lengthening and exchanging sleeve,
 - Posterior and anterior spinal release, fixation and fusion,
 - Minimally invasive spinal surgical interventions; dissectomy, fixation, fusion and vertebroplasty, either to assist in surgery or under the direct supervision of the consultant.
- Developing practical proficiency to understand and get acquainted with neuro-monitoring of the patient during surgery.
- Comprehensively managing patients throughout the perioperative period, timely detecting problems and complications which may result in morbidity.
- Compiling and structuring a comprehensive rehabilitation program for each postoperative case, involving paramedical services such as physiotherapy, occupational therapy and orthotic and prosthetic services where applicable.

IV. ADMISSION REQUIREMENTS

Candidates must have completed a well structured residency program in Orthopedic Surgery or Neurosurgery with certification by the Saudi Commission for Health Specialties, or must have at least passed the written examination and registered for the final parts. Other candidates must possess an equivalent certification and approved by the Saudi Commission for Health Specialties.

Candidates must submit recent reference letters from at least three consultants with whom they had worked during the previous four years. They must provide a letter of release and sponsorship from their institution for full-time fellowship at KFSH & RC for a period of two years. Candidates must also have successfully completed a

personal interview with the Program Director, Head of Section, Department Chairman and other members of the Department.

V. STRUCTURE OF TRAINING PROGRAM

A. Duration:

The program commences on the first day of the Gregorian calendar each year. The Adult & Pediatric Orthopedic Spinal Surgery fellowship program will be 24 months in duration. An optional extra year may be offered to meritorious fellows to undertake research work in the subspecialty, if the fellow's sponsoring institution will permit it. This can be undertaken at KFSH & RC or can be arranged overseas.

B. Training capacity: The Fellowship program can accommodate one clinical fellow every year (maximum of two clinical fellows, F1 and F2), and one research fellow.

C. Faculty Qualifications:

The fellowship faculty should be board certified orthopedic surgeons, with subspecialty training and at least 5 years or more experience in the field of spinal surgery. They should have an academic background and experience in postgraduate education training in order to fulfill the comprehensive teaching responsibility and achieve the educational goals of the fellowship program.

The faculty should have the expertise and knowledge to identify, coordinate and bring to completion all clinical and basic research projects in which the fellow will be involved that will ultimately result in publication. They should be in a position to guide fellows in the evaluation of investigative methods and interpretation of accumulated data and statistics.

VI. PROGRAM CONTENT

The program will be structured such that at all times optimal patient care is assured, whilst providing the fellows with opportunities to develop clinical skills and surgical dexterity. Fellows will be afforded the opportunity to develop skills in history taking, clinical examination, therapeutic judgment, radiological assessment, practical surgical skills, peri-operative care and rehabilitative aftercare. In addition, fellows will acquire experience in applicable administration, quality assurance, performance improvement and teaching. Fellows will be expected to participate in scientific or clinical projects, ongoing or new that will ultimately result in publication.

Fellows are expected to also actively participate in all academic activities of the Department and to present at least one Grand Round topic every six months. They must participate in regular literature reviews and reading tasks related to basic theoretical knowledge and advanced clinical information as directed by the consultant. Fellows will be expected to attend a statistic or research course and at least one international conference or refresher course, featuring adult and pediatric spine, during the program. Fellows can also be requested to do six months rotation in another hospital outside KFSH & RC that are considered having a high load and specialized in this field and 6 months neurosurgical spine rotation.

Fellows are required to perform the hospital and unit orientations. They are second on-call and must attend and supervise all the residents' activities, and conduct of examinations with the Program Director, Head of Section, and other medical staff.

Available Resources for the Program:

A. Clinical resources

1. **Outpatients.** Outpatient clinics are held on Saturday and Sunday AM and PM and Tuesday PM. Patients referred to the clinics are approved by the Department of Orthopedic Surgery through the medical eligibility system or from other services.

The Department Orthopedic Surgery has the luxury of a consultant in Rehabilitation Medicine and the physiotherapeutic infrastructure to develop and implement postoperative rehabilitation programs. KFSH & RC hosts a well equipped Orthotics and Prosthetic Centre to assist in the rehabilitation.

2. **Inpatients.** Ward C2 is the Orthopedic Department ward which has a complement of 26 beds. The turnover is quick.

3. **Operating room.** Monday and Wednesday - full day with two operating rooms. Total of more than 30 operating hours per week. Most cases performed are major cases; approximately 10 cases a month are minor.

The Hospital has a superb infrastructure in place for day surgical and medical surgical cases to be managed in conjunction with other disciplines.

4. **Technological advances** at KFSH & RC include electronic medication, PACS, radiological programs within a superb Radiology Department, C-Bay dictating system, PYXIS, and electronic library access to most orthopedic journals.

5. **Research, basic and clinical** is conducted in conjunction with the Research Centre and academic activities such as departmental symposia and workshops with Academic and Training Affairs.

B. Surgical procedures

During the rotation, the fellow will be expected to have surgically assisted in, or performed the following procedures and expected to know about both adult and pediatric spinal conditions:

➤ **Trauma and fractures**

- ✓ Management and handling spinal trauma and fractured spine of first and second cervical vertebra C1, C2.
- ✓ Cervical Spine
- ✓ Thoracic Spine
- ✓ Lumbar Spine

➤ **Spinal conditions :**

- ✓ Disc prolapses of the cervical, thoracic and lumbar spine and their surgical intervention; dissectomy, disc replacement, etc. Open techniques under fluoroscopy.
- ✓ Osteoarthritis conditions of the spine and their management; fusion, fixation, replacement.
- ✓ Infections and their surgical intervention; draining, fixation and management.
- ✓ Spondylolysis and Spondylolisthesis conditions, surgical fixation, reduction and management in both adult and pediatric groups.

➤ **Spinal tumors**

- ✓ Vertebral resection partial or complete.
- ✓ Fixation.
- ✓ Biopsy techniques.

➤ **Spinal deformities**

- ✓ Management, complications and outcome.
- ✓ Anterior spinal release and decompression.
- ✓ Posterior spinal fusion and instrumentation.
- ✓ Scoliosis correction.
- ✓ Kyphosis resection and correction.
- ✓ Vertebral resection.
- ✓ VEPTR (Vertical Expandable Prosthetic Titanium Rib) application, lengthening and removal.

➤ **Minimal spinal intervention**

- ✓ All done using fluoroscopy techniques.
- ✓ Spondylolysis and spondylolisthesis conditions, reduction and surgical fixation through trans-sacral procedure.
- ✓ Spinal fixation.
- ✓ Vertebroplasty.
- ✓ Dissectomy or disk replacement.
- ✓ Osteoarthritis conditions of the spine and their management; fusion, fixation, replacement.

➤ **Neuro-physiology**

- ✓ Intraoperative neurophysiology application, monitoring and interpretation.

➤ **Orthotics**

Should have a working knowledge of, and know when to prescribe the following braces:

- ✓ Spinal bracing techniques

- ✓ Lower limb orthoses
- ✓ AFO
- ✓ KAFO and HKAFO
- ✓ Foot orthotics
- ✓ Knee orthotics
- ✓ Prosthetics

VII. EVALUATION AND PROMOTION

The fellow's level of competence and performance will be evaluated at a frequency determined by the Postgraduate Education Committee and in the manner as detailed in the Policy for Fellowship Training Program.

A fellow's advancement from year to year is contingent upon professional performance and personal growth. The criteria for promotion are as enumerated in the Policy for Fellowship Training Program.

Fellows are assessed continuously during preoperative and postoperative rounds, operating room and emergency room situations, bed side teaching, journal club, and other academic activities. They usually run clinic under consultant supervision and operating room and clinical privileges are also monitored.

The fellows' progress and promotion depends on their attendance in departmental activities (at least 75%). He should be on time in operating room, in responding to pages, and would do at least one daily patient round. He should be able to come on one of the weekend days to hand over documentation, medical records, and perform research. Also, one of the most important points for fellow's training is not to overlap with the residents in the operating room.

VIII. COMPLETION

A Certificate of Fellowship training at KFSH & RC will be awarded upon satisfactory completion of the requirements of the Program.

A special certificate and a Department souvenir will be given to the fellows at the end of their fellowship program and during the Recognition Day of the Department.

IX. DUTIES, LEAVES AND HOLIDAYS

Regulations governing duties, leaves and holidays are as stipulated in the Policy for Fellowship Training Program.