



الهيئة السعودية للتخصصات الصحية
Saudi Commission for Health Specialties

PEDIATRIC SURGERY FELLOWSHIP (SF - PS)



سُبْحَانَكَ اللَّهُمَّ رَبِّ السَّمَاوَاتِ وَالْأَرْضِ

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INTRODUCTION

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. With the increase in the quality of medical services, particularly in high-risk pregnancy and neonatology, the need for pediatric surgeons is growing. The aim of the Pediatric Surgery Fellowship Program is to train and qualify pediatric surgeon, who will be able to manage children with surgical problems. The fellow will gain the required expertise in this field by spending enough time in one or more centers to allow him/her to develop appropriate competence.

PROGRAM OBJECTIVES:

General:

- 1.0 To acquire knowledge and skills to practice Pediatric Surgery, and to participate in the progress of Pediatric General Surgery through research and publication.
 - 1.1 To familiarize himself / herself thoroughly with the clinical recognition, natural history and embryology of all conditions relevant to Pediatric General Surgery.
 - 1.2 To understand the pathophysiology of these conditions, and the physiological response of the child to trauma and surgery.

- 1.3 To be able to undertake fully the general supportive care of pediatric surgical patients, including newborns.
- 1.4 To be able to perform safely and independently all surgical procedures in the field of Pediatric General Surgery.
- 1.5 To deal with specific personal stress involved in the practice of Pediatric Surgery and stress experienced by patients and their families.
- 1.6 To familiarize himself/herself with ethical issues of particular relevance to Pediatric Surgery.
- 1.7 To develop the specific communication skills required to deal with children and their parents.
- 1.8 To develop awareness of the Quality Assurance issues specifically related to the specialty.
- 1.9 To apply Evidence Based Medicine (EBM) relevant to the practice of Pediatric Surgery.
- 2.0 To acquire the theoretical and practical knowledge necessary to succeed in the certifying examinations, after the successful completion of training.
- 3.0 The candidate may practice general surgery in addition to pediatric surgery provided, he/she fulfils the following requirements for adult general surgery:
 - a) Degree.
 - b) License.
 - c) Privileges.

Specific:

1.0 Training

1.1 Pediatric General Surgery Rotation
(30months)

Upon completion of the training period, the Fellow should be able to diagnose, manage, and give prognosis on the index cases of Pediatric Surgery listed under the **Operative Procedures** (Appendix I & II). He/she should demonstrate teaching abilities.

1.2 Neonatology Rotation (**1 month**)

It is mainly, but not exclusively, during this rotation that the Fellow should familiarize himself/herself with the genetic aspects of Pediatric Surgery conditions.

The following guidelines will direct the conduct of this rotation:

1.2.1 During the day, his/her primary responsibility is to the Neonatal Unit and he/she will participate in all of its activities.

1.2.2 He/she will have a particular, but not exclusive, responsibility towards surgical neonates. The fellow should familiarize himself/herself with all aspects of caring for the sick neonates in general.

1.2.3 By common agreement with the Director of the Neonatal Unit, he/she will take night call in Pediatric Surgery and may be excused from the Neonatal Unit to operate on index cases and to attend Pediatric Surgery rounds.

1.2.4 An evaluation form will be completed at the end of the rotation by the Division of Neonatology.

1.3 Pediatric Intensive Care Unit Rotation **(1 month)**

During this period, the Fellow will have responsibilities similar to those in the Neonatology rotation. A set of special objectives will be directed towards the care of children with multiple trauma, pre-and post-operative management of surgical patients, including fluid management, different types of ventilators and ventilatory support of sick children, and also the different procedures carried out in the unit, e.g. air-way management, vascular access, etc.

1.4 Pediatric Urology **(2 months)**

The Fellow is expected to familiarize himself/herself with the procedures in relevance to Pediatric Surgery, including Endo-urology.

1.5 Elective Rotation (**2 months**)

The Fellow will spend two months in one or more of the following services: Pediatric Cardiac Surgery, Pediatric GI Service, Pediatric Radiology, Pediatric ENT, Pediatric Anesthesia, Pediatric Oncology, and Pediatric Infectious Diseases. Feedback from the Fellow will ensure whether he/she is benefiting from these rotations. Prior approval of the training committee is mandatory for the elective rotations.

Evaluation of the Fellow's fulfillment of the knowledge objectives will be accomplished formally through in-training oral examinations, as well as through a written examination in the same format as the final certifying examination. A clear demonstration of improvement in knowledge during the course of training is expected.

2.0 Skills and Competence

By the end of training, **the Fellow should have acquired skills 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 explain the diagnosis to the parents**, 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. This will be evaluated by direct observation on an on-going basis, and formally reported on the evaluation form. It will also be tested during in-training examinations, to which the Saudi Commission for Health Specialties standards will apply.

2.2 Operative care:

This includes both minor and major surgery, with the emphasis on index cases. The Fellow must demonstrate **safety, competence, sound 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. This will be evaluated by direct observation on an on-going basis, and formally reported on the evaluation form. A log of all operative procedures must be kept and provided to the Program Director on an official form.

2.3 Post-operative care:

The main emphasis here is on maintenance of homeostasis (fluids and electrolytes, temperature control, monitoring, etc.) and on early recognition of complications, pain control, etc. This will be evaluated by direct supervision and reviewed at the time of ward rounds and formally reported on the evaluation form.

2.4 Ancillary skills, which include:

2.4.1 Techniques of venous access, simple or complex, especially in small infants.

2.4.2 Basic pediatric endoscopy (GI and tracheo-bronchial), including dilatation of esophageal strictures.

2.4.3 Emergency control of the airway—mask ventilation, endotracheal intubation and tracheostomy.

2.4.4 Access to body cavities: tube thoracostomy, peritoneal dialysis, etc.

2.4.5 Management of fluid, electrolyte and acid-base derangements in children.

2.4.6 Management of enterostomies.

2.4.7 Minimal invasive surgery. A clear demonstration of improvement in the development of these skills must be demonstrated throughout the course of training.

3.0 Attitudes

He/she 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 following skills are essential components of practice: communication skills, teaching skills, critical appraisal of the literature, lifelong learning skills, and knowledge of quality assurance, medico-legal and ethical issues.

Some of these will have been acquired during medical school and General Surgery training, but the following objectives are more or less specific to Pediatric Medicine and Surgery:

- 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 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 Hirschsprung's disease, gastroesophageal reflux, 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 in same.
 - f. Ethics of research on children.

ADMISSION REQUIREMENTS:

The Fellow must meet the following requirements:

1. Successful completion of an accredited residency-training program in general surgery.
2. Passing admission examination.
3. Sponsorship

DURATION OF THE PROGRAM

The Pediatric General Surgery Program is a three-year program; the Fellow will spend the following length of time in each area:

1. Pediatric General Surgery (**30 months**)
2. Neonatal Intensive Care Unit (NICU) (**1 month**)
3. Pediatric Intensive Care Unit (PICU) (**1 month**)
4. Pediatric Urology (**2 months**)
5. Elective Rotation (**2 months**)

The Fellow must adhere to the rules and regulations of the Saudi Council for Health Specialties during the training period. **The candidate will be granted 4 weeks annual leave, one Eid holiday, one week study leave per year, as determined by the local committee in coordination with the training hospital concerned.**

SELECTION OF THE CANDIDATE

A Selection Committee, which will interview the candidates, will also select the Fellow.

The following are required:

1. Three confidential letters of reference will be solicited.
2. Examination and an interview must be conducted to evaluate each candidate.

The selection should follow strict criteria to ensure fair competition between the candidates.

EVALUATION AND CERTIFICATION

1. The trainee will be evaluated according to the regulations of the Saudi Commission for Health Specialties.
2. The promotion of the candidate from one level to another will be determined by:
 - a) passing end year in training examination,
 - b) overall performance of the candidate,
 - c) approval of local supervisory committee.
3. **Requirement for entering final examination:**
 - a) The candidate must be certified in general surgery prior to applying to pediatric surgery final evaluation.
 - b) A written approval by the local committee to be eligible to sit for the final examination based on in-training examination and overall evaluation.

4. Successful candidates will be awarded “Saudi Fellowship in Pediatric Surgery(SF-PS)”, upon completion of training and passing the final examination.
5. 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:

He/she should be a full time Pediatric Surgery 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 Surgery.
4. Pursue continuing education in Pediatric Surgery.
5. Exhibit an active interest in medical research related to Pediatric Surgery.

THE TRAINER (INSTRUCTOR)

He/she should be a full time Pediatric Surgery Consultant. He/she should also be approved by the Regional Evaluation 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 of Pediatric Surgery.
4. Pursue continuing education in Pediatric Surgery.

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 closely involved with the day to day care of surgical patients in the PICU and the NICU, and attend all major surgical cases.

- The Fellow is highly encouraged to attend outpatient clinics to see as many as 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 the 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. **This is a training requirement.**
- The Fellow should attend and actively participate in the Pediatric Surgery Club meetings, **teaching session of the core curriculum**, 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.

ACCREDITATION:

The program is a regional joint program. The **hospitals**, which will be accredited for training, must follow rigid accreditation criteria to ensure a high standard of training; these criteria will be ensured by a committee to be formed by the Saudi Commission for Health Specialties and will include:

1. The general accreditation rules for the Saudi Commission must apply.
2. A minimum of two qualified consultant pediatric surgeons, with experience in teaching and commitment to carry out the training program as stipulated by the Saudi Commission for Health Specialties.

3. Clinical Services:

- a) Inpatient General Pediatric Surgery 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 Commission 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 Pediatric Surgery – 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. The program must allow the Fellow to perform no less than the minimum number of procedures required for the subspecialty as follows:

- Neonatal cases (100)
- Important Pediatric Surgical cases (120)
- Tumors and other similar operations (35)

- Management of Trauma (30)
 - Other Pediatric Surgical Cases (see attached appendix for details)
7. An active subspecialty service, dealing with various medical disorders in the subspecialty with sufficient diversity and skills as stipulated by the training program of any particular subspecialty such as NICU, PICU, Pediatric Radiology, Pediatric Anesthesia.
 8. Other subspecialty services such as pediatric oncology, urology, trauma, etc., must be fulfilled by the Joint program.
 9. The accredited hospital(s) will be reviewed regularly by the Saudi Commission for Health Specialties 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 Commission for Health Specialties and participating hospitals. Those actions should be approved by the educational committee of the training program.

APPENDIX 1 – LOG BOOK

TOTAL DIAPHRAGM		
ABDOMINAL		
Antireflux procedure: Open		
Scope		
Without vagotomy		
Pyloroplasty/gastric resection with or		
Any gastrostomy/jejunostomy: Open		
Scope		
Pyloromyotomy		
Operation for malrotation		
Repair intestinal atresia, stenosis, or web		
Intestinal resection / repair or ostomy for:		
Necrotizing Enterocolitis		
Inflammatory Bowel Disease		
Trauma		
Intestinal resection (Meckel's, Duplication, Meconium Ileus, etc.)		
Ostomy for:		
Laparotomy for intussuception		
Anorectal malformation		
Hirschsprung's		
Other		
Closure / revision any ostomy		
Appendectomy: Open		
Scope		
Perineal procedure for imperforate anus		
Pull through for:		
Imperforate anus (posterior Sagittal, abdominal, sacral, etc.)		
Hirschsprung's: Open		
Scope		
IBD or polyposis: Open		
Scope		
Exploratory laparotomy with or without biopsy		
Excision of omental / mesenteric cyst		
Omphalocele (any surgical repair)		
Gastroschisis (any surgical repair)		
Resection urachal remnant		
Resection omphalomesenteric duct / cyst		
Excision neuroblastoma / adrenal /		
Other retroperitoneal tumor		
Excision sacrococcygeal teratoma		
Other		
TOTAL ABDOMINAL		
HERNIA REPAIR		
Pediatric repair inguinal hernia (unilateral or bilateral is a single procedure)		
Infant (<6 months of age) repair inguinal hernia (unilateral or bilateral is a single procedure)		
Repair umbilical hernia		
Repair ventral hernia		
Other		

APPENDIX 1 – LOG BOOK

TOTAL HERNIA REPAIR		
LIVER / BILIARY		
Major hepatic resection / repair:		
Tumor		
Trauma		
Other		
Lysis or adhesions		
Liver biopsy: Open		
Scope		
Liver harvest		
Liver transplant		
Cholecystectomy with or without common		
Bile duct exploration: Open		
Scope		
Portoenterostomy		
Excision choledocnal cyst		
Portosystemic shunts or other operations		
For portal hypertension		
Pancreatic resection for:		
Trauma		
Hyperinsulinism		
Tumor		
Operations for pseudocyst		
Splenorrhapy		
Splenectomy: Open		
Scope		
Other		
TOTAL LIVER/BILIARY		
GENITOURINARY		
Nephrectomy (partial or total)		
Tumor		
Trauma		
Other		
Cystic dysplasia		
Repair extrophy		
Enteric conduit		
Reconstruct cloacal extrophy		
Circumcision (OR only)		
Orchidopexy: Open		
Scope		
Orchidectomy		
Operation for torsion testis, appendages		
Operation for varicocele: Open		
Scope		
Procedure for intersex (vaginal		
Reconstruction, clitoroplasty, etc.)		
Oophorectomy (partial or total)		
Hysterectomy/salpingectomy		
Repair complex laceration vaginal/perineu		
Others		

APPENDIX 1 – LOG BOOK

TOTAL GENITOURINARY		
ENDOSCOPIC PROCEDURES		
Diagnostic Thoracoscopy		
Diagnostic Laparoscopy		
Cystoscopy		
Bronchoscopy		
Esophagoscopy		
Removal foreign body esophagus or trachea		
Esophageal dilatation		
Colonoscopy		
Sigmoidoscopy		
Other endoscopy		
TOTAL ENDOSCOPIC PROCEDURES		
VASCULAR ACCESS / DIALYSIS CATHETER		
VASCULAR ACCESS / DIALYSIS CATHETER		
Surgical placement / removal central / access line		
Dialysis access insertion / removal		
Peritoneal dialysis catheter		
TOTAL VASCULAR ACCESS /		
DIALYSIS CATHETER		
TOTAL OPERATIVE EXPERIENCE		
NON-OPERATIVE TREATMENT OF		
MAJOR OR MULTISYSTEM TRAUMA		

APPENDIX II – INDEX CASES

A. INDEX CASES

1. Neonatal (100)

Abdominal wall defects (Omphalocele,
Gastroschisis)
Sacrococcygeal Teratoma
Neonatal Ostomy
Malrotation
Diaphragmatic hernia
Esophageal atresia or tracheal esophageal
fistula
Intestinal atresia, stenosis web of meconium
ileus
Intestinal resection, repair or ostomy for NEC

2. Important Pediatric Surgical Cases (120)

Esophageal resection or replacement
Excision mediastinal cyst
Inguinal hernia repair - < 6 months
Orchidopexy
Excision choledochal cyst
Procedures for imperforate anus
· Pull through
· Perineal procedure
Portoenterostomy
Procedures for intersex
· Vaginal reconstruction
· Clitoroplasty
Pulmonary resection tumor, congenital
malformation, infection
Repair chest wall deformity
Pull-through Hirschsprung's disease

3. Tumors and Other Similar Operations (35)

Cystic hygroma / lymphangioma
Excision mediastinal tumor
Excision neuroblastoma / adrenal / other
Retroperitoneal tumor
Major hepatic resection for tumor
Major tumor head and neck
Nephrectomy (partial, or total) for tumor
Oophorectomy (partial, or total)

4. Management of Trauma (30)

With / without surgery

B. OTHER PEDIATRIC SURGICAL CASES

1. Appendectomy (40)

Central venous catheter (50)
Umbilical hernia (30)
Inguinal hernia (100)
Circumcision (40)
Thoracic procedures (50)
- including closed heart procedures
(i.e., PDA)
Head and Neck procedures (30)
Thyroidectomy
Parathyroidectomy
Thyroglossal duct cyst
Brachial cleft cyst/sinus
Cystic hygroma / lymphangioma
Dermoid cyst
Tumors
Tracheostomy
Laryngeal or tracheal reconstruction
Endoscopy (30)

Cystoscopy
Bronchoscopy
Esophagoscopy
Colonoscopy
Sigmoidoscopy
Pyloromyotomy (10)
Management of intussusception (10)
- with/without surgery
Splenectomy (10)
Cholecystectomy (10)

**APPENDIX III – EDUCATIONAL
REQUIREMENTS**

EDUCATIONAL REQUIREMENTS

I. Basic Knowledge

1. Physiological differences between pediatric and adult patient
2. Nutritional support of children
3. Fluid and electrolyte balances
4. Ethical considerations and consent for pediatric patients
5. Immune response and immune deficiency disease
6. Ventilatory supports and critical care
7. Anesthetic considerations

II. General Knowledge

1. Burns in children
2. Foreign bodies
3. Vascular access
4. Coagulopathies
5. Endoscopic, laparoscopic, thoracoscopic techniques (including laser surgery)

6. Extra corporeal membrane oxygenation
7. Trauma principles including assessment and management guidelines

III. Specific Knowledge

1. Trauma

Trauma head, chest, abdomen, pelvis and extremities

2. Chest

A. Chest wall deformities

B. Malformation of the airway including obstructions

C. Congenital and acquired lesions of the trachea, bronchi and lungs including diaphragmatic hernia

D. Mediastinal tumors

E. The Esophagus:

A. Esophageal atresia and tracheoesophageal fistula

B. Other esophageal malformations

C. Gastro esophageal reflux

3. Gastrointestinal

A. Lesions of the stomach

B. Intestinal atresia and stenosis

C. Malrotation

D. Meconium disease of infancy

E. Necrotizing enterocolitis

F. Hirschsprung's disease

G. Anorectal agenesis and Cloacal anomalies, including anorectal continence and management of constipation

H. Acquired anorectal disorders

- I. Intussusception
 - J. Alimentary duplications and Meckel's diverticulum
 - K. Inflammatory bowel disease
 - L. Gastrointestinal Neoplasms
 - M. Appendicitis
 - N. Abdominal wall defects and hernias
4. Hepatobiliary disease
- A. Biliary tract disorders and portal hypertension
 - B. Liver transplantation
 - C. Lesions of the pancreas
 - D. Lesions of the spleen
5. Renal :
- A. Developmental and positional anomalies of the kidney
 - B. Undescended testes and testicular torsion
 - C. Anomalies of the ureter urinary bladder and urethra
 - D. Vesicoureteric reflux and urinary tract infections
 - E. Hypospadias and circumcision
 - F. Intersex anomalies
 - G. Renovascular hypertension
 - H. Renal neoplasms
 - I. Vaginal atresias and imperforate hymen
6. Tumors:
- A. Hemangiomas and lymphangiomas
 - B. Neuroblastoma
 - C. Teratomas
 - D. Liver tumors

- E. Lymphomas
- F. Nevus and melanoma

7. Head and Neck:

- A. Sinuses and Masses
- B. Thyroid lesions and tumors
- C. Parathyroid lesions
- D. Torticollis

8. Gynecological disorders

- A. Breast lesions
- B. Ovarian lesions
- C. Labial and vulvas lesions
- D. Vaginal lesion and Foreign bodies

9. Conjoined twins

**PREVIOUS CHAIRPERSONS OF THE
SCIENTIFIC COMMITTEE**

DR. ABDULLAH AL-RABIAH
26 March 2001 – 15 October 2003
DR. ABDULRAHMAN AL-BASSAM
15 October 2003 – 11 January 2005

CURRENT CHAIRPERSON

DR. ASSIA KHALIL AL-RAWAF
11 January 2005

MEMBERS OF THE PROGRAM

Dr. Ahmad Hassan Al-Salem
Prof. Yasser Salah Jamal
Dr. Ayedh Robean Al-Qahtani
Dr. Saud Abdulkareem Al-Jadaan
Dr. Saleh Ibrahim Al-Nasser
Dr. Zafer Mohammad Skef