

# **JIMMA UNIVERSITY COLLEGE OF HEALTH SCIENCES**



## **CURRICULUM FOR SUB SPECIALTY TRAINING IN GENERAL PAEDIATRIC SURGERY**

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**MARCH ,2015**

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## **Background of Department of Surgery**

Jimma University's Department of Surgery was established within the faculty of Medicine in 1983 by teaching undergraduate students.

Because of the increased needs and demands of the country for skilled surgeons postgraduate program in surgery was launched in 2007. Since then the intake of students increased from time to time with corresponding rise in number of surgeons. Up to January 2015, 28 trainees graduated in General Surgery and about 30 others are still under training. At present the Department has eight surgeons of which two are senior sub-specialists.

In order to fill the enormous gap in teaching and training institutions of the country and to equip hospitals with quality surgical services, emphasis has been given on training more surgeons. To achieve this as part of the millennium development goals, the postgraduate expansion program is underway.

So far the Department of surgery is trying to fill the gap in the scarce number of highly skilled specialists. Two programs of sub-specialty training had been launched in 2014, the sub-specialty of traumatology and plastic-/ reconstructive surgery.

### ***Programs of Department of Surgery***

The following are standing educational programs of the department

1. Surgery course for undergraduate medical students
2. Postgraduate training program in General Surgery
3. Subspecialty training in Plastic-/ Reconstructive Surgery resp. Orthopedics and Traumatology
4. Participate in the training of Integrated Emergency Obstetrics and Surgery officers
5. Participate in the training of residents in Oral and Maxillofacial surgery

# **PAEDIATRIC SURGERY SPECIALTY CERTIFICATION TRAINING PROGRAM**

## ***Introduction***

Pediatric Surgery is a field of Medicine that encompasses a broad range of disease and malformations, both operative and non-operative, from fetal period until late teenage years. In addition to the body areas and systems covered by General Surgery, Pediatric Surgery also deals with non Cardiac Thoracic conditions and genitourinary and Gynecological problems in children.

Ethiopia, the second most populous country in sub-Saharan Africa, with a population of 92 million of which more than 41.5% are children under the age of 15yrs and fertility rate of 2.6%. So the country is expected to have a high number of both congenital and acquired surgically manageable childhood diseases. There are only six trained Pediatric Surgeons all over Ethiopia. All of these surgeons are based in the only central referral hospital in Addis Ababa and none for the districts of the country. Hence all children with pediatric surgical problems need to go to Addis for expert intervention. Otherwise they are treated by adult surgeons who are undertrained for the care of children. This results in huge burden and long waiting lists for the only center in the country that handle all Pediatric Surgical cases. On the other hand, many children suffer sufficient treatment because it's not affordable for majority of the citizen to go all the way to Addis Ababa.

To alleviate the shortage of Pediatric Surgeons in the country especially in southwest Ethiopia, the Jimma University has launched a sub-specialty training in the field of Pediatric Surgery in collaboration with the Ludwig-Maximilians University, Munich (Germany)

## General objectives

- The objectives of the training in Pediatric Surgery are to develop a Pediatric Surgeon who can assume complete responsibility for preoperative, operative, and post-operative management. She/ he can interact appropriately with other colleagues involved in the care of pediatric patients.
- The Pediatric Surgeon will be a good communicator, team player, effective resource manager, health advocate and promoter of acquisition, synthesis and dissemination of knowledge in the profession, and over all, expected to be a model professional.

## Specific objectives of the program

- Establishing a graduate program in Pediatric Surgery
- Qualify competent Pediatric Surgeons
- Qualify researchers investigating in disease trend in the field of pediatrics surgery
- Contribute in reduction of national disease burden and infant and child mortality rate

## Educational Objectives

**A. Primary objectives** are mandatory to the practice of Pediatric Surgery.

**B. Secondary objectives** are desirable skills to improve the quality of pediatric surgical care.

They are related to the present resources and the environment the trainee will work.

The specific training requirements are presented in outline form below. The detailed list of pathological conditions is found in Appendix I. It must be stated, however, it is NOT an all – inclusive list as the spectrum of the specialty is wide and continuously changing.

### ***Primary objectives***

Assessment and management of children with:

- Acute abdominal pathologies
- Abdominal wall hernias
- Trauma care including ATLS
- Neonatal surgery
- Pediatric urology
- Pediatric thoracosurgery
- Tropical conditions
- Reconstructive Surgery and burns
- Head and neck pathology

### ***Primary skill objectives***

By the end of training, the fellow should have acquired and demonstrated the following skills.

#### **I. Surgical Skills**

The fellow is expected to be able to perform independently the full spectrum of operative interventions related to the primary Pediatric Surgery conditions listed above. The fellow should be familiar with the indication, techniques and complications of tracheostomy, cystostomy, nephrostomy, colostomy, gastrostomy, and vesicostomy

#### **II. Trauma**

The Pediatric Surgery resident is expected to:

- Act as a trauma team leader
- Act as the operating surgeon for pediatric multiple trauma patients and as supervisor in an operating room in which several specialty groups may be working simultaneously.
- Have primary responsibility for the non-operative care of pediatric trauma patient including major burns.
- Be able to obtain airway and vascular access in pediatric trauma patient, and perform appropriate diagnostic procedures.
- Above all the fellow should contribute in devising trauma reduction strategies and participate in reducing disabilities.

#### **III. Diagnostics**

The fellow should be familiar with the indication, conduction and interpretation of common radiologic diagnostics.

#### **IV. Teaching and research**

The fellow should teach medical students/ interns and conduct at least one scientific, Pubmed listed publication

### ***Secondary skill objectives***

#### **I. Surgical skills**

- Laparoscopy
- Thoracoscopy
- Pediatric oncosurgery
- Pediatric neurosurgery
- Pediatric orthopedics

#### **II. Endoscopy**

- Bronchoscopy
- Esophago-gastro-duodenoscopy
- Colonoscopy

## PROGRAM REQUIREMENTS

### *Admission requirements*

- Trainee selection is the responsibility of department of Pediatric Surgery
- General surgeon, preferably with work experience in general surgery and registered at the Federal Ministry of Health.
- Age less than 40 yrs.
- Adequate physical and mental health

### *Graduation Requirements*

- Candidates have to spend 2.5 years of training on a recognized supervised training post. 24 months have to be spent in the General Pediatric Surgical Unit and the remaining 6 months to be spent in rotations in Germany and other countries for special training in sub-specialty.
- Should submit one research thesis on common pediatric surgical problems at the end of second year of training.
- Have to complete a logbook on performed operations
- Required operations numbers are listed in appendix **XXX**
- Requirements for accreditation to graduation:
  - Complete logbook (30%)
  - Research thesis (30%)
  - Oral and written examination (40%)
- A minimum of 70% cumulative result is needed to get the graduation.

### *Degree Nomenclature*

After successful completion of the training and fulfilling the graduation requirement, the degree granted to the graduate will be named **SUBSPECIALTY CERTIFICATE IN PAEDIATRIC SURGERY** and the successful graduate's title will be **GENERAL PAEDIATRIC SURGEON**

## Training guideline

**First year:** Progressive apprenticeship under close supervision.

- Observation of basic principles in pediatric surgical set up.
- Working at the outpatient department, surgical ward, and the operation theatre
- Perform minor and simple procedures assisted by a senior pediatric surgeon
- Perform assisted major non-thoracic and neonatal operations and emergencies under close observation of a senior pediatric surgeon.
- Observation and understanding of major diagnostic procedures especially in the field of pediatric radiology.



- A 4 weeks exchange to the Dr. von Hauner Children's Hospital, Munich for observation and visiting international conferences.

**Second year:** Autonomous working in the field of general pediatric surgery.

- Responsible for the OPD and the pediatric surgical ward
- Perform minor and simple procedures independently
- Perform assisted all major operations and emergencies under close observation of a senior pediatric surgeon.
- Performing and interpretation of major diagnostic procedures especially in the field of pediatric radiology.
- An 8 weeks exchange at the Pediatric Surgical Department of the Black Lion Hospital, Addis Ababa. Visiting international conferences.
- Finalize and submit the research thesis

**Last 6 month:** Independent working as a pediatric surgeon and preparation for final examination

- Supervising the OPD and the pediatric surgical ward
- Perform all general pediatric surgical procedures independently
- Assist all general procedures and emergencies to first-year fellows
- Assist and teach all major diagnostic procedures especially in the field of pediatric radiology to first-year fellows.
- A 12 weeks exchange organized by the fellow at an institution of interest at any pediatric surgical sub-specialty. Visiting international conferences.

## **Advanced trainings**

### ***Seminars***

Dedicated presentations of principle and advanced topics in the field of Pediatric Surgery in a weekly basis. Seminars are prepared by all members of the Pediatric Surgical team and invited speakers. Head of department is responsible for the schedule.

### ***Teaching rounds***

Dedicated teaching rounds conducted by the head of the department (or its representative) twice per week. Opportunities to discuss interesting cases bedside.

### ***Journal club***

All members of the pediatric surgical team are expected to review articles from reputable journals and present summary of the articles on a monthly basis.

### ***Morbidity and mortality (M&M) conference***

M&M conferences will be presented on monthly basis for the whole length of the training.

# Quality Assurance to maintain quality of the program

## ***Program evaluation***

The pediatric surgical specialty certification program will be evaluated by annual meetings between each trainee and the head of the department. Subject of the meeting is to discuss the progress after one year, achieved and failed goals and perspectives for the next year. Result of the meeting is to document in the logbook.

## ***Structure of the qualifying examination***

- **Phase I** - Short answer question  
Not less than ten questions, including the common pediatric surgical conditions
- **Phase II** - MCQ (not less than 100 questions) drawn from each body system/course in a fair proportion.
- **Phase III** - Clinical examination
  - Long Case:* detailed questions on clinical diagnosis, investigation and management of one of the major pediatric surgical cases.
  - Short Cases*
    - Three short answer cases
    - Three spot cases
  - Ward round:* management suggestions on patients in the wards
  - Oral questions:*
    - Clinical scenario
    - Operative technique
    - Radio diagnosis
    - Pathology specimen

The clinical examination will be given by at least one external and one internal examiners.

## ***Marking for qualification***

- Progressive assessment **30%**
  - Logbook 20%
  - Thesis 10%
- Examinations **20%**
  - Written **20%**
    - Phase I 10%
    - Phase II 10%
  - Clinical examination **50%**
    - Long case 15%
    - Short case 15%
    - Ward round 10%
    - Oral 10%
- Interpretations of the cumulative result
  - pass, will graduate  $\geq 70\%$
  - Repeat for 6 months 60-69%
  - Repeat for one full year  $< 60\%$

- A trainee whose performance after one year of repeated attachment, with aggregate result less than 60% for the second time shall receive academic dismissal.

# APPENDIX – I

## Program specification

1. <b>Program title:</b> General Pediatric Surgery sub-specialty Training	Program Code: PEDS
2. <b>Program description and rationale:</b> General pediatric surgical training from general surgery leading to sub specialty certificate in pediatrics surgery.	
3. <b>Credits and the equivalent ECTS:</b> should score > or equals to 70% to pass exams given at any time of the course	
4. <b>Program duration (in years):</b> two and half years	
5. <b>Mode of delivery:</b> full time course including emergency hours	
6. <b>College/Institution:</b> JU-College of public health and medical Sciences	
7. <b>Department/School/Center:</b> School of Medicine, Department of Surgery, Pediatric Surgery unit	
8. <b>Admission requirements:</b> certificate of general surgery, age less than 40years,physically and mentally healthy	
9. <b>Program Aims:</b> to produce pediatric surgeons who assume full responsibility in the care of pediatric surgical cases.	
10. <b>Graduate Profile/Competencies:</b> able to do all non cardiac thoracic, neonatal and pediatric surgeries, reasonable practice in operative orthopedics	
11. <b>Intended learning outcomes of the program:</b> General Pediatrics Surgeon	
12. <b>Teaching and learning approaches:</b> seminars, teaching rounds, journal clubs, M&M conferences, rotations in specialist pediatric units, critical observations	
13. <b>Assessment Strategies:</b> progressive assessment, written and practical clinical exams	
14. <b>Program content and structure:</b> details of the structure, distinctive features, timescale, composition, and exit points; modules sequences: see appendix XXX below	
15. <b>Modules descriptors:</b> pediatric surgery sub specialty training	
16. <b>Availability of adequate and qualified faculty:</b> visiting pediatric surgery sub-specialists and expatriates, adequate rotation schedules abroad	
17. <b>Governance and management of programs:</b> by Pediatric Surgery unit under department of surgery, school of Medicine Jimma university.	
18. <b>Resources Profile:</b> at least one pediatric surgeon, one dedicated five days a week operating table, other hospitals abroad.	
20. <b>Indicators of quality and standards; Graduation Requirements:</b> written and practical exams at the end of 2.5 years. The candidate should submit one thesis, completed logbook and have to score 70% or more cumulative marks from progressive assessment, written and practical exams	
21. <b>Mechanisms to evaluate and improve quality and standards:</b> progressive assessment, exams, annual meetings.	
22. <b>Degree Award/ Nomenclature:</b> SUB SPECIALTY CERTIFICATEIN GENERAL PEDIATRICS SURGERY	
23. The proposed date: May ,2015                      Signature:	

## APPENDIX – II

### ***Detailed list of pathologic conditions to be dealt by the general pediatrics surgical trainee: : PRIMARY KNOWLEDGE OBJECTIVES***

#### **1. Head and neck**

Demonstrate knowledge of and the capacity to manage patients in relation to the knowledge of different patterns of disease. Natural history, and responses to treatment of head and neck disease in children. This will include:

- Congenital lesions: thyroglossal duct cyst. Branchial cleft cysts: sinuses and other remnants; cystic hygromas/lymphangiomas, hemangiomas.
- Salivary glands (Parotid, submaxillary): tumours, hemangiomas, inflammatory/calculi
- Neck masses: inflammatory (acute and chronic adenitis): tumours (lymphoma, rhabdomyosarcoma, neuroblastoma, teratoma, (nasopharyngeal carcinoma); congenital torticollis.
- Cranial trauma : diagnosis management of variable degrees of head and cervical trauma
- Injuries to the esophagus, trachea, blood vessels; blood vessels; airway management ; tracheostomy; recognition and emergency management of cervical spine fractures.

#### **2. Non Cardiac Thoracic Surgery**

***Demonstrate knowledge of and the capacity to manage patients in relation to the knowledge of the differing patterns of disease, natural history, and responses to treatment of non- cardiac chest conditions in children. This will include.***

- Oesophageal atresia and tracheoesophageal fistula (TOF) : embryology, pathologic types diagnosis, treatments, complication with their treatment
- Oesophageal achalasia, webs, stenosis ( congenital and acquired), duplications
- Acquired esophageal conditions: gastroesophageal reflux,(GOR) Barrett's oesophagus, hiatal hernia; strictures. Perforations (cervical, distal), foreign bodies, lye ingestion
- Congenital lung lesion: cystic adenomatoid malformation (CCAM) Pulmonary sequestration, hypertension.
- Acquired lung lesion: emphysema, abscess/pneumatocele, empyema, chylothorax, pulmonary metastases, infiltrates in

immunosuppressed patients , lung complications in cystic fibrosis ( CF).

- Congenital airway lesion: stenosis, broncho- and tracheomalacia
- Acquired airway lesion: bronchial adenoma (carcinoids, etc): recognition of foreign body aspiration
- Mediastinal lesions: cysts, tumors according to location (anterior, middle, posterior)
- Chest wall conditions: pectus excavatum and carinatum: tumors: reconstruction
- Diaphragmatic conditions : congenital diaphragmatic hernia (Bochdalek, Morgani): diaphragmatic eventration and phrenic nerve palsy, management of diaphragmatic trauma

### **3. Abdomen**

Demonstrate knowledge of and the capacity to manage patient in relation to the knowledge of the differing patterns of disease, natural history, and response to treatment of abdominal disease in children. This will include.

- Gastrointestinal physiologic issues : secretions, absorption, motility, blood supply: continence, defecation; short bowel syndrome, intestinal adaptation; physiologic testing (manometer, PH study).
- Gastric conditions: pyloric stenosis ( including physiologic disturbances), antral web, spontaneous perforation, antral dysmotility; stress ulcer, gastritis and other forms of acid peptic disease.
- Duodenal conditions: atresia, stenosis, webs ( including windsock variant); diverticula duplications, peptic ulcer
- Small intestinal conditions: malrotation, jejunoileal atresia/ stenosis, meconium ileus , meckel's diverticulum and related vitelline duct anomalies; necrotizing enterocolitis (NEC): intussusceptions: duplications, mesenteric cysts, neoplasm , congenital bands, mesenteric defects, bowel obstruction
- Colonic conditions: appendicitis, inflammatory bowel disease, typhlitis: meconium plug syndrome, Intestinal pseudo-obstruction: Hirschsprung's disease, neuronal intestinal dysplasia: colonic atresia, polyps ( Juvenile, familial, adenomatous).
- Anorectal conditions: imperforate anus (and variants): fissures, abscesses, fistulae, condylomata, rectal prolapsed, constipation, fecal incontinence.
- Hepatic condition: congenital and acquired liver cysts, trauma, tumors ( see oncology section ), portal hypertension, liver Abscess.
- Biliary conditions: biliary atresia, biliary hypoplasia, bile duct perforation, choledochal cyst; gallstones, acute/ chronic cholecystitis; physiologic jaundice, cholestatic syndromes liver transplantation ( indications, complications.
- Splenic conditions : hereditary spherocytosis, thalassemia, sickle cell disease; red blood count (RBC) enzyme deficiencies (Pyruvate kinase); other hemolytic anemias, idiopathic thrombocytopenic purpura (ITP); Gaucher's disease, splenic cyst, lymphangioma, abscess.
- Pancreatic conditions : cystic fibrosis; pancreas divisum, annular pancreas; pancreatitis (trauma, lipid, steroid, drug induced, gallstone induced, anomaly); congenital cysts, pseudocysts , tumours, hyperinsulinism.
- Abdominal wall conditions: gastroschisis, omphalocele and variants; hernias (umbilical, inguinal, epigastric, femoral, etc); vitelline duct remnants; umbilical granuloma.
- Abdominal trauma: intestinal trauma; hepatic trauma (operative and non operative management; splenic trauma (non- operative management,

indications for surgery, splenorrhaphy, splenectomy, vaccines, prophylactic antibiotics, splenectomy risks).

#### 4 Genitourinary

Demonstrate knowledge of and capacity to manage patients in relation to the knowledge of the differing patterns of disease, natural history, and responses to treatment of genitourinary conditions in children. This will include.

- Penis: phimosis, paraphimosis, balanitis, circumcision (indications and contraindications, including complications and their treatment).
- Inguinoscrotal area: cryptorchidism, varicocele, hydrocele, acute scrotum (torsion, etc)
- Bladder exstrophy (bladder, cloacal); urachal anomalies
- Tumours : see oncology section
- Trauma: kidney, ureter, bladder with adequate knowledge of pelvic fractures and urethral injuries
- Kidney: ureteropelvic junction (UPJ) obstruction, duplex systems
- Ureter vesicoureteral reflux (principles of therapy and correction), megaureter, ectopic ureter, ureterocele, ureteral duplication and associated problems, ureteroureterostomy
- Stones: kidney (open Vs. endourologic therapy), ureteral, bladder including metabolic aspects
- Bladder: bladder diverticulum, neurogenic bladder, bladder neck obstruction, bladder augmentation
- urethra: hypospadias, epispadias, urethral valves (anterior and posterior)
- urinary diversion: indication and techniques (vesicostomy, nephrostomy, ureterostomy, colonic conduit, continent diversion)
- endoscopy of the urinary tract, urodynamic, evaluation of hematuria
- peritoneal dialysis and hemodialysis access.

#### 5. Gynecology conditions

Demonstrate knowledge of and the capacity to manage patients in relation to the knowledge of the differing patterns of disease, natural history, and responses to treatment of gynecologic conditions in children. This will include.

- congenital conditions: vagina atresia, hemato/hydro (metro) colpos, bifid vagina, duplex uterus, urogenital sinus,
- inflammatory conditions: pelvic inflammatory disease, vulvovaginitis, vulvar abscess, fusion labia
- traumatic/mechanical condition: vaginal laceration, child abuse; torsion (normal ovary, cyst, tumour).
- Neoplastic condition : ovarian cysts (follicular, teratomatous, carcinomatous, serous, mucinous); ovarian solid tumours (yolk sac teratoma, carcinosarcoma, theca/lutein arrhenoblastoma. Dysgerminoma); vaginal and uterine tumors (yolk sac, rhabdomyosarcoma); vulvar lesions (cysts, nevi, hemangioma).

## **6. Endocrine Anomalies**

Surgeons will care in collaboration with other health care professionals for children with endocrine anomalies. They must therefore demonstrate knowledge of and the capacity to manage patients with these conditions based on a knowledge of the differing patterns of disease, natural history and response to treatment. This will include.

- Thyroid problems : hyperthyroidism ( diagnosis, medical therapy, management of thyrotoxic storm,, preparation for surgery, surgical techniques); thyroiditis; tumors ( role of FNAC) (fine-needle aspiratory cytology), other diagnostic techniques; therapy by type, multiple endocrine neoplasia syndromes); management of thyroid mass following neck irradiation postoperative management ( hypocalcemia, respiratory distress, hoarseness, follow -up for malignancy).
- Parathyroid conditions : hypoparathyroidism (Primary, secondary, tertiary)
- Breast conditions : neonatal hypertrophy, mastitis; gynecomastia; nipple discharge; fibroadenoma, fibrocystic disease; cystosarcoma phyllodes; premature thelarche.
- Gastrointestinal problems : gut hormones; all endocrine disorders affecting the gastrointestinal tract
- Pancreatic conditions: hyperinsulinism (newborn-adenoma vs. neonatal pancreatic dysplasia, diagnosis, medical and surgical treatment; older child-adenoma, hyperplasia) tumors (islet gastrointestinal and others.
- Adrenal conditions: adrenocortical tumours (aldosteronoma-conn's syndrome; cushing' syndrome hyperplasia vs. carcinoma; virilizing tumours); pheochromocytoma (diagnosis, sites including extra adrenal, bilateral, localization techniques, surgery perioperative (peri-op) blood pressure control, techniques, search for multiple /extra-adrenal tumours); also see section on tumours.
- Testicular conditions: cryptorchidism; see genitourinary (GU) section
- Intersex conditions, including adrenogenital syndrome (variants enzyme deficiencies, diagnosis and treatment) mixed gonadal dysgenesis, true and pseudo-hermaphroditism; and testicular feminization syndrome.

## **7. Oncology**

Surgeons will care in collaboration with other health care professionals for children with Cancer. They must therefore demonstrate knowledge of and the capacity to manage patients with these conditions based on a knowledge of the differing patterns of disease, natural history, and response to treatment this will include

- General principles: oncogenes, DNA -flow cytometry (diploid, aneuploid) paraneoplastic and tumour associated syndromes (eg opsomyoclonus)
- immunotherapy, radiation biology, immune suppression and opportunistic infection, cancer nutrition.



- Chemotherapy and drug action: surgical complications of chemotherapy and bone marrow transplantation
- Renal tumors: Wilms tumour, mesoblastic nephroma, nephroblastomatosis, AND management of Adenocarcinoma.
- Adrenal tumors: neuroblastoma, ganglioneuroblastoma, carcinoma
- Liver tumours: benign (hemangioma, hemangiomatosis, hemangioendothelioma, hamartoma, adenoma, focal nodular hyperplasia; malignant (hepaoblastoma, hepatoma)
- Soft tissue sarcomas: rhabdomyosarcoma (all sites; principles of therapy according to sit/histology), fibrosarcoma, leiomyosarcoma, liposarcoma, neurofibromas
- Teratomas: sacrococcygeal and gonadal tumours with embryology, pathology, familial teratomas, associated syndromes; other teratoma sites
- Lymphomas: Hodgkin's Disease; Non-Hodgkin's Disease, including pathology, (surface markers, sites, pattern of presentation including post –transplantation/AIDS
- Bone tumours: osteogenic sarcoma and ewing;s sarcoma (including peripheral neuroendocrine tumors /PNET/ as they relate to paediatric surgical intervention (rib resection, lung metastases, etc.)
- Gonadal tumours: see gynecology and genitourinary sections.

## 8 Critical Care and Trauma

Surgeons will care in collaboration with other health care professionals for critically ill and injured children. They must therefore demonstrate knowledge of and the capacity to manage patients with these conditions based on a knowledge of the differing patterns of disease, natural history, and responses to treatment. This will include

- Fluids and electrolytes: maintenance requirement management of dehydration, third-space loss; renal output, acid-base equilibrium; correction of peri-op electrolyte disturbances.
- Shock; hypovolemic (hemodynamic monitoring, resuscitation, crystalloid vs. colloid), cardiogenic (inotropic agents, etc), septic (hyperdynamic state, fluid resuscitation, antibiotics)
- Pulmonary physiology: normal lung function and volumes, ventilation/perfusion abnormalities; ventilators (pressure vs. volume cycled. Positive end-expiratory pressure /PEEP/ continuous positive airway pressure /CPAP, intermittent mandatory ventilation /IMV/, high frequency and jet ventilation); adult respiratory distress syndromes /ARDS/
- Nutrition: normal caloric requirements by age groups, carbohydrate, fat and protein contributions and concentrations, vitamins, trace elements, minerals; nutritional assessment techniques; enteral vs. parenteral nutrition; enteral formulas, defined diets; parenteral nutrition (peripheral vs. central solutions, techniques, complications).

- Coagulation: normal coagulation cascade; management of malignant management of postoperative pain in infants and children.
- Trauma: demographics, epidemiology: recognizable patterns of injury (i.e, seat belt syndrome, patterns of child abuse); initial priorities: principles of operative and non-operative management of head, neck, chest, abdomen, pelvis, genitourinary and extremity trauma
- Burn: pathophysiology of severe burn injury; fluid resuscitation (initial and maintenance); nutritional management.

## **9. Neonatology**

Surgeons will care in collaboration with other health care professionals for premature and ill

Newborns. They must therefore demonstrate knowledge of and the capacity to manage patients with these conditions based on a knowledge of the differing patterns of disease, natural history and responses to treatment. This will include

- Physiology of the premature infant: comparison with small for gestational age infants, complications, fluid requirements, thermal neutrality, response to cold, metabolic rate renal function, hepatic immaturity, formulas and caloric requirements, etc
- Hyperbilirubinemia: physiology, phototherapy, exchange transfusion, cholestasis hypoglycemia hypocalcemia
- Intracranial bleeding: staging techniques of diagnosis, site of blood, management, outcome new born respiratory distress syndrome: etiology, diagnosis, treatment, complications.
- Neonatal sepsis: immune status (comparison of pharmacokinetics

## **10 Skin and Subcutaneous Tissues**

The pediatric surgeon will demonstrate knowledge of and the capacity to manage patients in relation to the following knowledge of the differing patterns of disease, natural history, and responses to treatment of cutaneous and subcutaneous tissue disorders in children. This will include.

- Skin and subcutaneous lesions (nevi, nevus sebaceous, pilomatrixoma, juvenile; melanoma; hemangioma, lymphangioma, lipoma; and epidermoid cyst)
- Ingrown toe nails and paronychia:
- Pilonidal sinus and abscess:

## **11 Tropical and infectious disease**

The paediatric surgeon will demonstrate knowledge in the diagnosis and surgical management of tropical and other infectious disease, including

- Amoebiasis and its complications; /Various helminthiasis
- HIV/AIDS and tuberculosis;
- Other bacterial and parasitic infections affecting children

## **Secondary knowledge objectives**

### **A. Plastic surgery**

- Head and neck: contractures, facial anomalies, wounds, cleft lip/palate
- Skin: frostbite, soft tissue injury, wound healing, wound management
- Hand: infection, lacerations (recognition of nerve and tendon injury)
- Burns; recognition and management of burn wound infection (including wound biopsy techniques); burn wound excision; use of skin substitutes; burn rehabilitation, (including psychological effects and recovery)
- Techniques: skin grafting, microsurgery, use of flaps and Z-plasty

### **B. Orthopedics**

- Traumatic: pulled elbow, major long bone injury (femur, humerus, supracondylar fracture, Volkmann's ischemic contracture, ankle, wrist injury, knee injury and dislocation, compartment syndrome).
- Acquired: Osteochondritis dissecans, slipped capital femoral epiphysis
- Congenital: club foot; scoliosis
- Tumours (osteogenic sarcoma, Ewing's tumour): concepts of limb salvage, chemotherapy And radiotherapy principles

### **C Neurosurgery**

- Spina bifida tethered cord
- V-P (ventriculoperitoneal) shunt and its complications
- Midline dermoid lesions surgical interventions

## APPENDIX III

### JU-MF. DEPARTMENT OF SURGERY PEDIATRIC SURGICAL UNIT LOG BOOK (MAJOR OR & OPD PROCEDURE) FOR PEDIATRIC SURGICAL FELLOW

**Resident's Name**

**Month      Year**

<b>S.No</b>	<b>Name of the patient</b>	<b>Age</b>	<b>Card No</b>	<b>Procedure</b>	<b>Complication /out come</b>

**Nb. Include only those you have performed**

**Consultant** \_\_\_\_\_ **Signature** \_\_\_\_\_

## APPENDIX – IV

### JIMMA UNIVERSITY COLLEGE OF PUBLIC HEALTH AND MEDICAL SCIENCES

#### DEPARTMENT OF SURGERY

#### Unit of Pediatric Surgery

#### Progressive Assessment form

Name of Resident/Fellow \_\_\_\_\_

Year of Residency/Fellowship \_\_\_\_\_

Evaluation period

from \_\_\_\_\_ to \_\_\_\_\_

No.		Out of 100% each	CJ	NA
1	Basic science knowledge			
2	Clinical knowledge			
3	Clinical skills			
4	Clinical decision making			
5	Seminar presentations			
6	Teaching activity			
7	Preoperative preparation of patients			
8	Surgical skill			
9	Postoperative follow up of patients			
10	Punctuality at work			
11	Self motivation			
12	Reliability			
13	Team coordinating ability			
14	Relationship with staffs			
15	Relationship with patients			
	Total out of 100%			
	Cumulative of 20%			

#### Keys:-

Excellent (A) = 85-100%, Very good (B) = 70-84%, Good (C) = 60-69, Fair (D) = 50-59, Poor (F) = less than 50

CJ= can't judge, NA= not applicable

Additional comments \_\_\_\_\_

Overall assessment \_\_\_\_\_

Name and Signature of evaluators 1) \_\_\_\_\_

2) \_\_\_\_\_

3) \_\_\_\_\_

Signature of resident/fellow \_\_\_\_\_ Date \_\_\_\_\_

