CURRICULUM

RAWALPINDI MEDICAL UNIVERSITY

UNIVERSITY RESIDENCY PROGRAM- 2020 OF PEDIATRIC SURGERY

This document is created for comprehensive understanding of 5-year university program of MS Pediatric surgery at Rawalpindi medical university

Program of MS Pediatric Surgery
Rawalpindi Medical University Rawalpindi
2020

PREFACE

The horizons of *Medical Education* are widening & there has been a steady rise of global interest in *Post Graduate Medical Education*, an increased awareness of the necessity for experience in education skills for all healthcare professionals and the need for some formal recognition of postgraduate training in Pediatric Surgery.

We are seeing a rise in the uptake of places on postgraduate courses in medical education, more frequent issues of medical education journals and the further development of e-journals and other new online resources. There is therefore a need to provide active support in *Post Graduate Medical Education* for a larger, national group of colleagues in all specialties and at all stages of their personal professional development. If we were to formulate a statement of intent to explain the purpose of this log book, we might simply say that our aim is to help clinical colleagues to teach and to help students to learn in a better and advanced way. This book is a state of the art log book with representation of all activities of the MS Pediatric Surgery program at RMU.A summary of the curriculum is incorporated in the logbook for convenience of supervisors and residents. MS curriculum is based on six Core Competencies of ACGME ***(Accreditation Council for Graduate Medical Education)*** including ***Patient Care, Medical Knowledge, System Based Practice, Practice Based Learning, Professionalism, Interpersonal and Communication Skills***. A perfect monitoring system of a training program including monitoring of teaching and learning strategies, assessment and Research Activities cannot be denied so we at RMU have incorporated evaluation by ***Quality Assurance Cell*** and its comments in the logbook in addition to evaluation by ***University Training Monitoring Cell (URTMC)***. Reflection of the supervisor in each and every section of the logbook has been made sure to ensure transparency in the training program. The mission of Rawalpindi Medical University is to improve the health of the communities and we serve through education, biomedical research and health care. As an integral part of this mission, importance of research culture and establishment of a comprehensive research structure and research curriculum for the residents has been formulated and a separate journal for research publications of residents is available.

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Contributions

SR. no.		NAME& DESIGNATION	CONTRIBUTION
1.		Dr. Mudassar FIaz Gondal Head of department& Associate Professor Pediatric Surgery Holy Family Hospital, Rawalpindi Medical University	Over all synthesis, structuring & over all write up of MS Pediatric Surgery Curriculum, Log Book of MS Pediatric Surgery and also Log Book for MS Pediatric Surgery rotations under guidance of Prof. Muhammad Umar Vice Chancellor, Rawalpindi Medical University, Rawalpindi. Also, Proof reading & synthesis of final print version of Log Books of MS Pediatric Surgery and Rotations Log Book.
2.		Dr. Navaira Javaid Assistant Professor Pediatric Surgery Holy Family Hospital, Rawalpindi Medical University	Provision of required number of clinical procedures & educational activities for each year separately and rotation of Log Books of MS Pediatric Surgery & Log Book for MS Pediatric Surgery
3.		Dr. Naeem Liaqat Assistant Professor Pediatric Surgery Holy Family Hospital, Rawalpindi Medical University	Guidance regarding technical matters of Log Book of MS Pediatric Surgery & Log Book for MS Pediatric Surgery Rotations
4.		Dr. Mahwish Khan Senior Registrar Pediatric Surgery Holy Family Hospital, Rawalpindi Medical University	Assistance of Dr. Mudassar Fayaz Gondal in formulating the log books & computer work under his direct guidance & supervision.
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RAWALPINDI MEDICAL UNIVERSITY

STATUTES

Nomenclature of the Proposed Course

The name of degree program shall be MS Pediatric Surgery. This name is well recognized and established for the last many decades worldwide.

Course Title:

MS Pediatric Surgery

Training Centers

Departments of Pediatric Surgery (accredited by RMU) in affiliated institutes of Rawalpindi medical university.

Duration of Course

The duration of MS Pediatric Surgery course shall be five (5) years with structured training in a recognized department under the guidance of an approved supervisor.

After admission in MS Pediatric Surgery Program the resident will spend first 6 Months in the relevant Department of Pediatric Surgery as **Induction period** during which resident will get orientation about the chosen discipline and will also participate in the **mandatory workshops**. The research project shall be designed and the **synopsis** be prepared during this period
On completion of Induction period the resident shall start training to learn Basic Principles of General Surgery for 18 Months.

During this period the Research Synopsis shall be got approved by the AS&RB of the university. At the end of 2nd Calendar year the candidate shall take up Intermediate Examination.

During 3rd, 4th & 5th years, of the Program, there shall be two components of the training.

1) Clinical Training in Pediatric Surgery
2) Research and Thesis writing

The candidate will undergo clinical training in the discipline to achieve the educational objectives (knowledge & Skills) along with rotation in the relevant fields during the 4th & 5th years of the program. The clinical training shall be competency based. There shall generic and specialty specific competencies and shall be assessed by continuous Internal Assessment.
The Research & thesis Component shall be completed over the five years duration of the course. The Candidate will spend total time equivalent to one calendar on research during the training. Research can be done as one block or it can be done as regular periodic rotation over five years as long as total research time is equivalent to one calendar year.

Admission Criteria

Applications for admission to MS Training Programs will be invited at the most twice a year, through advertisement in print and electronic media mentioning closing date of applications and date of Entry Examination.
Eligibility: The applicant on the last date of submission of applications for admission must possess the:

1. Basic Medical Qualification of MBBS or equivalent medical qualification recognized by Pakistan Medical Council.

2. Certificate of one year's House Job experience in institutions recognized by Pakistan Medical Council Is essential at the time of interview. The applicant is required to submit Hope Certificate from the concerned Medical Superintendent that the House Job shall be completed before the Interview.
3. Valid certificate of permanent or provisional registration with Pakistan Medical & Dental Council.
   i) Pass certificate of GCAT/MS part I or equivalent.

   ii) A candidate who have passed FCPS/FRCS Pediatric surgery will be inducted directly to 3rd year but he/she has to carry out research and write thesis and appear in Final examination

Registration and Enrollment

- As per policy of jv the number of PG Trainees/ Students per supervisor shall be maximum 05 per annum for all PG programs including minor programs (if any).
- Beds to trainee ratio at the approved teaching site shall be at least 5 beds per trainee.
- The University will approve supervisors for MS courses.
- Candidates selected for the courses after their enrollment at the relevant institutions shall be registered with RMU as per prescribed Registration Regulations.

Accreditation Related Issues of The Institution

A) Faculty

Properly qualified teaching staff in accordance with the requirements of Pakistan Medical Council (PMC)

B) Adequate Space

Including class-rooms (with audiovisual aids), demonstration rooms, computer lab and clinical pathologylab etc.

C) Library

Departmental library should have latest editions of recommended books, reference books and

latest journals (National and International).

- Accreditation of Pediatric Surgery training program can be suspended on temporary or permanent basis by the University, if the program does not comply with requirements for residents training as laid out in this curriculum.
- Program should be presented to the University along with a plan for implementation of curriculum for training of residents.
- Programs should have documentation of residents training activities and evaluation on monthly basis.
- To ensure a uniform and standardized quality of training and availability of the training facilities, the University reserves the right to make surprise visits of the training program for monitoring purposes and may take appropriate action if deemed necessary

AIMS AND OBJECTIVES OF THE COURSE

AIM

The aim of five years MS program in Pediatric Surgery is to train residents to acquire the competency of a specialist in the field so that they can become good teachers, researchers and clinicians in their specialty after completion of their training.

GENERAL OBJECTIVES

MS Pediatric Surgery training should enable a student for:

- Access and apply relevant knowledge to clinical practice:
  - Maintain currency of knowledge
  - Apply scientific knowledge in practice
  - Appropriate to patient need and context
  - Critically evaluate new technology
- Safely and effectively performs appropriate surgical procedures:
  - Consistently demonstrate sound surgical skills
  - Demonstrate procedural knowledge and technical skill at a level appropriate to the level of training
  - Demonstrate manual dexterity required to carry out procedures
  - Adapt their skills in the context of each patient and procedure
  - Maintain and acquire new skills
  - Approach and carry out procedures with due attention to safety of patient, self and others

- Critically analyze their own clinical performance for continuous improvement

- Design and implement effective management plans:
  - Recognize the clinical features, accurately diagnose and manage pediatric problems
  - Formulate a well-reasonedprovisional diagnosis and management plan based on a thorough history and examination
  - Formulate a differential diagnosis based on investigative findings

  - Manage patients in ways that demonstrate sensitivity to their physical, social, cultural and psychological needs
  - Recognize disorders of the pediatric age group and differentiate those amenable to surgical treatment
  - Effectively manage the care of patients with trauma including multiple system trauma
  - Effectively recognize and manage complications
  - Accurately identify the benefits, risks and mechanisms of action of current and evolving treatment modalities
  - Indicate alternatives in the process of interpreting investigations and in decision-making
  - Manage complexity and uncertainty
  - Consider all issues relevant to the patient
  - Identify risk
  - Assess and implement a risk management plan
  - Critically evaluate and integrate new technologies and techniques.

- Organize diagnostic testing, imaging and consultation as needed:
  - Select medically appropriate investigative tools and monitoring techniques in a cost-effective and useful manner
  - Appraise and interpret appropriate diagnostic imaging and investigations according to patients' needs
  - Critically evaluates the advantages and disadvantages of different investigative modalities
- Communicate effectively:
  - Communicate appropriate information to patients (and their family) about procedures, potentialities and risks associated with surgery in ways that encourage their participation in informed decision making
  - Communicate with the patient (and their family) the treatment options including benefits and risks of each
  - Communicate with and co-ordinate health management teams to achieve an optimal surgical environment
  - Initiate the resolution of misunderstandings or disputes
  - Modify communication to accommodate cultural and linguistic sensitivities of the patient
- Recognize the value of knowledge and research and its application to clinical practice:
  - Assume responsibility for self-directed learning
  - Critically appraise new trends in Pediatric Surgery
  - Facilitate the learning of others.
- Appreciate ethical issues associated with Pediatric Surgery:

- Consistently apply ethical principles
- Identify ethical expectations that impact on medico-legal issues
- Recognize the current legal aspects of informed consent and confidentiality
- Be accountable for the management of their patients.

- Professionalism by:
  - Employing a critically reflective approach to Pediatric Surgery
  - Adhering with current regulations concerning workplace harassment
  - Regularly carrying out self and peer reviewed audit
  - Acknowledging and have insight into their own limitations
  - Acknowledging and learning from mistakes
- Work in collaboration with members of an interdisciplinary team where appropriate:
  - Collaborate with other professionals in the selection and use of various types of treatments assessing and weighing the indications and contraindications associated with each type
  - Develop a care plan for a patient in collaboration with members of an interdisciplinary team
  - Employ a consultative approach with colleagues and other professionals
  - Recognize the need to refer patients to other professionals.
- Management and Leadership
  - Effective use of resources to balance patient care and system resources
  - Identify and differentiate between system resources and patient needs
  - Prioritize needs and demands dealing with limited system resources.

- Manage and lead clinical teams
- Recognize the importance of different types of expertise which contribute to the effective functioning of clinical team.
- Maintain clinically relevant and accurate contemporaneous records

- Health advocacy:
  - Promote health maintenance of patients
  - Advocate for appropriate health resource allocation
  - Promote health maintenance of colleagues and teacher

SPECIFIC LEARNING OUTCOMES

On completion of the training program, Pediatric Surgical Trainees pursuing an academic pathway will be expected to have demonstrated competence in all aspects of the published syllabus. The specific training component would include the following areas:

1. Establishing clearly defined standards of knowledge and skills required to practice pediatric surgery at secondary and tertiary care level
2. Understand Basic Sciences relevant to child development and disease (including relevant genetics and embryology)
3. The symptom patterns, differential diagnosis, investigation and management of common pediatric surgical conditions related to;
    - Neonatal Surgery
    - Emergency Surgery
    - Central and peripheral nervous systems
    - Head and neck surgery
    - Thoracic surgery
    - Gastrointestinal surgery
    - Genitourinary surgery
    - Endoscopic Surgery
    - Traumatology
    - Organ transplantation
    - Pediatric Tumor Surgery etc.
4. Understanding key differences between adult and child in the management of surgical conditions.
5. Being able to diagnose common pediatric surgical conditions
6. The ability to construct a differential diagnosis, interpret investigations and construct a management plan for common conditions
7. Undergoing exposure and training in a range of common surgical procedures
8. Developing a number of generic and advanced operative skills specific to pediatric surger
9. Proficiency in handling critical and intensive care surgical illness
10. Understand the indications, actions and monitoring of drugs used in the pediatric surgical diseases
11. Developing communication skills according to age
12. Specific ethical and legal issues affecting the practice of pediatric surgery (including

issues of consent)

13. History taking relevant to specific age or developmental stage
14. The clinical skills with appropriate examination techniques for children of different ages related to pediatric surgery
15. Basic life support skills in pediatric practiceRecognize the value of screening programs and prenatal diagnosis
16. Appreciate the role of family education in pediatric surgical disorders
17. Understand the role of staff management and of referral in particularly complex pediatric surgical disorders
18. Acquire management skills in running a Pediatric Surgery Unit

REGULATIONS

Scheme of theCourse

A summary of five years course in MS Pediatric Surgery is presented as under:

Course Structure	Components	Examination
At the End of 2nd year MS Pediatric Surgery Program me	Principles of General Surgery Relevant Basic Science (Anatomy, Physiology, Pharmacology & Pathology)	**Intermediate Examination** at the end of 2nd Year of M.S. Pediatric Surgery Program Written MCQs = 300 Marks Clinical, TOACS/OSCE & ORAL = 200 Marks Total = 500 Marks
At the end of 5th year MS Pediatric Surgery Program me	**Clinical component** Training in Pediatric Surgery with rotations inthe relevant fields. **Research component** Research work / Thesis writing must be completed and thesis be submitted at least 6 months before the end of final year of the program.	**Final Examination** at the end of 5th year of M.S. Pediatric Surgery Program. Written = 500Marks Clinical, TOACS/OSCE & ORAL = 500 Marks Contribution of CIS = 100 Marks Thesis Evaluation = 400Marks **Total = 1500 Marks** Thesis evaluation and defense at the end of 5th year of the program.

Intermediate Examinations M.S. Pediatric Surgery (at the end of 2nd calendar year of the program)

All candidates admitted in MS Pediatric Surgery courses shall appear in Intermediate examination at the end of second calendar year.

Eligibility Criteria:

The candidates appearing in Intermediate Examination of the Pediatric Surgery Program are required:

a) To have submitted certificate of completion of mandatory workshops.
b) To have submitted certificate of completion of first two years of training from the supervisor/ supervisors of Rotation.
c) To have submitted CIS assessment proforma from his/her own supervisor on 03 monthly basis and also from his/her supervisors during rotation, achieving a cumulative score of 75%.
d) To have submitted certificate of approval of synopsis or undertaking / affidavit that if synopsis not approved with 30 days of submission application for the Intermediate Examination, the candidate will not be allowed to take the examinations and shall be removed from the training program.
e) To have submitted evidence of payment of examination fee.

Intermediate Examination Schedule and Fee

a) Intermediate Examination at completion of two years training, will be held twice a year.
b) There will be a minimum period of 30 days between submission of application for the examination and the conduction of examination.
c) Examination fee will be determined periodically by the University.
d) The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
e) The Controller of Examinations will issue Roll Number Slips on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee.

At the end of 2nd year Calendar of the program

Written Examination	= 300 Marks
Clinical, TOACS/OSCE & ORAL	= 200 Marks

Written:

MCQs 100 (2 marks each MCQ)
SEQs 10 (10 Marks each SEQ)

Components of Theory Paper

Principles of General Surgery	= 70 MCQs7 SEQs
Specialty specific	= 10 MCQs1 SEQs
Basic Sciences	= 20 MCQs2 SEQs
Anatomy	= 6 MCQs1 SEQs
Pharmacology	= 2 MCQs-------
Pathology	= 6 MCQs1 SEQ
Physiology	= 6 MCQs-------

Clinical, TOACS/OSCE & ORAL

Four Short Cases	= 100 Marks
One Long Case	= 50 Marks Clinical,
TOACS/OSCE & ORAL=	50 Marks
Total	**= 200 Marks**

Declaration of Results

The Candidate will have to score 50% marks in written, clinical, Toacs/OSCE & Oral and Practical components and a cumulative score of 60% to be declared successful in the Intermediate Examination.

A maximum total of four consecutive attempts (availed or un-availed) will be allowed in the Intermediate Examination during which the candidate will be
allowed to continue his training program. If the candidate fails to pass his Intermediate Examination within the abovementioned limit of four attempts, the candidate shall be removed from the training program, and the seat would fall vacant, stipend/ scholarship if any would be stopped.

Final Examination
At the end of 5th Calendar year of the Program

Eligibility Criteria:

To appear in the Final Examination the candidate shall be required:

i) To have submitted the result of passing Intermediate Examination.

ii) To have submitted the certificate of completion of training, issued by the Supervisor which will be mandatory.

iii) To have achieved a cumulative score of 75% in Continuous Internal assessments of all training years.

iv) To have got the thesis accepted and will then be eligible to appear in Final Examination.

v) To have submitted no dues certificate from all relevant departments including library, hostel, cashier etc.

vi) To have submitted evidence of submission of examination fee.

Final Examination Schedule and Fee

a) Final examination will be held twice a year.

b) The candidates have to satisfy eligibility criteria before permission is granted to take the examination.

c) Examination fee will be determined and varied at periodic intervalsby the University.

d) The examination fee once deposited cannot be refunded / carried over to the next

examinationunder any circumstances.

e) The Controller of Examinations will issue an Admittance Card with a photograph of the candidate on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee. This card will also show the Roll Number, date / time and venue of examination.

All candidates admitted in MS Pediatric Surgery course shall appear in Final (clinical) examination at the end of structured training program (end of 5th calendar year), and having passed the Intermediate examinations.

Written Part	= 500 Marks
Clinical, TOACS/OSCE & ORAL	= 500 Marks
Contribution Internal Assessment	= 100 Marks
Thesis	= 400 Marks
Total	= 1500 Marks

Written Papers:

Paper 1	= 100 MCQs	5 SEQs
Paper 2	= 100 MCQs	5 SEQs

Clinical, TOACS/OSCE & ORAL

Short Cases	= 200 Marks
Long Case	= 100 Marks
Clinical, TOACS/OSCE & ORAL	= 200 Marks
Total	**= 500 Marks**

Declaration of Result

For the declaration of result

I. The candidate must get his/her Thesis accepted.

II. The candidate must have passed the final written examination with 50% marks and the clinical & oral examination securing 50% marks. The cumulative passing score from the written and clinical/ oral examination shall be 60%.

III. The MS degree shall be awarded after acceptance of thesis and success in the final examination.

IV. On completion of stipulated training period, irrespective of the result (pass or fail) the training slot of the candidate shall be declared vacant.

Submission / Evaluation of Synopsis

1. The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on universitywebsite.
2. The research topic in clinical subject should have 30% component related to basic sciences and 70% component related to applied clinical sciences. The research topic must consist of a reasonable sample size and sufficient numbers of variables to give training to the candidate to conduct research, to collect & analyze the data.
3. Synopsis of research project shall be submitted by the end of the 2nd year of MS program. The synopsis after review by an Institutional Review Committee shall be submitted to the University for consideration by the Advanced Studies & Research Board, through the Principal / Dean /Head of the institution.

Submission of Thesis

1. Thesis shall be submitted by the candidate duly recommended by the Supervisor.
2. The minimum duration between approval of synopsis and submiss ion of thesis shall be one year.
3. The research thesis must be compiled and bound in accordance with the Thesis Format Guidelines approved by the University and available on website.
4. The research thesis will be submitted along with the fee prescribed by the University.

Thesis Examination

The candidate will submit his/her thesis at least 06 months prior to completion of training.

a) The Thesis along with a certificate of approval from the supervisory will be submitted to the Registrar's office, who would record the date / time etc. and get received from the Controller of Examinations within 05 working days of receiving.

b) The Controller of Examinations will submit a panel of eight examiners within 07 days for selection of four examiners by the Vice Chancellor. The Vice Chancellor shall return the final panel within 05 working days to the Controller of Examinations for processing and assessment. In case of any delay the Controller of Examinations would bring the case personally to the Vice Chancellor.

c) The Supervisor shall not act as an examiner of the candidate and will not take part in

evaluation of thesis.

d) The Controller of Examinations will make sure that the Thesis is submitted to examiners in appropriate fashion and a reminder is sent after every ten days.

e) The thesis will be evaluated by the examiners within a period of 06 weeks.

f) In case the examiners fail to complete the task within 06 weeks with 02 fortnightly reminders by the Controller of Examinations, the Controller of Examinations will bring it to the notice of Vice Chancellor in person.

g) In case of difficulty in find an internal examiner for thesis evaluation, the Vice Chancellor would, in consultation with the concerned Deans, appoint any relevant person as examiner in supersession of the relevant clause of the University regulations.

h) There will be two internal and two external examiners. In case of difficulty in finding examiners, the Vice Chancellor would, in consultation with the concerned Deans, appoint minimum of three, one internal and two external examiners.

i) The total marks of thesis evaluation will be 400 and 60% marks will be required to pass the evaluation.

j) The thesis will be considered / accepted, if the cumulative score of all the examiners is 60%.

k) The clinical training will end at completion of stipulated training period but the candidate will become eligible to appear in the Final Examination at completion of clinical training and after acceptance of

thesis. In case clinical training ends earlier, the slot will fall vacant after stipulated training period.

Award of MS Pediatric Surgery Degree

After successful completion of the structured courses of MS Pediatric Surgery and qualifying Intermediate & Final examinations, (written, Clinical, TOACS/OSCE, ORAL and Thesis) the degree with title MS Pediatric Surgery shall be awarded.

CONTENT OUTLINE
MS Pediatric Surgery

Basic sciences:
Student is expected to acquire comprehensive knowledge of Anatomy, Physiology, Pathology, Biochemistry and Pharmacology relevant to surgical practice

1. Anatomy

Detailed Anatomy of the organ systems of body, their blood supply, nerve supply, lymphatic drainage and important gross relations to other organs as appropriate for surgical operations

Developmental Anatomy and associated common congenital abnormalities Feature of Surface, Imaging and Applied Anatomy within each organ system Relate knowledge to assessment of clinical situation or progress of disease condition

CARDIOVASCULAR:

- Embryogenesis of heart and major vessels, and formation of thelymphatic system
- Common anatomical variations of heart chambers, valves and major vessels
- Surgical anatomy of heart and major arteries + veins in thorax, neck, abdomen and groins

RESPIRATORY:

- Embryogenesis of trachea and bronchial tree
- Lung development
- Development and defects of diaphragm
- Common anatomical variations of respiratory tree and lungs to include vascular anomalies
- Surgical anatomy of pleura, lung and trachea and bronchial tree

GASTROINTESTINAL TRACT AND ABDOMINAL WALL:

- Embryogenesis of the GIT to include formation of the solid organs, anorectum, and abdominal wall
- Common anatomical variations in the formation of the GIT and abdominal wall
- Surgical anatomy of the GIT and its relations to other systems

RENAL:

- Embryogenesis of the upper and lower renal tract to include male and female

genital development
- Common anatomical variations of the renal tract and genitalia
- Surgical anatomy of the renal tract, and associated genital structures to include relationships to other systems

NEUROLOGICAL:
- Embryogenesis of the brain and spinal cord, and of the supporting
- Common anatomical variations of the brain and spinal cord
- Surgical anatomy of the brain, spinal cord and major somatic nerves (to include relationships to other systems)

MUSCULO SKELETAL:
- Embryogenesis of the skeleton and muscle development
- Common anatomical variations of skeleton
- Surgical anatomy of skeleton where relevant to other systems

ENDOCRINE:
Development, defects and surgical anatomy of endocrine organs

2. Physiology
- Cellular organization, structure function correlations and physiological alterations in the organ systems of body
- Relate knowledge to assessment of clinical situation or progress of disease condition

FLUID BALANCE:
- Basic requirements of fluid and electrolytes at different ages
- Mechanisms of homeostasis
- Influence of disease states
  -renal
  -cardiac
  -gastrointestinal
  -trauma
- Mechanisms of homeostasis
- Abnormalities encountered in disease

ACID-BASE BALANCE:
- Basic requirements of fluid and electrolytes at different ages
- Mechanisms of homeostasis

- Influence of disease states

OXYGEN TRANSPORT:

- Airway function in health and disease
- Alveolar function and gas exchange
- Effect of disease
  - -R.D.S.
  - -Infection
  - -Barotrauma
  - -Prematurity
- Effect of fetal circulation

GASTROINTESTINAL TRACT:

- Motility of different regions of gut
- Secretion and absorption
- Function of sphincter regions
  - -G.O. junction
  - -Pylorus
  - -Ileocecal region
  - -Anorectum
- Defecation and continence

HEPATOBILIARY FUNCTION AND PANCREATIC FUNCTION:

- Metabolic and synthetic hepatic function
- Bile production and transport
- Exocrine pancreatic function
- Effect of disease on normal function

RENAL TRACT:

- Renal mechanisms for maintenance of homeostasis
- Effect of disease
- Bladder function and continence
- Transitional renal physiology in neonate and young child

GROWTH AND METABOLISM:

- Nutritional requirements at different ages
- Endocrine factors influencing growth
  - -thyroid

-pituitary
-pancreatic
-adrenal
-gonadal

- Effect of disease states including
  -chronic disease
  -trauma
  -response to operation
- Influence and use of parenteral and enteralfeeding

AUTONOMIC NERVOUS SYSTEM:

- Differing effects of sympathetic and parasympathetic innervation
- Effects on differing physiological processes
  - Membrane biochemistry and signal transduction
  - Gene expression and the synthesis of proteins
  - Bioenergetics; fuel oxidation and the generation of ATP
  - Carbohydrate metabolism
  - Lipid metabolism
  - Nitrogen metabolism
  - Enzymes and biologic catalysis
  - Tissue metabolism
  - Biotechnology and concepts of molecular biology with special emphasis on use of recombinant DNA techniques in medicine and the molecular biology of cancer

3. Pharmacology

- The Evolution of Medical Drugs
- British Pharmacopeia
- Introduction to Pharmacology
- Receptors
- Mechanisms of Drug Action
- Pharmacokinetics
- Pharmacokinetic Process
  - Absorption
  - Distribution
  - Metabolism
  - Desired Plasma Concentration
  - Volume of Distribution

- Elimination
- Elimination rate constant and half life
- Creatinine Clearance

- Drug Effect
  - Beneficial Responses
  - Harmful Responses
  - Allergic Responses

- Drug Dependence, Addiction, Abuse and Tolerance
- Drug Interactions
- Dialysis
- Drug use in pregnancy and in children

4. Pathology

Pathological alterations at cellular and structural level

- Inflammation
- Wound healing
- Cellular injury
- Vascular disorders
- Disorders of growth, differentiation andmorphogenesis
- Tumors

- Surgical immunology
  Surgical hematoloy
  Microbioly:
- Surgically important microorganisms
- Sources of infection
- Asepsis andantisepsis
- Sterilization
- Antibiotics
- High risk patient management

MS Pediatric Surgery

Basic Principles of Surgery

- History of surgery
- Preparing a patient for surgery
- Principles of operative surgery: asepsis, sterilization and antiseptics
- Surgical infections and antibiotics
- Basic principles of anesthesia and pain management
- Acute life support and critical care:
    - Pathophysiology and management of shock
    - Fluids and electrolyte balance/ acid base metabolism
    - Hemostasis, blood transfusion
- Trauma: assessment of polytrauma, triage, basic and advanced trauma
- Accident and emergency surgery
- Wound healing and wound management
- Nutrition and metabolism
- Principles of burn management
- Principles of surgical oncology
- Principles of laparoscopy and endoscopy
- Organ transplantation
- Informed consent and medico-legal issues
- Molecular biology and genetics
- Operative procedures for common surgical manifestations e.g cysts, sinuses, fistula, abscess, nodules, basic plastic and reconstructive surgery

- Principles of basic diagnostic and interventional radiography
- Principles and interpretation of conventional and advanced radiographic procedures

Common Surgical Skills Incision of skin and subcutaneous tissue:

- Langer's lines
- Healing mechanism
- Choice of instrument
- Safe practice

Closure of skin and subcutaneous tissue:

- Options for closure
- Suture and needle choice
- Safe practice

Knot tying:

- Choice of material
- Single handed
- Double handed
- Superficial
- Deep

Tissue retraction:

- Choice of instruments
- Placement of wound retractors
- Tissue forceps

Use of drains:

- Indications
- Types
- Insertion
- Fixation
- Management/removal

Incision of skin and subcutaneous tissue:

- Ability to use scalpel, diathermy and scissors

Closure of skin and subcutaneous tissue:

- Accurate and tension free apposition of wound edges

Hemostasis:

- Control of bleeding vessel (superficial)
- Diathermy
- Suture ligation
- Tie ligation
- Clip application
- Plan investigations
- Clinical decision making
- Case work up and evaluation; risk management

Pre-operative assessment and management:

- Cardiorespiratory physiology
- Diabetes mellitus
- Renal failure
- Pathophysiology of blood loss
- Pathophysiology of sepsis
- Risk factors for surgery
- Principles of day surgery
- Management of comorbidity

Intraoperative care:

- Safety in theatre
- Sharps safety
- Diathermy, laser use
- Infection risks
- Radiation use and risks

- Tourniquets
- Principles of local, regional andgeneral anesthesia

Post-operative care:

- Monitoring of postoperative patient
- Postoperative analgesia
- Fluid and electrolyte management
- Detection of impending organfailure
- Initial management of organfailure
- Complications specific to particular operation
- Critical care

Blood products:

- Components of blood
- Alternatives to use of blood products
- Management of the complications of blood product transfusion including children

Antibiotics:

- Common pathogens in surgical patients
- Antibiotic sensitivities
- Antibiotic side-effects
- Principles of prophylaxis and treatment

Safely assess the multiply injured patient:

- History and examination
- Investigation
- Resuscitation and early management
- Referral to appropriate surgical subspecialties

Technical Skills

- Central venous line insertion
- Chest drain insertion
- Diagnostic peritoneallavage
- Bleeding diathesis & corrective measures, e.g. warming, packing
- Clotting mechanism; Effect of surgery and trauma oncoagulation
- Tests for thrombophilia and other disorders of coagulation
- Methods of investigation for suspected thromboembolic disease
- Anticoagulation, heparin andwarfarin
- Role of V/Q scanning, CT angiography and thrombolysis
- Place of pulmonary embolectomy
- Awareness of symptoms and signs associated with pulmonary embolism and DVT
- Role of duplex scanning, venography and d-dimermeasurement
- Initiateand monitor treatment

Diagnosis and Management of Common Surgical Conditions:

- Child with abdominalpain
- Vomiting child
- Trauma
- Groin conditions
  - Hernia
  - Hydrocoele
  - Penile inflammatoryconditions
  - Undescended testis
  - Acute scrotum
- Abdominal wall pathologies
- Urological conditions
- Constipation
- Head / neck swellings
- Intussusception
- Abscess
- In growing toenail

In terms of general experience, it is expected that trainees would have gained exposure to the following procedures and to be able to perform those marked (*) under direct supervision.

- Elective Procedures
  - Inguinal hernia

- (not neo-natal)
  - Orchidopexy
  - Circumcision*Lymph node biopsy*
  - Abdominal wall hernia
  - Insertion of CVlines
  - Management of in growing toenails*
  - EUA rectum*
  - Manual evacuation*
  - Open rectal biopsy
  - Excision of skinlesions*
- Emergency Procedures
  - Appendicectomy
  - Incision and drainage ofabscess*
  - Pyloromyotomy

- Operation for testicular torsion*
- Insertion of pleural drain*
- Insertion of suprapubic catheter*
- Reduction of intussusception

MS PEDIATRIC SURGERY

Clinical Component

Advanced Professional Education in Pediatric Surgery

The aim of this stage is to allow the trainee to continue to develop the advanced skills knowledge and attitude required to practice as consultant Pediatric Surgeon in Pakistan and Abroad.

Trainee will build on the basic skills and competences achieved in the initial stage of the program, gaining exposure to the more specialized areas of practice.

The goals as outlined in initial stages remain pertinent, as it is expected that the trainees will continue to build on their clinical experience and move beyond competent practice to the level of an advanced practitioner, in many of the areas.

The different sections will contain a mixture of information on relevant conditions, symptom patterns and associated surgical operations. This is in an attempt to represent the variety of clinical practice. Overall these goals

outlined are simply guides to progress and should be used by trainees, trainers and Program Directors to help plan rotational placements to ensure a full breadth; of training.

The difference surgical sections are:

- Emergency surgery
- Gastrointestinal surgery
- Neonatal surgery
- Urology
- Thoracic surgery
- Orthopedic Surgery
- Neurosurgery
- Surgical Oncology
- Surgical Endocrinology
- Research and Audit
- Teaching and Training

By the end of the final stage of training trainees including those who are following an academic pathway will have:

- Achieved the level of an advanced practitioner in the management of the common surgical problems of childhood
- Acquired the skills to practice with integrity, respect and compassion
- Gained sufficient theoretical knowledge and practical experience to be able to enter for the examination in pediatric surgery as set by the Rawalpindi medical university in Pediatric Surgery.
- Increasing exposure to the more specialized areas of pediatric surgery to include clinical presentation, operative and non-operative management of cases within the different areas.
- Competence in further range of operations common to pediatric practice
- Developed skills and experience in areas of more specialized practice – with a view to developing a sub-specialty interest if appropriate.
- Achieved the level of advanced practitioner in operations common to Pediatric practice, and be developing competence inprocedures appropriate to sub-specialty training.

The operative skills outlined here are those relevant to this stage of surgical training. Many are

related to the conditions outlined in the specialty modules.

Again, the curriculum is there to act as a guide to a minimum level of competence to be achieved by the end of 5th year. The operations detailed here are those it is reasonable to expect the trainee to be able to perform either independently or with consultant assistance available but not necessarily at the operating table.

Although this list is not exhaustive it gives an indication of those procedures that it is reasonable to expect a trainee by the end of 4th year to have been exposed to.

Key to competency levels in clinical skills:

1. Observer status.
2. Assistant status.
3. Performed under supervision.
4. Performed independently
5. A candidate is expected to attain the laid down level of competence for the following procedures by the end of each year as given below: I. Procedures

		First Year				TOTAL NO. OF CASES
		3months		6months		
		Level	Cases	Level	Cases	
A:	**Patient Management**					
1	Elicit a pertinent history	5	15	5	15	30
2	Communicate effectively with patients, families and the health team.	4	15	4	15	30
3	Perform physical examination	5	15	5	15	30
4	Order appropriate	5	15	5	15	30

	investigations					
5	Interpret the results of investigations	3	15	4	15	30
6	Assess fitness to undergo surgery	3	15	3	15	30
7	Decide and implement appropriate treatment	3	15	4	15	30
8	Postoperative management and monitoring	3	15	3	15	30
9	Maintain accurate and appropriate record	3	15	3	15	30
10	Surgical Audit	3	15	4	15	30

		First Year				Totla No. of Cases
		6months		12 months		
		Level	Cases	Level	Cases	
S.NO.	**A:Preoperative Preparation**					
1	Use of aseptic technique	3	3	4	3	06
2	Positioning of patient for diagnostics and surgical procedures	3	3	4	3	06
3	Identification and use of surgical equipment	3	3	4	3	06
4	Suture material and appliances	3	2	4	2	04
	B: General Surgical Procedures					
1	Circumcision	3	2	3	2	04
2	Venesection	3	3	3	3	06
4	Tube thoracotomy	2	3	3	3	06
5	Management of empyema	2	1	3	1	02
6	Biopsy of lymph node	2	3	3	4	07
7	Biopsy of skin lesions, subcutaneous lumps or swelling	2	3	3	3	06

8	Excision of soft tissue tumors and cysts (surface surgery)	2	2	3	1	03
9	Cricothyroidotomy	2	3	3	1	04
10	Proctosigmoidoscopy	2	3	3	3	06
11	Proctoscopy and interpretation of finding	2	-	2	-	00
12	Percutaneous needle aspiration under ultrasound guidance/CT scan	1	2	2	2	04
13	Controlling hemorrhage	2	3	3	3	06
14	Debridement, wound excision, closure/suture of wounds	2	5	3	5	10
15	Urethral catheterization	3	3	4	3	06
16	Suprapubic puncture	1	3	2	3	06
17	Meatotomy	1	3	2	3	06
	C: Perioperative Care					
1	Use of ventilator	1	1	2	1	02
2	Wound healing and Peri-operative Complication	2	2	3	2	04

3	CPR	2	2	3	2	04
4	CV lines	1	2	2	2	04
5	Fluid and electrolyte balance	2	2	3	2	04
6	Monitoring devices	2	3	2	3	06
7	Inotropic agents	1	2	2	2	04
8	Care of unconscious patient	1	2	2	2	04
9	Replacement of nutrition	2	1	3	1	02

		Second Year								Total No. Of Cases
		3months		6months		9months		12months		
		Level	Cases	level	Cases	level	Cases	level	Cases	
	A: Abdominal Operations									
1	Inguinal Hernia	1	3	2	3	-	-	-	-	06
2	Rectal polyp	1	3	2	3	-	-	-	-	06
3	Suprapubic cystostomy	1	2	2	2	-	-	-	-	04
4	Vesicolithotomy	1	2	1	3	-	-	-	-	05
5	Hemorrhoids, fissures, fistulae in ano	2	3	3	3					06
6	Appendectomy	2	3	2	3	-	-	-	-	06
7	Cholecystectomy	2	3	2	3	-	-	-	-	06
8	Exploratory Laparotomy	1	2	2	2	-	-	-	-	04
9	Oncological Surgery	1	2	1	2	-	-	-	-	04
10	Laparoscopic / Endoscopic surgery (Principles and instrument handling	1	3	2	3	-	-	-	-	06
11	Breast operations and benign lesion	1	2	2	2	-	-	-	-	04
	B:Pediatric Medicine									

1	Assessment of Newborn.									
2	Neonatal Resuscitation									
3	Neonatal Fluid & Electrolyte balance									
C:	**Pathology**									
1	Hematological Sampling, and transportation									
2	Tissue Sampling and transportation									
3	Introduction to culture media.									
4	Frozen section Biopsy									
5	FNAC									
6	Introduction to clinical pathology									
7	Latest advancements in clinical pathology.									
D:										

	Third Year	**Total No. of**

		3 Months		6 Months		9 Months		12 Months		Cases
		Level	Cases	Level	Cases	Level	Cases	Level	Cases	
S. No.	**A) Patient Management**									
1.	Taking pertinent History (observing respect for dignity of patients and confidentiality)	3	12	4	12	4	12	4	12	48
2.	Performing Physical Examination (including observing privacy)	3	12	4	16	4	12	4	12	48
3.	Requesting Investigations	3	12	4	12	4	12	3	12	48
4.	Interpreting Results	2	12	3	12	3	12	3	12	48
5.	Planning Management	1	12	2	12	3	12	3	12	48
6.	Maintaining Follow up	3	12	4	12	4	12	4	12	48
7.	Obtaining informed consent (Assent in older children as well)	3	12	4	12	4	12	4	12	48
8.	Dealing with End of life issues (e.g. Withholding and Withdrawing	1	2	2	2	2	2	3	2	48

	Treatment)									
9.	Declaring Conflict of Interest (including relationship with pharmaceutical industry)	2	2	3	2	4	2	4	2	8
10.	Antenatal counseling for congenital anomalies	1	2	2	2	3	2	3	2	8
B) Head and Neck Procedure										
11.	Excision of Thyroglossal duct cyst and sinus	2	1	2	1	2	1	2	1	4
12.	Excision of Branchial cyst and sinus	2	1	2	1	2	1	2	1	4
13.	Release of Torticollis	2	1	2	1	2	1	2	1	4
14.	Prearicular sinus and cyst excision	2	1	2	1	2	1	2	1	4
15.	Thyroid surgery (excision of nodule /cyst, partial / completer thyroidectomy etc)	-	-	-	-	-	-	2	1	1
16.	Tracheostomy	-	-	-	-	2	1	2	1	2
C) Plastic Surgery Procedures										
17.	Repair of Cleft Lip	2	1	2	1	2	1	2	1	3
18.	Repair of Cleft Palate	2	1	2	1	2	1	2	1	3
19.	Skin Grafting /Flaps	2	1	2	1	2	1	2	1	3
20.	Burns Contracture Release	2	1	2	1	2	1	2	1	3

21.	Burns Wound Debridement	2	2	2	2	3	2	4	2	8
D) Thoracic Surgery Procedures										
22.	Repair of Esophageal Atresia (with or without Tracheoesophageal fistula) Including esophagostomy	2	1	2	1	2	1	2	1	4
23.	Repair of Diaphragmatic Hernia	-	-	-	-	2	1	2	1	2
24.	Plication of Eventration of Diaphragm	-	-	-	-	2	1	2	1	2
25.	Pulmonary Lobectomy	-	-	-	-	2	1	2	1	2
26.	Excision of Mediastinal Masses	-	-	-	-	2	1	2	1	2
27.	Decortication of Empyema	-	-	-	-	2	1	2	1	2
28.	Esophageal Substitution	-	-	-	-	-	-	2	1	1
29.	Tube Thoracostomy	2	1	2	1	3	1	5	1	6
E) Abdominal Procedures										
30.	Gastrostomy/Feeding Jejunostomy	-	-	2	1	2	1	2	1	3
31.	Ileostomy	-	-	2	1	2	1	2	1	3
32.	Colostomy	2	2	2	2	2	2	2	2	8
33.	Colostomy closure	2	1	2	1	2	1	2	1	4
34.	Laparotomy for Peritonitis,	2	4	2	4	2	4	2	4	16

	Intestinal perforation Gangrene volvulous Gastrointestinal Obstruction Small bowel atresia Meconium ileus Pyloromyotomy Intussusception Malrotation/Bands Meckel's anomalies Duplication cyst Mesenteric cyst									
35.	Bowel resection and anastomosis	2	1	2	1	2	1	2	1	4
36.	Appendectomy	2	2	2	2	3	1	3	1	6
37.	Operation for Anorectal Malformations Anoplasty PSARP/ASARP	2	1	2	1	2	1	2	1	4
38.	Operation for Hirschsprung's Disease Rectal biopsy Definitive procedure	2	1	2	1	2	1	2	1	4
39.	Splenectomy	-	-	-	-	-	-	2	1	1

40.	Choledochal cyst	-	-	-	-	2	1	2	1	2
41.	Cholecystectomy	-	-	-	-	2	1	2	1	2
42.	Portoenterostomy	-	-	-	-	2	1	2	1	2
43.	Hepatic cyst / abscesses etc.	-	-	-	-	2	1	2	1	2
44.	Antireflux procedure (for GERD & Achalasia Cardia)	-	-	-	-	2	1	2	1	2
45.	Surgery on Pancreas (pseudocyst etc.) Adrenal (cyst / adenoma excision)	-	-	-	-	2	1	2	1	2
46.	Rectal Polypectomy	2	2	3	2	4	2	4	2	8
47.	Injection sclerotherapy for Rectal Prolapse	2	2	3	2	4	2	4	2	8
F) Abdominal Wall / Inguinoscrotal Anomalies										
48.	Repair of Omphalocele and Gastroschisis	2	1	2	1	2	1	2	1	4
49.	Umbilical anomalies repair	2	2	2	2	3	1	3	1	6
50.	Inguinal Herniotomy	2	2	2	2	3	1	3	1	6
51.	Ligation of PPV	2	2	2	2	3	1	3	1	6
G) Genitourinary system										
52.	Orchiopexy	2	2	2	2	3	1	3	1	6
53.	Torsion Testis / Appendages	-	-	-	-	2	1	2	1	2
54.	Ovarian cyst extension	-	-	-	-	2	1	2	1	2

55.	Repair of Hypospadias (single or multi stages procedures including crippled hypospadias repair)	2	2	2	2	2	2	2	2	8
56.	Repair of Epispadias	-	-	-	-	2	1	2	1	2
57.	Repair of Ectopia vesicae	-	-	-	-	2	1	2	1	2
58.	Ureter Re implantation	-	-	-	-	-	-	2	1	2
59.	Vesicostomy	-	-	-	-	2	1	2	1	2
60.	Suprapubic cystostomy	2	1	2	1	2	1	2	1	4
61.	Cystolithotomy	2	1	2	1	2	1	2	1	4
62.	Pyelolithotomy	-	-	2	1	2	1	2	1	3
63.	Ureterolithotomy	-	-	-	-	2	1	2	1	2
64.	Pyeloplasty	-	-	2	1	2	1	2	1	2
65.	Nephrectomy	-	-	-	-	2	1	2	1	2
66.	Circumcision	2	2	2	2	3	2	3	2	8
67.	Feminine Genitoplasty / Urogenital sinus anomaly / vaginal atresia	-	-	-	-	2	1	2	1	2
H) Endoscopic Procedures										
68.	Bronchoscopy	2	1	2	1	2	1	2	1	4
69.	esophagoscopy & Dilatation	2	1	2	1	2	1	2	1	4
70.	Sigmoidoscopy / colonoscopy	2	1	2	1	2	1	2	1	4
71.	Gastroduodenoscopy	2	1	2	1	2	1	2	1	4

72.	Cystoscopy including Fulguration of PUV	2	1	2	1	2	1	2	1	4
I)Surgical Oncology										
73.	Wilm's Tumor	2	1	2	1	2	1	2	1	4
74.	Sacrococcygeal Teratoma	2	1	2	1	2	1	2	1	4
75.	Neuroblastoma	2	1	2	1	2	1	2	1	4
76.	Gonadal tumors	2	1	2	1	2	1	2	1	4
77.	Rhabdomyosarcoma	3	1	3	1	4	1	4	1	4
78.	Lymphomas	2	1	2	1	2	1	2	1	4
79.	Hepatoblastoma	-	-	-	-	-	-	2	1	1
J) Traumatology										
80.	Management of Trauma patients according to ATLS protocol	2	2	2	2	2	2	2	2	8
81.	Laparotomy for Penetrating trauma Blunt Trauma	2	1	2	1	2	1	2	1	4
K) Minimally Invasive Surgery										
82.	Laparoscopy	2	2	2	2	2	2	2	2	8
83.	Thoracoscopy	-	-	-	-	2	1	2	1	2
L) Neurosurgical Procedures										
84.	Repair of Neural Tube Defects (Myelomeningocele, Encephalocele)	2	1	2	1	2	1	2	1	4
85.	VP shunt for	2	1	2	1	2	1	2	1	4

	Hydrocephalus									
M) Musculoskeletal Surgery										
86.	Talipes Equinovarus Surgery and Splint application	2	1	2	1	2	1	2	1	4
87.	Arthorotomy / Drainage	2	1	2	1	2	1	2	1	4
88.	Osteomyelitis drainage of pus	2	1	2	1	2	1	2	1	4
89.	Hip spica application	2	1	2	1	2	1	2	1	2
90.	Application of POP cast for Fractures	2	2	2	2	2	2	2	2	8
N) Miscellaneous Procedures										
91.	Excision of superficial lumps	2	1	2	1	3	1	3	1	4
92.	Drainage of deep abscesses	3	2	3	2	4	2	4	2	8
93.	Lymph node biopsy	2	2	3	2	4	2	4	2	8
94.	Cystic Hygroma (excision/sclerotherapy)	2	1	2	1	2	1	2	1	4
95.	Hemangioma (Sclerotherapy/Excision)	2	1	2	1	2	1	2	1	4
96.	Central line insertion	2	1	2	1	2	1	2	1	4

MS Pediatric Surgery

Competency Chart Year 4

	Fourth Year								Total No. of Cases
	15 Months		18 Months		21 Months		24 Months		
	Level	Cases	Level	Cases	Level	Cases	Level	Cases	

S. No.	A) Patient Management									
1.	Taking pertinent History (observing respect for dignity of patients and confidentiality)	4	12	4	12	4	12	4	12	48
2.	Performing Physical Examination (including observing privacy)	4	12	4	12	4	12	4	12	48
3.	Requesting Investigations	4	12	4	12	4	12	4	12	48
4.	Interpreting Results	4	12	4	12	4	12	4	12	48
5.	Planning Management	4	12	4	12	4	12	4	12	48
6.	Maintaining Follow up	4	12	4	12	4	12	4	12	48
7.	Obtaining informed consent (Assent in older children as well)	4	12	4	12	4	12	4	12	48
8.	Dealing with End of life issues (e.g Withholding and Withdrawing Treatment)	4	2	4	2	4	2	4	2	8
9.	Declaring Conflict of Interest (including relationship with pharmaceutical industry)	4	2	4	2	4	2	4	2	8

10.	Antenatal counseling for congenital anomalies	4	2	4	2	4	2	4	2	8

B) Head and Neck Procedure										
11.	Excision of Thyroglossal duct cyst and sinus	2	1	2	1	3	1	3	1	4
12.	Excision of Branchial cyst and sinus	2	1	2	1	3	1	3	1	4
13.	Release of Torticollis	2	1	2	1	3	1	3	1	4
14.	Prearicular sinus and cyst excision	2	1	2	1	3	1	3	1	4
15.	Thyroid surgery (excision of nodule /cyst, partial / completer thyroidectomy etc)	2	1	2	1	3	1	3	1	4
16.	Tracheostomy	2	1	2	1	3	1	3	1	4
C) Plastic Surgery Procedures										
17.	Repair of Cleft Lip	2	1	2	1	2	1	3	1	4
18.	Repair of Cleft Palate	2	1	2	1	2	1	3	1	4
19.	Skin Grafting /Flaps	2	1	2	1	2	1	3	1	4
20.	Burns Contracture Release	2	1	2	1	2	1	3	1	4
21.	Burns Wound Debridement	3	2	4	2	4	2	4	2	8
D) Thoracic Surgery Procedures										
22.	Repair of Esophageal Atresia (with or without Tracheoesophageal fistula) Including	2	1	2	1	2	1	3	1	4

	esophagostomy									
23.	Repair of Diaphragmatic Hernia	2	1	2	1	2	1	3	1	4
24.	Plication of Eventration of Diaphragm	2	1	2	1	2	1	3	1	4
25.	Pulmonary Lobectomy	2	1	2	1	2	1	2	1	4
26.	Excision of Mediastinal Masses	2	1	2	1	2	1	3	1	4
27.	Decortication of Empyema	2	1	2	1	2	1	3	1	4
28.	Esophageal Substitution	2	1	2	1	2	1	2	1	4
29.	Tube Thoracostomy	3	2	4	2	4	2	4	2	8
E) Abdominal Procedures										
30.	Gastrostomy/Feeding Jejunostomy	2	1	3	1	3	1	4	1	4
31.	Ileostomy	2	1	3	1	3	1	4	1	4
32.	Colostomy	3	1	3	1	4	1	4	1	4
33.	Colostomy closure	2	1	3	1	3	1	4	1	4
34.	Laparotomy for Peritonitis Intestinal perforation Gangrene / volvulus Gastrointestinal	3	3	3	3	4	2	4	2	10

	Obstruction Small bowel atresia Meconium ileus Pyloromyotomy Intussusception Malrotation/Bands Meckel's anomalies Duplication cyst Mesenteric cyst									
35.	Bowel resection and anastomosis	2	1	3	1	3	1	3	1	4
36.	Appendectomy	3	2	4	2	4	2	4	2	8
37.	Operation for Anorectal Malformations Anoplasty PSARP/ASARP	2	2	3	1	3	1	3	1	5
38.	Operation for Hirschsprung's Disease Rectal biopsy Definitive procedure	2	2	3	1	3	1	3	1	5
39.	Splenectomy	-	-	-	-	2	1	2	1	2
40.	Choledochal cyst	2	1	2	1	2	1	3	1	4
41.	Cholecystectomy	2	1	3	1	3	1	3	1	4
42.	Portoenterostomy	2	1	2	1	2	1	3	1	4

43.	Hepatic cyst / abscesses etc.	2	1	2	1	2	1	3	1	4
44.	Antireflux procedure (for GERD & Achalasia Cardia)	2	1	2	1	2	1	3	1	4
45.	Surgery on Pancreas (pseudocyst etc.) Adrenal (cyst / adenoma excision)	2	1	2	1	2	1	3	1	4
46.	Rectal Polypectomy	4	2	4	2	4	2	4	2	8
47.	Injection sclerotherapy for Rectal Prolapse	4	2	4	2	4	2	4	2	8
F) Abdominal Wall / Inguinoscrotal Anomalies										
48.	Repair of Omphalocele and Gastroschisis	2	1	3	1	3	1	4	1	4
49.	Umbilical anomalies repair	3	1	3	1	4	1	4	1	4
50.	Inguinal Herniotomy	3	2	3	2	4	2	4	2	8
51.	Ligation of PPV	3	2	3	2	4	2	4	2	8
G) Genitourinary system										
52.	Orchiopexy	3	2	3	2	4	2	4	2	8
53.	Torsion Testis / Appendages	3	1	3	1	4	1	4	1	4
54.	Ovarian cyst extension	2	1	3	1	3	1	4	1	4
55.	Repair of Hypospadias	2	1	3	1	3	1	4	1	4

	(single or multi stages procedures including crippled hypospadias repair)									
56.	Repair of Epispadias	2	1	2	1	3	1	3	1	4
57.	Repair of Ectopia vesicae	2	1	2	1	2	1	3	1	4
58.	Ureter Re implantation	2	1	2	1	2	1	3	1	4
59.	Vesicostomy	3	1	3	1	4	1	4	1	4
60.	Suprapubic cystostomy	3	1	3	1	4	1	4	1	4
61.	Cystolithotomy	3	1	3	1	4	1	4	1	4
62.	Pyelolithotomy	2	1	3	1	3	1	3	1	4
63.	Ureterolithotomy	2	1	3	1	3	1	3	1	4
64.	Pyeloplasty	2	1	3	1	3	1	3	1	4
65.	Nephrectomy	2	1	3	1	3	1	3	1	4
66.	Circumcision	4	2	4	2	4	2	4	2	8
67.	Feminine Genitoplasty / Urogenital sinus anomaly / vaginal atresia	2	1	2	1	3	1	3	1	4
H) Endoscopic Procedures										
68.	Bronchoscopy	3	1	3	1	3	1	4	1	4
69.	esophagoscopy & Dilatation	3	1	3	1	3	1	4	1	4
70.	Sigmoidoscopy / colonoscopy	3	1	3	1	3	1	4	1	4

71.	Gastroduodenoscopy	3	1	3	1	3	1	4	1	4
72.	Cystoscopy including Fulguration of PUV	3	1	3	1	3	1	4	1	4
I)Surgical Oncology										
73.	Wilm's Tumor	2	1	2	1	3	1	3	1	4
74.	Sacrococcygeal Teratoma	2	1	2	1	3	1	3	1	4
75.	Neuroblastoma	2	1	2	1	3	1	3	1	4
76.	Gonadal tumors	2	1	2	1	3	1	3	1	4
77.	Rhabdomyosarcoma	2	1	2	1	3	1	3	1	4
78.	Lymphomas	2	1	2	1	3	1	3	1	4
79.	Hepatoblastoma	2	1	2	1	2	1	2	1	4
J) Traumatology										
80.	Management of Trauma patients according to ATLS protocol	3	2	4	2	4	2	4	2	8
81.	Laparotomy for Penetrating trauma & Blunt Trauma	2	1	2	1	3	1	3	1	4
K) Minimally Invasive Surgery										
82.	Laparoscopy	2	1	2	1	3	1	3	1	4
83.	Thoracoscopy	2	1	2	1	3	1	3	1	4
L) Neurosurgical Procedures										
84.	Repair of Neural Tube Defects (Myelomeningocele,	3	1	3	1	3	1	3	1	4

	Encephalocele)									
85.	VP shunt for Hydrocephalus	3	1	3	1	3	1	3	1	4
M) Musculoskeletal Surgery										
86.	Talipes Equinovarus Surgery and Splint application	3	1	3	1	3	1	3	1	4
87.	Arthorotomy / Drainage	3	1	3	1	3	1	3	1	4
88.	Osteomyelitis drainage of pus	3	1	3	1	3	1	3	1	4
89.	Hip spica application	3	1	3	1	4	1	4	1	4
90.	Application of POP cast for Fractures	3	1	3	1	4	1	4	1	4
N) Miscellaneous Procedures										
91.	Excision of superficial lumps	3	2	4	2	4	2	4	2	8
92.	Drainage of deep abscesses	4	2	4	2	4	2	4	2	8
93.	Lymph node biopsy	4	2	4	2	4	2	4	2	8
	Cystic Hygroma (excision/sclerotherapy)	3	2	4	2	4	2	4	2	8
94.	Hemangioma (Sclerotherapy/Excision)	3	2	4	2	4	2	4	2	8
95.	Central line insertion	3	2	4	2	4	2	4	2	8

MS Pediatric Surgery

Competency Chart Year 5

		Fifth Year								Total No. of Cases
		27 Months		30 Months		33 Months		36 Months		
		Level	Cases	Level	Cases	Level	Cases	Level	Cases	
S. No.	**A) Patient Management**									
1.	Taking pertinent History (observing respect for dignity of patients and confidentiality)	4	12	4	12	4	12	4	12	48
2.	Performing Physical Examination (including observing privacy)	4	12	4	12	4	12	4	12	48
3.	Requesting Investigations	4	12	4	12	4	12	4	12	48
4.	Interpreting Results	4	12	4	12	4	12	4	12	48
5.	Planning Management	4	12	4	12	4	12	4	12	48
6.	Maintaining Follow up	4	12	4	12	4	12	4	12	48
7.	Obtaining informed consent (Assent in older children as well)	4	12	4	12	4	12	4	12	48
8.	Dealing with End of life issues (e.g. Withholding and Withdrawing Treatment)	4	4	4	4	4	4	4	4	16

9.	Declaring Conflict of Interest (including	4	4	4	4	4	4	4	4	16

	relationship with pharmaceutical industry)									
10.	Antenatal counseling for congenital anomalies	4	4	4	4	4	4	4	4	16
B) Head and Neck Procedure										
11.	Excision of Thyroglossal duct cyst and sinus	4	1	4	1	4	1	4	1	4
12.	Excision of Branchial cyst and sinus	4	1	4	1	4	1	4	1	4
13.	Release of Torticollis	4	1	4	1	4	1	4	1	4
14.	Preauricular sinus and cyst excision	4	1	4	1	4	1	4	1	4
15.	Thyroid surgery (excision of nodule /cyst, partial / completer thyroidectomy etc.)	3	1	3	1	3	1	4	1	4
16.	Tracheostomy	4	1	4	1	4	1	4	1	4
C) Plastic Surgery Procedures										
17.	Repair of Cleft Lip	3	1	3	1	4	1	4	1	4
18.	Repair of Cleft Palate	3	1	3	1	4	1	4	1	4
19.	Skin Grafting /Flaps	3	1	3	1	4	1	4	1	4
20.	Burns Contracture Release	3	1	3	1	4	1	4	1	4
21.	Burns Wound Debridement	4	4	4	4	4	4	4	4	16
D) Thoracic Surgery Procedures										

22.	Repair of Esophageal Atresia (with or without Tracheoesophageal fistula) Including esophagostomy	3	1	3	1	4	1	4	1	4
23.	Repair of Diaphragmatic Hernia	3	1	3	1	4	1	4	1	4
24.	Plication of Eventration of Diaphragm	3	1	3	1	4	1	4	1	4
25.	Pulmonary Lobectomy	3	1	3	1	3	1	4	1	4
26.	Excision of Mediastinal Masses	3	1	3	1	3	1	4	1	4
27.	Decortication of Empyema	3	1	3	1	4	1	4	1	4
28.	Esophageal Substitution	2	1	2	1	2	1	3	1	4
29.	Tube Thoracostomy	4	4	4	4	4	4	4	4	16
E) Abdominal Procedures										
30.	Gastrostomy/Feeding Jejunostomy	3	1	4	1	4	1	4	1	4
31.	Ileostomy	4	1	4	1	4	1	4	1	8
32.	Colostomy	4	2	4	2	4	3	4	3	10
33.	Colostomy closure	3	2	4	2	4	2	4	2	8
34.	Laparotomy for Peritonitis Intestinal perforation	4	4	4	4	4	4	4	4	16

	Gangrene / volvulus Gastrointestinal Obstruction Small bowel atresia Meconium ileus Pyloromyotomy Intussusception Malrotation/Bands Meckel's anomalies Duplication cyst Mesenteric cyst									
35.	Bowel resection and anastomosis	3	2	4	1	4	1	4	1	5
36.	Appendectomy	4	2	4	2	4	2	4	2	8
37.	Operation for Anorectal Malformations Anoplasty PSARP/ASARP	3	2	4	1	4	1	4	1	5
38.	Operation for Hirschsprung's Disease Rectal biopsy Definitive procedure	3	1	3	1	4	1	4	1	4
39.	Splenectomy	3	1	3	1	4	1	4	1	4
40.	Choledochal cyst	2	1	3	1	3	1	4	1	4
41.	Cholecystectomy	3	1	4	1	4	1	4	1	4
42.	Portoenterostomy	2	1	3	1	3	1	4	1	4
43.	Hepatic cyst / abscesses	3	1	4	1	4	1	4	1	4

	Etc.									
44.	Antireflux procedure (for GERD & Achalasia Cardia)	3	1	4	1	4	1	4	1	4
45.	Surgery on Pancreas (pseudocyst etc.) Adrenal (cyst / adenoma excision)	3	1	4	1	4	1	4	1	4
46.	Rectal Polypectomy	4	2	4	2	4	2	4	2	8
47.	Injection sclerotherapy for Rectal Prolapse	4	2	4	2	4	2	4	2	8
F) Abdominal Wall / Inguinoscrotal Anomalies										
48.	Repair of Omphalocele and Gastroschisis	3	1	4	1	4	1	4	1	4
49.	Umbilical anomalies repair	4	1	4	1	4	1	4	1	4
50.	Inguinal Herniotomy	4	2	4	2	4	2	4	2	8
51.	Ligation of PPV	4	2	4	2	4	2	4	2	8
G) Genitourinary system										
52.	Orchiopexy	4	2	4	2	4	2	4	2	8
53.	Torsion Testis / Appendages	4	1	4	1	4	1	4	1	4
54.	Ovarian cyst extension	3	1	4	1	4	1	4	1	4
55.	Repair of Hypospadias (single or multi stages	3	1	4	1	4	1	4	1	4

	procedures including crippled hypospadias repair)									
56.	Repair of Epispadias	3	1	3	1	3	1	4	1	4
57.	Repair of Ectopia vesicae									
58.	Ureter Re implantation	3	1	3	1	3	1	4	1	4
59.	Vesicostomy	3	1	3	1	3	1	4	1	4
60.	Suprapubic cystostomy	4	2	4	2	4	2	4	2	8
61.	Cystolithotomy	4	2	4	2	4	2	4	2	8
62.	Pyelolithotomy	3	1	3	1	4	1	4	1	4
63.	Ureterolithotomy	3	1	3	1	4	1	4	1	4
64.	Pyeloplasty	3	1	3	1	4	1	4	1	4
65.	Nephrectomy	3	1	3	1	4	1	4	1	4
66.	circumcision	4	2	4	2	4	2	4	2	8
67.	Feminine Genitoplasty / Urogenital sinus anomaly / vaginal atresia	3	1	3	1	4	1	4	1	4
H) Endoscopic Procedures										
68.	Bronchoscopy	3	2	4	2	4	2	4	2	8
69.	esophagoscopy & Dilatation	3	2	4	2	4	2	4	2	8
70.	Sigmoidoscopy / colonoscopy	3	2	4	2	4	2	4	2	8
71.	Gastroduodenoscopy	3	2	4	2	4	2	4	2	8
72.	Cystoscopy including	3	2	4	1	4	1	4	1	5

	Fulguration of PUV									
I)Surgical Oncology										
73.	Wilm's Tumor	3	1	4	1	4	1	4	1	4
74.	Sacrococcygeal Teratoma	3	1	4	1	4	1	4	1	4
75.	Neuroblastoma	3	1	4	1	4	1	4	1	4
76.	Gonadal tumors	3	1	4	1	4	1	4	1	4
77.	Rhabdomyosarcoma	3	1	3	1	4	1	4	1	4
78.	Lymphomas	3	1	4	1	4	1	4	1	4
79.	Hepatoblastoma	2	1	2	1	3	1	3	1	4
J) Traumatology										
80.	Management of Trauma patients according to ATLS protocol	4	3	4	3	4	3	4	3	12
81.	Laparotomy for Penetrating trauma & Blunt Trauma	4	1	4	1	4	1	4	1	4
K) Minimally Invasive Surgery										
82.	Laparoscopy	3	1	4	1	4	1	4	1	4
83.	Thoracoscopy	3	1	3	1	4	1	4	1	4
L) Neurosurgical Procedures										
84.	Repair of Neural Tube Defects (Myelomeningocele, Encephalocele)	4	1	4	1	4	4	4	1	4
85.	VP shunt for	4	1	4	1	4	4	4	1	4

	Hydrocephalus									
M) Musculoskeletal Surgery										
86.	Talipes Equinovarus Surgery and Splint application	4	1	4	1	4	4	4	1	4
87.	Arthorotomy / Drainage	4	1	4	1	4	4	4	1	4
88.	Osteomyelitis drainage of pus	4	1	4	1	4	4	4	1	4
89.	Hip spica application	4	1	4	1	4	1	4	1	4
90.	Application of POP cast for Fractures	4	2	4	2	4	2	4	2	8
N) Miscellaneous Procedures										
91.	Excision of superficial lumps	4	2	4	2	4	2	4	2	8
92.	Drainage of deep abscesses	4	2	4	2	4	2	4	2	8
93.	Lymph node biopsy	4	2	4	2	4	2	4	2	8
94.	Cystic Hygroma (excision/sclerotherapy)	4	2	4	2	4	2	4	2	8
95.	Haemangioma (Sclerotherapy/Excision)	4	2	4	2	4	2	4	2	8
96.	Central line insertion									

ROTATIONS:

2nd Year; Two months in pediatric medicine & two month in pathology rotations are mandatory.

3rd, 4th & 5th Years;

For 3 months each in any 3 specialty of the following:-

1. Pediatric Orthopedic Surgery
2. Pediatric Urology
3. Pediatric Neuro Surgery
4. Pediatric Plastic Surgery
5. Pediatric Cardiothoracic Surgery

If in any institution these specialty do not exist then the candidate can be rotated to adult counterpart or the supervisor will certify that these procedures are adequately performed in the department.

Thesis Component

(Fifth year of MS Pediatric Surgery Program)

RESEARCH/ THESIS WRITING

Total of one year will be allocated for work on a research project with thesis writing. Project must be completed and thesis be submitted before the end of training. Research can be done as one block in 5th year of training or it can be stretched over five years of training in the form of regular periodic rotations during the course as long as total research time is equivalent to one calendar year.

Research Experience

The active research component program must ensure meaningful, supervised research experience with appropriate protected time for each resident while maintaining the essential clinical experience. Recent productivity by the program faculty and by the residents will be required, including publications in peer- reviewed journals. Residents must learn the design and interpretation of research studies, responsible use of informed consent, and research methodology and interpretation of data. The program must provide instruction in the critical assessment of new therapies and of the surgical literature. Residents should be advised and supervised by qualified staff members in the conduct of research.

Clinical Research

Each resident will participate in at least one clinical research study to become familiar with:

1. Research design
2. Research involving human subjects including informed consent and operations of the Institutional Review Board and ethics of human experimentation
3. Data collection and data analysis
4. Research ethics and honesty
5. Peer review process

This usually is done during the consultation and outpatient clinic rotations.

Case Studies or Literature Reviews

Each resident will write, and submit for publication in a peer-reviewed journal, a case study or literature review on a topic of his/her choice.

Laboratory Research

Bench Research

Participation in laboratory research is at the option of the resident and may be arranged through any faculty member of the Division. When appropriate, the research may be done at other institutions.

Research involving animals

Each resident participating in research involving animals is required to:

1. Become familiar with the pertinent Rules and Regulations of the Rawalpindi medical university Rawalpindi i.e. those relating to "Health and Medical Surveillance Program for Laboratory Animal Care Personnel" and "Care and Use of Vertebrate Animals as Subjects in Research and Teaching"
2. Read the "Guide for the Care and Use of Laboratory Animals"
3. View the videotape of the symposium on Humane Animal Care

Research involving Radioactivity

Each resident participating in research involving radioactive materials is required to

1. Attend a Radiation Review session
2. Work with an Authorized User and receive appropriate instruction from him/her.

METHODS OF INSTRUCTION/COURSE CONDUCTION

As a policy, active participation of students at all levels will be encouraged. Following teaching modalities will be employed:

1. Lectures
2. Seminar Presentation and Journal Club Presentations
3. Group Discussions
4. Grand Rounds
5. Clinico-pathological Conferences
6. SEQ as assignments on the content areas
7. Skill teaching in ICU, Operation Theatres, emergency and ward settings
8. Attend genetic clinics and rounds for at least one month.
9. Attend sessions of genetic counseling
10. Self study, assignments and use of internet
11. Bedside teaching rounds in ward
12. OPD & Follow up clinics
13. Long and short case presentations

In addition to the conventional teaching methodologies interactive strategies like conferences will also be introduced to improve both communication and clinical skills in the upcoming consultants. Conferences must be conducted regularly as scheduled and attended by all available faculty and residents. Residents must actively request autopsies and participate in formal review of gross and microscopic pathological material from patients who have been under their care. It is essential that residents participate in planning and in conducting conferences.

1. Clinical Case Conference

Each resident will be responsible for at least one clinical case conference each month. The cases discussed may be those seen on either the consultation or clinic service or during rotations in specialty areas. The resident, with the advice of the Attending Surgeon on the Consultation Service, will prepare and present the case(s) and review the relevant literature.

2. Monthly Student Meetings

Each affiliated medical college approved to conduct training for MS Pediatric Surgery will

provide a room for student meetings/discussions such as:

a. Journal Club Meeting
b. Core Curriculum Meetings
c. Skill Development

a. Journal Club Meeting

A resident will be assigned to present, in depth, a research article or topic of his/her choice of actual or potential broad interest and/or application. Two hours per month should be allocated to discussion of any current articles or topics introduced by any participant. Faculty or outside researchers will be invited to present outlines or results of current research activities. The article should be critically evaluated and its applicable results should be highlighted, which can be incorporated in clinical practice. Record of all such articles should be maintained in the relevant department.

b. Core Curriculum Meetings

All the core topics of Pediatric Surgery should be thoroughly discussed during these sessions. The duration of each session should be at least two hours once a month. It should be chaired by the chief resident (elected by the residents of the relevant discipline). Each resident should be given an opportunity to brainstorm all topics included in the course and to generate new ideas regarding the improvement of the course structure

c. Skill Development

Two hours twice a month should be assigned for learning and practicing clinical skills.

List of skills to be learnt during these sessions is as follows:

1. Residents must develop a comprehensive understanding of the indications, contraindications, limitations, complications, techniques, and interpretation of results of those technical procedures integral to the discipline (mentioned in the Log Book).
2. Residents must acquire knowledge of and skill in educating patients about the technique, rationale and ramifications of procedures and in obtaining procedure-specific informed consent. Faculty supervision of residents in their performance is

required, and each resident's experience in such procedures must be documented by the program director.

3. Residents must have instruction in the evaluation of medical literature, clinical epidemiology, clinical study design, relative and absolute risks of disease, medical statistics and medical decision-making.
4. Training must include cultural, social, family, behavioral and economic issues, such as confidentiality of information, indications for life support systems, and allocation of limited resources.
5. Residents must be taught the social and economic impact of their decisions on patients, the primary care physician and society. This can be achieved by attending the bioethics lectures and becoming

   familiar with Project Professionalism Manual Residents should have instruction and experience with patient counseling skills and community education.
6. This training should emphasize effective communication techniques for diverse populations, as well as organizational resources useful for patient and community education.
7. Residents should have experience in the performance of Pediatric Surgery related clinical laboratory and radionuclide studies and basic laboratory techniques, including quality control, quality assurance and proficiency standards
8. Each resident will manage the essential pediatric surgical cases and observe and participate in each of the procedures, preferably done on patients under supervision initially and then independently

3. Annual Grand Meeting

   Once a year all residents enrolled for MS Pediatric Surgery should be invited to the annual meeting at RMU Rawalpindi.

   One full day will be allocated to this event. All the chief residents from affiliated institutes will present their annual reports. Issues and concerns related to their relevant courses will be discussed. Feedback should be collected and suggestions should be sought in order to involve residents in decision making.

   The research work done by residents and their literary work may be displayed.

   In the evening an informal gathering and dinner can be arranged. This will help in creating a sense of belonging and ownership among students and the faculty.

LOG BOOK

The residents must maintain a log book and get it signed regularly by the supervisor. A complete and duly certified log book should be part of the requirement to sit for MS examination. Log book should include adequate number of diagnostic and therapeutic procedures observed and performed the indications for the procedure, any complications and the interpretation of the results, routine and emergency management of patients, case presentations in CPCs, journal club meetings and literature review.

Proposed Format of Log Book is as follows:

Candidate's Name: _____

Roll No. _____

The above mentioned procedures shall be entered in the log book as per format (pg.29-34):

Procedures Performed

Sr.#	Date	Name of Patient, Age, Sex & AdmissionNo.	Diagnosis	Procedure Performed	Supervisor's Signature
1					
2					
3					
4					

Emergencies Handled

Sr. #	Date	Name of Patient, Age, Sex & Admission No.	Diagnosis	Procedure/ Management	Supervisor's Signature
1					
2					
3					
4					

Cases Presented

Sr.#	Date	Name of Patient, Age, Sex & Admission No.	Case Presented	Supervisor's Signature
1				
2				
3				
4				

Seminar/Journal Club Presentation

Sr.#	Date	Topic	Supervisor's signature
1			
2			
3			
4			

Evaluation Record
(Excellent, Good, Adequate, Inadequate, Poor)

At the end of the rotation, each faculty member will provide an evaluation of the clinical performance of the fellow.

Sr.#	Date	Method of Evaluation (Oral, Practical, Theory)	Rating	Supervisor's Signature
1				
2				
3				

EVALUATION & ASSESSMENT STRATEGIES

Assessment

It will consist of action and professional growth oriented *student-centered integrated assessment* with an additional component of *informal internal assessment*, *formative assessment* and measurement-based *summative assessment*.

Student-Centered Integrated Assessment

It views students as decision-makers in need of information about their own performance. Integrated Assessment is meant to give students responsibility for deciding what to evaluate, as well as how to evaluate it, encourages students to 'own' the evaluation and to use it as a basis for self- improvement. Therefore, it tends to be growth-oriented, student-controlled, collaborative, dynamic, contextualized, informal, flexible and action- oriented.

In the proposed curriculum, it will be based on:

- Self-Assessment by the student
- Peer Assessment
- Informal Internal Assessment by the Faculty

Self-Assessment by the Student

Each student will be provided with a pre-designed self-assessment form to evaluate his/her level of comfort and competency in dealing with different relevant clinical situations. It will be the responsibility of the student to correctly identify his/her areas of weakness and to take appropriate measures to address those weaknesses.

Peer Assessment

The students will also be expected to evaluate their peers after the monthly small group meeting. These should be followed by a constructive feedback according to the prescribed guidelines and should be non-judgmental in nature. This will enable students to become good mentors in future.

Informal Internal Assessment by the Faculty

There will be no formal allocation of marks for the component of Internal Assessment so that students are willing to confront their weaknesses rather than hiding them from their instructors.

It will include:

a. Punctuality
b. Ward work
c. Monthly assessment (written tests to indicate particular areas of weaknesses)
d. Participation in interactive sessions

Formative Assessment

Will help to improve the existing instructional methods and the curriculum in use
Feedback to the faculty by the students:

After every three months students will be providing a written feedback regarding their course components and teaching methods. This will help to identify strengths and weaknesses of the relevant course, faculty members and to ascertain areas for further improvement.

Summative Assessment

It will be carried out at the end of the program to empirically evaluate cognitive, psychomotor and affective domains in order to award diplomas for successful completion of courses.

Intermediate Examination MS Pediatric Surgery
Total Marks: 500

All candidates admitted in MS Pediatric Surgery course shall appear in Intermediate examination at the end of second calendar year.

Written Examination	= 300 Marks
Clinical, TOACS/OSCE & ORAL	= 200 Marks

Written:

MCQs 100 (2 marks each MCQ)
SEQs 10(10 Marks each SEQ)

Total **= 300 Marks**

Components of Theory Paper

Principles of General Surgery	= 70 MCQs	7 SEQs
Specialty specific	= 10 MCQs	1 SEQs
Basic Sciences	= 20 MCQs	2 SEQs
• Anatomy	= 6 MCQs	1 SEQs
• Pharmacology	= 2 MCQs	-------
• Pathology	= 6 MCQs	1 SEQ
• Physiology	= 6 MCQs	-------

Clinical, TOACS/OSCE & ORAL

Four Short Cases	= 100 Marks
One Long Case	=50 Marks
Toacs/OSCE & Oral	=50 Marks
Total	**= 200 Marks**

Final Examination MS Pediatric Surgery Total Marks: 1500

All candidates admitted in MS Pediatric Surgery course shall appear in Final examination at the end of structured training program (end of 5th calendar year) and after clearing Intermediate examinations.

There shall be two written papers of 250 marks each, Clinical, TOACS/OSCE & ORAL on of 500 marks, Internal assessment of 100 marks and thesis examination of 400 marks.

Topics included in paper 1

1.	Neonatal Surgery	(20 MCQs)
2.	Emergency Surgery	(20 MCQs)
3.	Traumatology	(15 MCQs)
4.	Anaesthesiologic techniques	(10 MCQs)
5.	Central and peripheral nervous systems	(15 MCQs)
6.	Head and neck surgery	(20 MCQs)
7.		

Topics included in paper 2

1.	Gastrointestinal surgery	(25 MCQs)
2.	Thoracic surgery	(20 MCQs)
3.	Genitourinary surgery	(20 MCQs)
4.	Endoscopic Surgery	(10 MCQs)
5.	Organ transplantation	(05.MCQs)
6.	Pediatric Tumour Surgery etc	(20 MCQs)

Components of Final Clinical Examination Theory

Paper I	**250 Marks**	**3Hours**
5 SEQs	50 Marks	
100 MCQs	200 Marks	
Paper II	**250 Marks**	**3Hours**
5 SEQs	50 Marks	
100 MCQs	200 Marks	

Only those candidates, who pass in theory papers, will be eligible to appear in the Clinical, TOACS/OSCE & ORAL.

Clinical, TOACS/OSCE & ORAL	**500 Marks**
Four short cases	200 Marks
One long case:	100 Marks
Clinical, TOACS/OSCE & ORAL	200 Marks
Continuous Internal Assessment	**100 Marks**

Final MS Pediatric Surgery Thesis Examination Total Marks: 400

All candidates admitted in MS Pediatric Surgery courses shall appear in thesis examination at the end of 5th year of the MS program. The examination shall include thesis evaluation with defense.

RECOMMENDED BOOKS

- Grays Anatomy. 41st Ed. 2016. Standring S.
- Textbook of Medical Physiology 13th Ed. 2015 Guyton
- Harper's Biochemistry 30th Ed 2016.
- Katzung's Basic and Clinical Pharmacology 13th Ed 2015
- Pathologic Basis of Disease. Robbins & Cotran. 9th Ed 2015
- Medical Embryology Langman's 13th Ed. 2015
- Pediatric Surgery 7th Edition. Grosfeld, O'Neill, Coran, Fonkalsrud. 2006
- Newborn Surgery 4th Edition. P Puri. 2017
- Operative Surgery- Pediatric Surgery. Rob & Smith 5th Ed.
- Pediatric Surgery. Puri P, Höllwarth. 2006
- Pediatric Surgery 6th Edition. AshcraftK
- Principles and Practice of Pediatric Surgery. Oldham KT2006.
- Pediatric Surgery 2nd Ed. Burge DM 2006