

Annexure-3Agenda Item #1

Curriculum Revision of various running teaching/training courses in the department of Pediatric Surgical Superspecialties.

a. Curriculum Revision of M.Ch Pediatric Surgery:(Annexure-3a).Course curriculum

- Program:** M.Ch. Pediatric Surgery.
- Program duration:** Three academic years.
- Program Objective:** Objective of the training program is to train the medical postgraduate as "Pediatric Surgeon" who have skills and in-depth understanding about the origin, etiology, pathogenesis, diagnosis, and management of common and rare surgical diseases related to all organ systems pertaining to newborns, infants, children and adolescents up to 18 year of age. They shall also have intellectual and technical capabilities to contribute in the growth of 'Pediatric Surgical' field by imparting training, teaching, and their own research.

The aim of the M.Ch. Pediatric Surgery program is to provide advanced and holistic training in Pediatric Surgery to produce competent super-specialists who are able to provide clinical care for all surgical conditions of the highest order to the patients aged 1 day to 18 years, and serve as future teachers, trainers, researchers, managers and leaders in the field of Pediatric Surgery.

Program Outcomes

Outcomes of the 'M.Ch. Pediatric Surgical program' as enumerated below, are to enable the students to acquire the

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following skills after the successful completion of three years training program –

1. To evaluate, diagnosis, and manage the patients with all congenital or acquired common/uncommon, simple/complicated surgical conditions of various organ systems of patients aged 1 day to 18 years.
2. To critically analyze the available scientific evidences and decide their application in patient care.
3. To advance the field of Pediatric Surgery by promoting the research in terms of identification of research gap, conducting research, promoting research, and imparting guidance/training to those who wish to pursue research.
4. To identify the research priorities at international, national and region levels.
5. To impart theoretical, clinical, and research training/education to the next generation.
6. Has acquired skills to establish an effective communication with the baby's parents, guardians, health administration, policy makers, common man of the society, medical fraternity, academicians in the field of neonatology or other streams of medicine, and the community leaders.

Courses offered in the program:

Paper I: Basic Sciences in Pediatric Surgery, Trauma, Transplantation

Paper II: Regional Pediatric Surgery (Head and Neck, Thorax),
Pediatric Oncosurgery

Paper III: Regional Pediatric Surgery (Abdomen, Genitourinary)

Paper IV: Recent advances in Pediatric surgery

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- The M.Ch. (Paediatric Surgery) candidate is a full time non-practicing trainee and the general outlay of the training shall adhere to the residency pattern.
- **Minimum Qualification Required for Admission into M.Ch. in Paediatric Surgery:** 3 years Masters in Surgery (M.S. Surgery) from an NMC/MCI recognised university.
- **Duration:** 3 years
- **Number of candidates:** Two per year
- **Entrance examination:** As per NEET guidelines.

Goals: The curriculum shall have the following goals:

- To enable the candidate to view the child as a special individual with unique needs and Paediatric Surgery as a specialty. Hence, the candidate should understand the unique aspects of the physiology and pathology of a Pediatric patient with special emphasis on a neonate.
- To train the candidate to practice Paediatric Surgery based on a sound back ground of knowledge and skill.
- To train the candidate to be a teacher of Paediatric Surgery and continually update himself/ herself with recent advances/ changes in medical practice.
- To empower the candidate with the necessary knowledge and expertise to set up a Paediatric Surgery unit/ department.
- To contribute to the all-round formation and development of the student in a holistic sense.

At the end of the training, the candidate must have attained the following:

A. Knowledge:

- Be conversant with the etiology, patho-physiology, diagnosis and management of common neonatal and Paediatric Surgical problems; both elective and emergency.
- Have a clear understanding of the basic sciences (anatomy, physiology etc.), Paediatric and neonatal medicine as applicable to Paediatric Surgical practice.
- Recognize the importance of inter disciplinary approach in the

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management of various Paediatric Surgical disorders and obtain relevant specialist/ ancillary services' consultation where appropriate.

- Have participated in either/ both clinical and experimental research studies and published articles/ presented work at scientific meet/ conferences.
- Recognize the importance of family, society and socio-cultural environment in the treatment of the sick child.

B. Practice:

- Evaluate a given patient completely (history, clinical examination), order relevant investigations and interpret them to reach a diagnosis and management strategy.
- To perform simple investigations/ procedures (bedside, laboratory, radiology suite) independently.
- Be able to provide basic and advanced life support services in emergencies.
- Be able to prepare a patient for an elective/ emergency surgery and postoperative period.
- Be conversant with counselling techniques for the family/ primary care takers.
- Be skilled in the performance of routine ward procedures (e.g. venesection, central venous pressure line insertion, arterial line insertion, intercostal tube insertion, endotracheal intubation, bladder catheterization, management of large surgical wounds, and mechanical bowel preparation).
- Be able to perform prescribed minor and major operative procedures with assistance and independently.
- Be able to monitor the patient post operatively & provide post-operative management appropriate to the nature of surgical procedure performed
- Be conversant with post-operative intensive care management comprising of ventilatory support, inotropic support, parental nutrition support.
- Be ready to provide relevant advice to patient and family at discharge for

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follow up.

C. Medical Ethics and Human Values:

Adoption of the ethical principles in all aspects of Paediatric Surgical practice and research.

SUBJECT SPECIFIC OBJECTIVES

The aim of course is to produce Pediatric surgeons who are capable of setting a standard and demonstrate commensurate expertise in the field. The training should aim to facilitate the candidate's acquisition of a judicious mix of the three domains of learning that will be practiced ethically-


- Cognitive (knowledge),
- Psychomotor (practice) and
- Affective (communication).

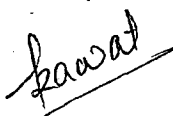
2.1 Cognitive domain (Knowledge)

- Understand the basic sciences (embryology, anatomy, physiology, biochemistry, pharmaco-therapeutics etc.) and principle of pediatric medical care as applicable to pediatric surgical practice.
- Be conversant with the embryology, etiology, pathophysiology, diagnosis and management of common neonatal and pediatric surgical problems - elective or emergency.
- **Group approach:** Recognize the role of multidisciplinary and interdisciplinary approach in the management of various pediatric surgical disorders so as to obtain relevant specialist consultation, where appropriate.
- **Research Methodology:** Basic knowledge of research methodology and biostatistics; familiarity and participation in clinical and experimental research studies; involvement in scientific presentation and publication.
- Recognize the importance of family, society and socio-cultural environment in the treatment of the sick child.

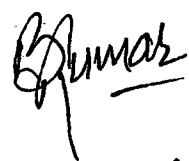
2.2 Psychomotor domain (Practical)

- Evaluate a patient thoroughly (history, clinical examination), order relevant investigations and interpret them to reach a diagnosis and plan of management.

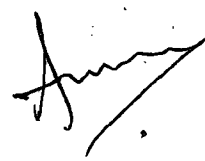

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- Plan and carry out simple investigations/ procedures (bedside, laboratory, radiology suite) independently.
- Provide Basic and Advanced Life Support services in emergencies e.g. NALS, PALS.
- Acquire familiarity with and provide critical care of surgical neonates and infants - airway support, ventilation, central vascular access etc.
- Prepare a patient for an elective/emergency surgery and provide specific post-operative care.
- Provide counseling to the patient and primary caretakers for the smooth dispensation of medical care.
- Acquire skills in routine ward procedures (e.g. bladder catheterization, wound dressings, peripheral vascular access, child restraint etc.).
- Acquire proficiency in prescribed minor and major operative procedures, and provide these, initially with assistance and later independently.
- Monitor the post-operative patient in the routine post-op ward / high dependency unit / and in the intensive care setting.
- Provide specific and relevant advice to the patient and family at discharge time for proper domiciliary care, hospital reporting in emergency and routine follow up.

2.3 Affective domain (Communication)

- Develop and practice effective communication skills.
- Professionally interact and obtain relevant specialist/ancillary services' consultation where appropriate.
- While teaching others in a clinical care unit, ensure team work and establish a pediatric surgical unit.
- Establish effective communication with the caregivers of the patient including counseling and terminal care.
- **Medical Ethics and Human values:** The student will inculcate ethical principles in all aspects of pediatric surgical practice/research (professional honesty and integrity, humility, moderation, informed consent, counseling, awareness of patients' rights and privileges, etc.).

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• Teaching & Learning Methods:

A. Academic Sessions:

During the course, the candidate shall present some academic sessions and attend the others. Each session will be designed to last 1 hr. with at least 15 min. devoted to a discussion on the topic.

An academic session may be any of the following:-

➤ Subject seminar and / or symposium and / or scientific debate:-

The seminars/ symposia are aimed to cover the majority of topics in the syllabus.

➤ Journal review:-

Relevant articles from recommended journals are reviewed.

➤ Clinical case presentation:-

Representative clinical cases shall be presented and discussed in detail in these sessions.

The presentations should include a mix of short and long cases.

➤ Monthly audit:-

This would include a presentation of the monthly admissions, operative procedures performed, histo-pathology of the specimens excised at surgery & post-operative morbidity and mortality. The purpose of these sessions would be an honest "root cause analysis" of an adverse event with the intention of learning from failures and taking necessary corrective measures for the future.


➤ Inter departmental meetings:-

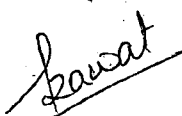
With allied departments as follows,

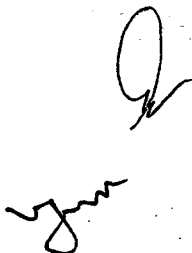
1. Radiology,
2. Pathology,
3. Paediatric Gastroenterology,
4. Neonatology,
5. Oncology/Radiotherapy: meets wherein case based multi-specialty management of Pediatric malignancies would be discussed,
6. Nuclear medicine,
7. MRH/Pediatric Clinical Genetics/Pediatric Endocrinology.

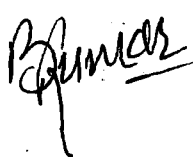
➤ Operative surgery session:-

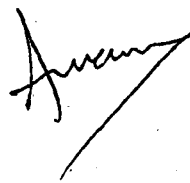
This session, recommended once a month, aims at discussing common operative


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procedures and practical details of the steps of surgery.

➤ Ward rounds and Teaching round:-

There would be at least once consultant led ward round daily. This would be a service round with individual case presentation and brief discussion. In addition, at least 1 teaching rounds per week is recommended involving detailed discussion on admitted clinical cases. Besides theoretical aspects, emphasis must be laid on bedside assessment and practical management issues.

➤ *Periodical sessions (1 to 2 times per year) to review progress of ongoing research activity by the M.Ch trainee.*

➤ *Mortality meets and institutional combined grand rounds (CGR).*

B. 01 courses:

These are on areas like: - Biostatistics, Application of computers in medicine, Scientific communication, Research Methodology, Patient safety etc.

As applicable to all other M.Ch. /DM candidates in this institute, a candidate is expected to pass 2 such courses during the 3 year tenure.

C. External Postings:

The M.Ch (Paediatric Surgery) trainee will be posted in the following allied specialties subject to the strength of the residents and the workload of the department:


1. Dept. of critical care medicine:

This is intended to familiarize the candidate to the following: i) Principles of Paediatric medical intensive care and its applications to Paediatric surgical care, ii) Hands-on experience with common ICU procedures like endotracheal intubation, artificial ventilation, non-invasive ventilation, insertion of central venous pressure lines, insertion of arterial lines.

2. Neonatology Intensive Care Unit:

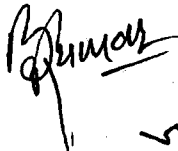
During this posting, the candidate will receive training on care of the sick neonates, particularly prematures and small for dates. Neonatal resuscitation, management of common neonatal problems (e.g. hypoglycaemia, hyperbilirubinemia) and advanced life support systems (e.g., ventilatory care) will be included.

3. Paediatric Gastroenterology:


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This is intended to familiarize the candidate to the following: i) Diagnostic and therapeutic GI endoscopic procedures ii) GI motility laboratory, iii) GI physiology laboratory for tests like 24 hour esophageal pH monitoring, tests for exocrine and endocrine functions of pancreas etc.

4. Optional:

Other postings may be scheduled as deemed necessary for fulfilment of curricular demands, e.g., Posting to other M.Ch (Pediatric Surgery) training centres.

D. Conferences, CME's and Workshops:

Participating and contributing to the organization of such meets is desirable. During the 3-year period of training, he/ she should attend at least one International level, one national level and two state levels meets and present a paper in each of them.

E. Research Activity and Publications:

The candidate must be familiar with basic research methodology including statistical methods and undertake at least one research project under the guidance of a post graduate teacher. The research may be basic or clinical. This will be assigned to the candidate at the inception of the training and he/she will be required to submit a report on the same by the end of the course. This may form the basis of a publication. The M.Ch. trainee will be required to prepare material for publication under the guidance of a postgraduate teacher. During the 3 year tenure, he/ she must have submitted two manuscripts for publication as per the SGPGIMS guidelines.

Structure of the Training Course:

> **Ist Year**

Academic	Procedure / operative skills
<ul style="list-style-type: none">• Seminars• Journal Review• Departmental presentation (in house)• Research project• Computer skills; computer assisted learning• PALS (Paediatric Advanced life support) course	<ul style="list-style-type: none">• Resuscitation skills• Assisting various surgical procedures (minor & major)• Performing simple surgical procedure under supervision (e.g. Herniotomy, Orchidopexy, neonatal colostomy, Anoplasty, feeding jejunostomy, Pyloromyotomy, etc.)

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➤ IInd Year

Academic	Procedure / operative skills
<ul style="list-style-type: none"> • Seminars • Journal reviews • Operative surgery sessions • Inter departmental presentations • Research project/Publication • Conference /workshop/ CME • External postings 	<ul style="list-style-type: none"> • Performing simple surgical procedures (as mentioned under 1st year) independently • Performing simple endoscopic procedure under supervision (e.g. cystoscopy, bronchoscopy for foreign body/Robotics) • Performing intermediate level surgical procedures under supervision(e.g. pyelolithotomy, laparotomy for trauma, excision of benign abdominal masses, repair of a meningocele, etc.)

➤ IIIrd Year

Academic	Procedure / operative skills
<ul style="list-style-type: none"> • Treatment planning • Operative surgery sessions. • Publications • Conference presentations • Training on maintenance of equipment 	<ul style="list-style-type: none"> • Performing endoscopic procedures under supervision (e.g. laparoscopy/Robotics) • Performing major surgical procedures under supervision (e.g. neonatal bowel anastomosis, posterior sagittal anorectoplasty, pull through for Hirschsprung's disease, pyeloplasty) <ul style="list-style-type: none"> • Neonatal surgery. • Performing simple and intermediate level surgical procedures as classified under 1st & 2nd year independently.

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Needs: Local : Pink, National : Orange, Regional: light blue, International : green

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Colour Coding

Global
Regional
National
Local (State)

GREEN
BLUE
ORANGE
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Syllabus (Study topics)

GENERAL:

- Antenatal diagnosis and fetal therapy
- Biomedical ethics and legal issues in Paediatric surgical practice.
- Developmental and transitional physiology of the respiratory, cardiovascular and renal systems
- HIV/AIDS in children
- Medical Genetics.
- Neonatal physiology and assessment of the surgical neonate.
- Neonatal sepsis
- Nutrition - enteral, parenteral
- Organisation of a Paediatric surgical unit
- Paediatric analgesia and anaesthesia.
- Vascular access

TRAUMA:

- Burns
- Child abuse
- Musculoskeletal and vascular trauma
- Paediatric trauma - general principles
- Soft tissue and envenomation injuries
- Thoracic, abdominal, genitourinary, central nervous system trauma (detail)

PAEDIATRIC ONCOLOGY:

- General principles
- Wilms' tumor, Neuroblastoma, Liver tumours, Rhabdomyosarcoma, Teratomas and Germ cell tumours and Gonadal tumours - (details)
- Other tumour of childhood (outline) - Lymphomas, Bone tumours, Brain tumours, Retinoblastoma.

TRANSPLANTATION:

- General principles
- Kidney and liver transplantation

HEAD AND NECK:

- Cleft lip and palate
- Craniofacial anomalies
- Cysts and sinuses of the neck
- Disorders of lymph nodes
- Disorders of the upper airway and oral cavity
- Salivary glands

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Colour Coding

Global	GREEN
Regional	BLUE
National	ORANGE
Local (State)	PINK

THORAX:

- Thyroid and parathyroid gland
- Torticollis
- Congenital chest wall deformities
- Congenital esophageal anomalies
- Congenital tracheal and broncho pulmonary/ foregut malformations
- Diaphragmatic hernia and eventration
- Disorders of the breast
- Endoscopy of the upper aerodigestive tract
- Esophageal motility disorders
- Esophageal replacement
- Esophageal rupture, stricture, perforation
- Infective pleuropulmonary condition
- Mediastinal mass lesions

ABDOMEN:

- Adrenal gland.
- Anorectal malformations.
- Appendicitis
- Ascites
- Benign liver tumours
- Colonic and rectal tumours
- Colonic atresia and functional obstruction.
- Congenital biliary dilatation.
- Disorder of midgut rotation
- Disorders of the pancreas
- Duodenal atresia, annular pancreas
- Gastrointestinal bleeding
- Gastrointestinal duplications
- Gastrointestinal endoscopy and laparoscopy
- Hirschsprung's disease, neuromuscular disorders of intestines
- Hypertrophic pyloric stenosis
- Infective and inflammatory hepatobiliary disorders.
- Inflammatory bowel disease in children.
- Inguinal hernias and hydroceles
- Intestinal stomas
- Intussusception
- Jejunioileal atresia and stenosis
- Meckel's diverticulum
- Meconium ileus
- Mesenteric and omental cysts

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- Necrotising enterocolitis
- Neonatal/Infantile obstructive cholangiopathy
- Polypoid disease of the GIT
- Portal hypertension.
- Primary peritonitis
- Short bowel syndrome
- Splenectomy and post splenectomy sepsis.
- Testicular maldescent, torsion
- Umbilical disorders and abdominal wall defects

GENITOURINARY AND RELATED DISORDERS:

- Abnormalities of the female genital tract
- Anomalies of the external genitalia
- Congenital ureteric anomalies
- Disorders of bladder function
- Exstrophy - epispadias complex
- Hypospadias
- Infective and inflammatory renal disorder
- Intersexual disorders
- Pelvic ureteral junction obstruction
- Prune belly syndrome
- Renal agenesis, dysplasia, cystic disease, ectopia
- Structural bladder disorders
- Urinary diversion and undiversion, bladder augmentation
- Vesicoureteric reflux

SPECIAL PAEDIATRIC SURGERY:

- Conjoined twins
- Hemangiomas & Vascular malformations.
- Hydrocéphales
- Spina bifida

ENDO SURGERY:

- Basic and Advanced Laparoscopic Surgery
- Robotic Surgery
- application of minimal invasive surgery to all the above mentioned areas

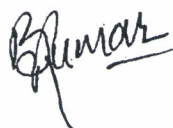
Operative Procedures:

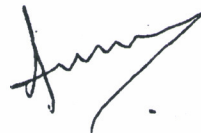
The candidate should receive graded exposure in the performance of the following operative procedures. They are to be recorded as:


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Observed	Assists senior	Performs with assistance from a senior or under supervision	Performed independently during the course

• *The following are the categories of the surgical procedures which should be assisted/performed by each candidate during the 3 year training program:*

- a). Indexed neonatal surgical procedures
- b). General pediatric surgical procedures
- c). Pediatric gastro-intestinal & hepatobiliary surgical procedures
- d). Pediatric urological procedures
- e). Pediatric thoracic surgical procedures
- f). Pediatric oncology surgical procedures
- g). Pediatric plastic surgery procedures
- h). Pediatric neurosurgical procedures
- i). Pediatric endoscopic procedures
- j). Pediatric Laparoscopic procedures
- k). Pediatric Robotic procedures

TRAUMA
• Wound debridement
• Wound suturing
• Laparotomy for trauma
• Thoracotomy for trauma
ONCOLOGY
• Percutaneous tumor biopsy
• Open tumor biopsy
• Lymph node biopsy
• Tumour excision
HEAD AND NECK
• Cleft lip repair
- Unilateral

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- Bilateral
• Palatoplasty
• Salivary gland excision
• Salivary duct / orifice dilatation
• Marsupialization-Ranula
• Abscess drainage.
• Sistrunk's procedure
• Thyroidectomy
• Excision of branchial remnants
• Excision of dermoid cysts.
• Sternocleidomastoid release
THORAX
• Mastectomy
• Repair of Pectus Excavatum
• Repair of Pectum Carinatum
• Repair of cong. diaphragmatic hernia
• Repair of Morgagni hernia
• Repair of hiatus hernia
• Repair of eventration diaphragm
• Mediastinal mass excisions.
• Laryngoscopy
• Bronchoscopy
- Diagnostic
- Therapeutic
• Thoracoscopy
- Diagnostic
- Therapeutic
• ICTD insertion
• Decortication.
• Pulmonary resection.
• Esophagoscopy
- Diagnostic
- Therapeutic
• UGI endoscopy
• Repair of TEF
- Primary
- Re exploration
• Esophageal diversion
• Repair of H-type TEF
• Esophageal dilatation.
• Esophageal replacement
• Fundoplication

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• Aortopexy.
• Tracheostomy
ABDOMEN
• Surgery for Vitellointestinal duct remnants
• Abdominal wall defect Primary repair
- Exomphalos
- Gastroschisis
• Abdominal wall defects , silo construction
• Inguinal hernias and hydrocele
• Umbilical hernia
• Orchidopexy Single staged
Staged
Open/laparoscopy assisted
• Exploration for torsion testes
• Orchiectomy
• Surgery for varicocele
• Pyloromyotomy.
• Duodenoduodenostomy
• Neonatal small bowel atresia – REEA
• Surgery for meconium ileus.
• Meckel's diverticulectomy
• Non operative reduction of intussusception.
• Operation for intussusception.
• Ladd 's procedure
• Laparoscopy – Diagnostic & therapeutic
• Colonoscopy
• Rectal polypectomy
• Gastrostomy
• Enteral stoma (ileostomy / colostomy) – Formation & closure
• Feeding jejunostomy
• Gastrojejunostomy
• Mesenteric cyst excision
• Excision of duplication cyst
• Operations for NEC
• Appendectomy
• Appendicular abscess – drainage.
• Pull through for Hirschsprung's disease - Duhamel

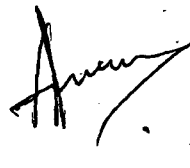


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- Soave
- Swenson's
• Rectal biopsy
• Anorectal myectomy
• Pull through operations for congenital anorectal malformations
• Re do posterior saggital anorectoplasty for congenital anorectal malformations
• Anoplasty
• Anal transposition
• Colonic resections
• Per operative cholangiogram for Neonatal cholestasis syndrome
• Kasai's Portoenterostomy for Biliary atresia
• Operations for choledochal cyst
• Cholecystectomy.
• Cholecystostomy
• Secondary suturing (burst abdomen)
• Liver abscess drainage
• Operations for liver hydatid
• Hepatic resection
• Operation for portal hypertension
-Devascularisation
-Splenectomy
-Portosystemic shunts
• Operations for pancreatic pseudocysts.
• Pancreatic resection
• Pancreatico enteric anastomosis.
GENITOURINARY SURGERY
• Nephrectomy
-Tumours
- Others
• Partial nephrectomy
• Cystoscopy & fulguration of Posterior Urethral Valves.
• Diagnostic Cystoscopy
• Retrograde pyelography
• Pyeloplasty
• Nephroureterectomy
• Ureterocele incision
• Suprapubic cystostomy
• Vesicostomy
-Formation & closure
• Ureterostomy —Formation
• Exstrophy repair (turn in)

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• Bladder augmentation
• Mitrofanoff procedure
• Ureteric reimplantation
• Bladder neck repair
• Ureterosigmoidostomy
• Epispadias repair
• Hypospadias repair-
- Single stage
- Staged
• Meatotomy/meatoplasty
• Urethral fistula repair
• Urethral calibration / dilatation
• Operation for calculus disease
- Nephrolithotomy
- Pyelolithotomy
- Ureterolithotomy
- Cystolithotomy
• Circumcision
• Dorsal Slit
• Operation for intersex disorder
- Correction of penoscrotal transposition
- Genitoscopy
- Gonadal biopsy
- Gonadectomy
- Testicular prosthesis placement
- Genital reconstruction
NEUROSURGERY
• Repair of encephalocele
• Repair of spina bifida
• Repair of occult spinal dysraphism
• Venticuloperitoneal stunts.
• VP. shunt revision
• External ventricular drainage
MISCELLANEOUS
• Skin grafting
- Partial thickness
- Full thickness
• Flap cover
• Excision of vascular anomalies
- Venous
- Lymphatic
• Fasciotomy
• Contracture release

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• Vascular anastomosis
• Arterial line placement
• Central venous line insertion-
- Percutaneous
- Open
• Muscle biopsy
• Nerve biopsy
• Umbilical vein cannulation
• PD catheter insertion
• Accessory digit excision

Student Evaluation

A. Periodic internal assessment by the teaching faculty of the department:

Each academic presentation would be graded by all faculty members on the basis of its scientific content, quality of presentation and the ability of the presenter to answer questions. This provides immediate feedback to the teacher and the taught.

A formal internal assessment would be made every six months with the intention of suggesting remedial measures in case of any deficiencies in the performance of the M.Ch trainee.

B. Maintenance of a log book:

A log book is a comprehensive record of all surgical & academic work performed during the 3 years course.

It details -

- Academic sessions attended and presented by the candidate.
- Operative procedure assisted or performed.

The logbook is reviewed 6 monthly by the departmental faculty to supplement deficits, if any, in the succeeding 6 months.

C. Final M.Ch. Exit Examination:

This is a combined assessment by the internal and external examiners at the end of 3 years course.

The log book and the results of periodic internal evaluations shall be made available to the external examiners at the time of final exit examination.

The purpose of final exit examination is to decide whether the candidate is suitable for

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certification or not. The candidate would be eligible to appear for the qualifying examination (M.Ch. Paediatric Surgery) after completion of 3 years of training, satisfying periodic evaluation by the departmental staff and minimum attendance (80%) as per NMC/MCI rules. The candidate should have submitted two manuscripts which are fit for publication.

The general design of the examination is within the framework prescribed by the Medical Council of India.

The M.Ch. Paediatric Surgery examination shall consist of the following three divisions:

i. **Theory Examination:**

This shall be a written examination consisting of 4 question papers as per institutional guidelines, each of three hours duration. The broad distribution of topics in the question paper would be.

Paper I: Basic Sciences applied to Neonatal and Pediatric Surgery.

Paper II: Clinical Pediatric and Neonatal Surgery.

Paper III: Regional/Systemic Pediatric Surgery and allied specialties

Paper IV: Recent advances in Pediatric Surgery.

ii. **Clinical examination:**

The clinical examination shall be divided into 2 parts

a. **Case Examination:**

This will include a complete evaluation of clinical case presentation and discussion (History taking, physical examination, investigations, management, etc.).

There will be:

- 1 long case

- 3 short cases

- **Ward rounds:** The ward rounds shall render an opportunity to the examiner to evaluate clinical judgment and practical decision-making ability of the examinee on a variety of clinical conditions.

b. **Operative Procedure:**

The candidate is required to perform a minor/ day care operative procedure with

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assistance. The examiner shall observe/ question the candidate on the concerned operative procedure which may include the indication, preoperative work up, the technical details and the post-operative care of the patient. This particular aspect of the examination system may be reviewed from time to time

iii. **Viva Voce:**

The viva voce are designed to test clinical skills and practical ability, reasoning, confidence, communication skills, procedural skills and depth of knowledge.

The examination may include x-rays, pathological specimens, and surgical instruments and incorporate an objective assessment such as spotters.

Essential and desirable workshops

Essential	Desirable
1. Online certification in Research Methodology Course on SWYAM platform	1. Therapeutic Hypothermia
2. Neonatal Resuscitation Program (NRP)	2. Developmental assessment (DASII/BSID)
3. Neonatal Ventilation (Basic and advanced)	3. Patientsafety
4. Kangaroo mother care	4. Hospital infection control
5. Death certificate ICD 10	5. Needle stickinjury tothehealthcareworkers
	6. Environmentalsafety
	7. Biomedicalwaste disposal
	8. Antibioticstewardship program
	9. Gendersafety
	10. HealthforAll

- The Objectives of the 03 year training program is to **train the medical postgraduate as a best skilled "Pediatric Surgeon"** in different aspects of theoretical, clinical and practical spheres of Pediatric Surgery and enable them to offer skill based diagnostic, curative and preventive care with the highest professional standards. This training will help to accomplish the local, regional and national health care needs for quality care

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commensurate with international standards.

Local level	<p>Our state has a high burden of infant mortality rate due to correctable congenital malformations. These trends highlight the need for effective prevention and management strategies to address the growing burden of infant mortality. Course curricula are hence designed to be tailor made to these specific congenital and acquired structural and functional malformations like:</p> <ol style="list-style-type: none">1. Anorectal malformations2. Hepatobiliary malformations3. Pediatric solid tumors4. Genito-urinary malformations5. Esophageal atresia with Tracheo-esophageal fistula6. Congenital cardiac and lung disease7. Malrotation/Atresia of gut; perforation/obstruction, etc.
National level	<p>In India 2% - 4% children born with congenital malformation which needs immediate surgical correction after birth. The effective prevention and management strategies to address the growing burden of infant mortality likely to create impact on National level</p>
Regional level	<p>Mechanisms including pathophysiology, genetics, novel risk factors, epidemiology and management of such congenital and acquired malformations in neonates, infants and children and its specific aspects related to the sub-continent.</p>
Global level	<p>All the diseases covered in the courses of the M.Ch Pediatric Surgery are contextual and pertinent to global health issues. Moreover India being home to approximate 17% of the global population, health care decisions and policies based on Indian data are likely to create a global impact</p>

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Recommended Books and Journals:

TEXT BOOKS:

Sl. No.	Text Book Name	Editors	Publishers
1	Paediatric Surgery	O'Neill JA, Rowe MI, Grosfeld JL, Fonkalsrud EW, Corn AG	Mosby
2	Pediatric Surgery	Ashcraft KW, Whitfield HG, Patrick MJ	Elsevier
3	Rob and Smith's Operative surgery – Paediatric Surgery	Spitz L, Coran AG.	Hodder Arnold
4	Pediatric Surgery	Puri P, Hollwarth M	Springer
5	Clinical paediatric Urology	Kelalis PP, King LR, Belman AB.	W.B. Saunders Co.
6	Adult and paediatric urology	Gillenwater JY, Grayhack HT, Howard SS, Mitchell ME.	Lippincott, Williams and Wilkins
7	Operative Pediatric Urology	David FJ, Johnston JH	Churchill livingstone
8	Manual of Neonatal care	Cloherly JP, Stark AR.	Lippincott Raven
9	Newborn surgery	Prem Puri	Butterworths , Heinemann
10	Surgery of the Newborn	Freeman NV, Burge DM, Griffiths DM, Malone PSJ.	Churchill Livingstone
11	Surgery of liver, bile ducts and pancreas disease in children	Howard ER, Stringer MD, Columbani PM.	Arnol
12	Anorectal malformations in children	Holschneider AM, Hutson, JM	Springer
13	Hirschsprung's disease & allied disorders	Holschneider AM, Puri P	Springer

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14	Pediatric thoracic surgery	Myers NA, Angerpointer TA	Springer
15	Abdominal surgery of infancy and childhood (First edition,1996).	Donnellan WL,Burrington JD,Kimura K,Schafer JC,White JJ.	Harwood academic publishers
16	Paediatric Oncology	Pizzo PA ,Poplack DG.	Lippincott,Williams and Wilkins.
17	Endoscopic surgery in children	Bax NMA	Springer
18	Principles & practice of pediatric neurosurgery	Albright AL, Pollack IF, David AP	Tieme
19	Nelson Textbook of Paediatric	Behrman RE,Kliegman RM,Jenson HB.	
20	Harriet Lane handbook: manual for pediatric house officers	Jason C, Rau W, Rachel E.	Mosby
21	Pediatric enteral nutrition	Baker SB, Baker RD	Chapman & Hall
22	Diseases of the liver & biliary system	Kelly D	Wiley
23	Textbook of Neonatology	Avery and Tausch	
24	Textbook of Neonatology	Sheiafer	
25	Caffey's textbook of Radiology		

JOURNALS:

1. Journal of Pediatric Surgery
2. Pediatric Surgery International
3. Seminars in Pediatric Surgery
4. European Journal of Paediatric Surgery
5. Journal of Pediatric Urology
6. Archives of Diseases in Childhood
7. Pediatric Clinics in North America
8. Acta Paediatrica
9. Journal of Pediatric Gastroenterology and Nutrition
10. Current Opinions in Pediatrics
11. Pediatrics
12. Clinics in Liver Diseases
13. Pediatric Neurosurgery
14. Indian Journal of Pediatrics

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15. Indian Pediatrics

E-Learning Resource:

<https://www.baps.org.uk/trainees/the-training-toolbox/educational-resources/e-learning-for-healthcare-paediatric-surgery/>

<https://www.rcseng.ac.uk/education-and-exams/courses/postgraduate-certificate-in-surgery/paediatric-surgery-emergencies/>

<https://www.rcsi.com/surgery/global-surgery/our-projects/african-paediatric-surgery-elearning>

<https://www.globalchildrensurgery.org/resources/online-surgical-resources/>

<https://medtube.net/tags/e-learning-paediatric-surgery/88707>

<https://websurg.com/>

<https://www.clinicalkey.com/#!/browse/book/3-s2.0-C20191011278>

The Board of studies may like to take note of the above revised curriculum for M.Ch. programme in Paediatric Surgery at SGPGIMS.

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