THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY,

No.69, Anna Salai, Guindy, Chennai – 600 032.

D.M/ M.Ch
SUPER SPECIALTY DEGREE COURSE

SYLLABUS AND CURRICULUM

2017-2018

M.Ch - PAEDIATRIC SURGERY

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI
Syllabus - M.Ch - Paediatric Surgery

1. AIMS:

To train candidates in the practice of Paediatric surgery including basic medical sciences in the paediatric age group and in research methodology by a comprehensive and structured training program.

Assessment to be done at periodic intervals and at the end of the training period before being awarded the M.Ch degree.

2. OBJECTIVES:

At the end of training the candidate should

1. Have an understanding of the fundamental skills and principles of Paediatric surgery.
2. Have knowledge of the relevant basic medical and para clinical subjects.
3. Be able to diagnose common clinical problems in Paediatric surgery.
4. Be able to carry out pre-operative work up and post-operative management.
5. Be able to carry out resuscitative procedures and intervention in Paediatric surgical emergencies.
6. Be able to carry out independently a variety of surgical procedures in the specialty of Paediatric surgery, including endoscopic and laparoscopic procedures.
7. Be familiar with research methodology and experimental animal laboratory work.
8. Have knowledge of ventilators and practical knowledge of artificial ventilation.
9. Should be able to counsel the mothers diagnosed with fetal anomalies
10. Should be able to perform basic radiological procedures such as MCUG, Barium enema
11. They should be able to interpret ultrasound / CT / MRI pictures and urodynamic study.
12. To have a knowledge of Bio-ethics in clinical medicine and in research.

3. THEORY SYLLABUS (INCLUDING BIOETHICS):

(A) BASIC SCIENCES

1. ANATOMY

Surgical anatomy and embryology and embryo- pathology

a) Gastrointestinal tract including rectum, liver, biliary tract and pancreas
b) Respiratory system including diaphragm
c) Genito - urinary tract, including descent of testes and sexual differentiation.
d) Lymphatic system
e) Face, neck and branchial apparatus
f) Abdominal wall, umbilicus and inguinal canal
g) Vertebral column and central nervous system restricted to gross anatomy & developmental anomalies

2. PHYSIOLOGY AND BIOCHEMISTRY

1. Physiology of fetus
2. Physiology of the new born, including antenatal period
3. Gastrointestinal physiology including deglutition, esophageal motility, anti-reflux mechanism, intestinal mobility & defecation, altered biochemistry in intestinal obstruction, hepatic function including bilirubin metabolism.
4. Physiology of urine excretion, micturition & biochemical changes in obstructive uro-pathy and renal failure.
5. Cardiovascular physiology including fetal & neonatal cardiac function
6. Fluid and electrolyte balance.
7. Haemolytic disorders
8. Nutritional requirements in health and disease including parenteral nutrition.
9. Sexual differentiation including biochemical aspects in anomalous conditions.

10. Physiological changes during pre-operative and post-operative period and changes during different types of anaesthesia
11. Respiratory system Respiratory failure
12. Acid Base balance

3. MICROBIOLOGY

a) Pathophysiology of sepsis in neonates, infants and children, and inflammatory response.
b) Maintenance of asepsis, sterility in newborn nursery, ward and operation theatre. Sterilisation of surgical instruments including endoscopes, Laparoscopes & ventilators.
c) Common surgical infection, including osteomyelitis and septic arthritis.
d) Surgical tuberculosis including atypical mycobacterial infection.
e) AIDS - pathophysiology
f) Hepatitis - pathophysiology
g) Parasitic surgical conditions
h) Elements of immunology including its importance in organ transplantation & immunosuppression.

(B) GENERAL TOPICS

1. Molecular genetics & gene therapy
2. Clinical genetics
3. Fetus as a patient; ultra sonography, MRI
4. Prenatal diagnosis, fetal surgery and fetal intervention.
5. Principles of paediatric anaesthesia
6. Paediatric intensive care management
7. Resuscitation, mechanical ventilation,ECMO
8. Pharmacology of commonly used drugs

9. Central venous access

(C) PAEDIATRIC TRAUMA

1. Birth trauma
2. Infants and children as accident victims & their assessment & management.
3. Thoracic injuries, abdominal trauma, genitourinary tract trauma, central nervous system injuries, musculo skeletal trauma.
4. Management of burns
5. Child abuse, recognition and management

(D) MAJOR TUMOURS IN CHILDREN

1. Principles of paediatric surgical, medical and radio - oncology
2. Wilms' tumour
3. Neuroblastoma
4. Liver tumours
5. Rhabdomyosarcomas
6. Teratomas & testicular tumor
7. Hodgkin’s lymphoma and non-Hodgkin’s lymphoma
8. Common bone tumours
9. Central nervous system tumours
10. Ovarian tumours

(E) TRANSPLANTATION

1. Principles of transplantation
2. Kidney transplantation
3. Liver transplantation
4. Pancreatic transplantation
5. Intestinal transplantation

6. Heart & Heart-lung transplantation
7. Bone marrow transplantation

(F) IMAGING TECHNIQUES

1. Ultrasonography, CT scan & MRI in paediatric surgery
2. Isotope imaging

(G) RECENT ADVANCES IN SURGICAL TECHNIQUES

1. Minimal invasive surgery including laparoscopic surgery
2. Laser, cryosurgery, robotic, telesurgery
3. Principles of endoscopy in the upper and lower G.I. tract, bronchial tree, genitourinary tract and fetoscopy.

(H) PAEDIATRIC SURGERY - REGIONAL

1. HEAD AND NECK

1. Cranio facial abnormalities; basic principles, cranio-facial clefts, Cranial synostosis
2. Cleft lip and palate
3. Otolaryngologic disorders
4. Salivary glands
5. Lymph node disorders
6. Thyroid, para thyroid disorders
7. Cyst & sinuses of the neck
8. Torticollis

2. THORAX

1. Disorders of the breast
2. Congenital chest wall deformities

3. Congenital diaphragmatic hernia, eventration of the diaphragm
4. Mediastinal cyst and tumours
5. Laryngoscopy, bronchoscopy, thoracoscopy, oesophagoscopy
6. Lesions of larynx and trachea
7. Respiratory problems related to the air way and lung
8. Disorders of the thoracic cavity and pleura; infection of the lung, pleura and mediastinum.
9. Congenital Diaphragmatic Hernia and Eventeration
10. Tumours of the lung
11. Congenital anomalies of the oesophagus
12. Oesophageal rupture
13. Caustic stricture of oesophagus
14. Replacement of oesophagus
15. Achalasia cardia
16. Gastro oesophageal reflux
17. Vascular rings

3. ABDOMEN

1. Disorders of the umbilicus , Meckel's diverticulum & urachus
2. Abdominal wall defects
3. Inguinal hernia & hydrocele
4. Undescended testis, torsion and varicocele
5. Hypertrophic pyloric stenosis
6. Peptic ulcer disease
7. Duodenal stenosis and atresia
8. Jejuno ileal stenosis and atresia

9. Meconium ileus & meconium peritonitis
10. Intussusception
11. Intestinal malrotation & disorders of fixation
12. Other causes of intestinal obstruction
13. Short bowel syndrome
14. Gastro intestinal endoscopy, laparoscopic surgery
15. Gastro intestinal bleed
16. Duplication of gut
17. Mesenteric and omental cysts
18. Polypoidal disease of gastro intestinal tract
19. Necrotizing enterocolitis
20. Ascites
21. Crohn's disease and ulcerative colitis
22. Peritonitis
23. Stomas of small and large intestine
24. Stenosis, atresia & other obstructions of colon
25. Appendicitis
26. Hirschsprung's disease
27. Anorectal malformations
28. Pouch colon syndrome
29. Colorectal tumors
30. Biliary atresia
31. Choledochal cysts
32. Gall bladder disease and hepatic infection
33. Non malignant tumours of liver

34. Portal hypertension
35. Pancreatitis & other disorders of pancreas
36. Splenic disorders
37. Adrenal gland lesions

4. GENITOURINARY TRACT

1. Renal Agenesis, dysplasia and cystic disease
2. Renal fusion & ectopia
3. Pelvi ureteric obstruction
4. Vesico ureteral reflux, urinary lithiasis and renal vein thrombosis
5. Ureteral duplications & ureteroceles
6. Mega ureter & prune belly syndrome
7. Urinary diversion
8. Disorders of bladder function
9. Bladder augmentation
10. Bladder exstrophy and epispadias
11. Hypospadias
12. Abnormalities of urethra, penis and scrotum.
13. Ambiguous genitalia in the new born

Bioethics

1. Respect human life and the dignity of every individual.
2. Refrain from supporting or committing crimes against humanity and condemn all such acts.
3. Treat the sick and injured with competence and compassion and without prejudice and apply the knowledge and skills when needed.
4. Protect the privacy and confidentiality of those for whom we care and breach that confidence only when keeping it would seriously threaten their health and safety or that of others.

5. Work freely with colleagues to discover,develop, and promote advances in medicine and public health that ameliorate suffering and contribute to human well being.
6. Educate the public about present and future threats to the health of humanity.
7. Advocate for social,economic,educational and political changes that ameliorate suffering and contribute to human well being.
8. Teach and mentor those who follow us, for they are the future of our caring profession.

4. CLINICAL TRAINING:

The students will be clinically training in parent department during the 3 years course.

1. Active participation of the candidate in attending outpatient department,ward rounds, regular operating work, emergency operating work and involvement in pre and postoperative care.
2. Involvement in radiological diagnosis and management including ultrasound, CT scan, MRI and contrast studies
3. Involvement in counselling patients and their parents

4. Two months postings in Institutions of higher repute with more advanced management.

5. Genitourinary surgery including Renal transplant -1 month

6. Surgical Gastroenterology including Liver, Pancreatic and intestinal transplant-
1 month.

During II year, students are encouraged to undergo special postings for learning new advanced techniques / Procedure / Skills in institutions of higher repute where the requisite facilities are available without affecting the duties of the parent department.

5. SKILL TRAINING REQUIREMENTS:

(A) Operative areas of Training

The student must have acquired certain surgical skills in a structured manner during the three year period of course.

1st Year – Assisting in minor and major operative procedures under guidance of

teachers.

2nd Year – As above and performing independent minor surgical procedures

3rd Year- Independent major surgical /operative work under supervision of Teachers

The following number of surgical cases should be assisted /operated by each candidate during the 3 year training program:

1. Indexed neonatal surgical cases/procedures	- 50 to100
2. General Paediatric surgical cases/procedures	- 50 to100
3. Paediatric gastro - intestinal surgical cases/ Procedures	- 50 to100
4. Paediatric urological cases/procedures	- 50 to100
5. Paediatric thoracic surgical cases/procedures	- 25 to 50
6. Paediatric oncology cases/procedures	- 20
7. Paediatric Plastic surgery cases/procedures	- 50
8. Paediatric neurosurgical cases/procedures	- 50
9. Paediatric endoscopic procedures	- 50
10.Paediatric Laparoscopic and Thoracoscopic procedures	- 50

NOTE: The number of cases mentioned are merely guide lines and are desirable but not mandatory.

B.Non-operative areas of Training:

The non-operative component of the structured M.Ch. training program in paediatric surgery is also equally important and should include:-

1. Basics of Ultrasonography
2. Technique of Resuscitation of the Newborn
3. PALS and NALS
4. ATLS
5. Antenatal diagnosis and counselling (intervention if possible)
6. Orientation with Internet and the Computer technology
7. Management of Day care Surgery
8. Paediatric Transplantation (Liver,Kidney,Pancreas)
9. Surgical Embryology,genetics and the gene therapy

10. Paediatric Chemotherapy regimens for solid tumours

11. Problems of babies with prematurity and small for date physiology of the Newborn and the drug schedules for the newborn, and the Blood exchange transfusions.

12. Organisational capabilities to host conferences,Symposia, workshops etc.

13. Membership of National and International Paediatric Surgical associations.

14. Subscribing to the established journals in the speciality.

15. Knowledge about the progress made in Paediatric Surgery during the Past few decades:Transplants,Endoscopy,Lasers,Laparoscopy, Tumormarkers, antenatal diagnosis, genetherapy.

16. Regenerative Medicine &Stem Cell Therapy.

17. Knowledge in Bioethics -the standards, principles, and rules of conduct that govern physician behaviour and the practice of medicine.To inform and guide the resolution of moral dilemmas as they arise in patient care and within the broad context of societal healthcare.Informed consent, Withholding and Withdrawal of Life-Sustaining Treatment,Multiculturalism, Surgical errors.

6. TEACHING METHODOLOGY

1. OP clinics as per unit admission days.
2. Ward rounds once a week.
3. Classroom lectures once a week.
4. Oncology meets once a week/month.
5. Radiology meets once a week/month.
6. Journal club once a week.
7. Paediatric surgical meet once in 2 months.
8. Lab.training –endotrainer and (simulation lab subject to availability).
9. Symposium once in three months.

10. Surgical clinics once in a year.

11. Guest and in-house lectures. Conferences, seminars and CME's.

12. Participation in workshops, etc.

13. Teaching undergraduates / postgraduates / paramedical staff.

14. Weekly Surgical audit (patient care review meeting).

15. Biomedical equipments use and maintenance.

7. RESEARCH WORK:

The candidate will be trained in the ability to

Frame a research question.

Plan a study to answer the question.

Collect the relevant information and

Evaluate appropriately the collected data to draw a conclusion.

The candidate should become conversant with the reporting of these results as a research paper, in journals and as a presentation in conferences.

Students should compulsorily attend Research Methodology workshop conducted by the University within first six months of M.Ch Course.

8. LOG BOOK:

The Post graduate should maintain a logbook, in which the operative procedures assisted or performed should be recorded, along with pathological reports/outcome & complications.

The Postgraduate student of a Postgraduate Degree Course in Super specialties shall maintain Log Book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently.

The Log Book shall be checked and assessed by the faculty members imparting the training.

Periodical evaluation of Log Book to be done by the Head of the Department as per 52nd SAB.

The Evaluation of the candidates in both theory and practical aspects will help the candidate in the improvement of his/her knowledge skills & attitude**.**

9. COMPETENCY ASSESSMENT:

Overall:

1. Communication / Commitment / Contribution / Compassion towards patients and Innovation	-	10 Marks
2. Implementation of Newly learnt techniques	-	10 Marks
3. Documentation of case sheets / discharge Summary / Review	-	10 Marks
4. Number of cases presented in Clinical Meetings/ Journal Clubs / Seminars / Papers presented in Conference.	-	10 Marks
5. No. Of Medals/ Certificates won in the conference / Quiz competitions and other academic meetings with Details.	-	10 Marks
Total		50 Marks

Assessment I - February - First year
II - August - First year
III - February - Second Year
IV - August - Second year
V - February - Third Year
VI - May - Third Year

VIVA INCLUDING COMPETENCY ASSESSMENT – 100 Marks (50+50)

10. THEORY EXAMINATION

Paper I	Basic Sciences applied to Paediatric Surgery
Paper II	Neonatal Surgery and Paediatric Genito - Urinary Surgery
Paper III	Regional and Systemic Paediatric Surgery

Paper IV Recent Advances in Paediatric Surgery

Each paper will contain:

1. Essay questions (2) - 2 X 15 = 30 Marks

2. Short Notes (10) - 10 X 7 = 70 Marks

Total 100 Marks

11. CLINICAL EXAMINATION:

Particulars	**Time for candidate to examine the cases**	**Time for examiners to question the candidates**	**Maximum Marks**
Long Case	1 Case x 60 Minutes	60 Minutes	100
Short Case	2 Cases x 15 Minutes	30 Minutes	100
Ward Rounds	3 Patients x 10 Minutes	30 Minutes	100
OSCE	5 Stations x 3 Minutes	15 Minutes	50
Viva Voce		15 Minutes	100
Log Book			50
			500

"**13.9 A Postgraduate student of a Postgraduate degree Course in broad specialties/Super Specialties would be required to present one poster presentation to read one paper at a National/State conference and to present one Research paper which should be published/accepted for publication/sent for publication during the period of his Postgraduate studies so as to make him eligible to appear at the Postgraduate Degree Examination".**

Apart from Poster/Oral paper presentation in National/State conferences, the Research paper published by the candidate in the University Journal of Medical Sciences will be considered as equivalent to the Research Paper as mentioned in 13.9. clause. Case Reports can also be published in University Journal of Medical Sciences but case reports will not be considered as Research Paper.

The candidate can also present Research Paper as per Clause 13.9 of Post Graduate Education Regulation 2000, and if the article sent for publication by the candidate as primary author or corresponding author which has not yet

been published/accepted for publication, the candidate should submit a letter from the HOD, stating that the article sent for publication is of publishable merit and the proof of the Research Article submitted to the Journal for publication should be sent to the university forwarded through the HOD [as per 53rd SAB]

The student can submit articles for the University journal anytime from the time of registration till 6 months prior to theory examination.

12. OSCE : 5 stations

1. Embryology/Anatomy/ Pathology

2. Instruments – operative surgery, complications- prevention and management

3. Radiology

4. Clinical photograph

5. Counselling – Antenatal , counselling on major diseases and procedures

13. REFERENCE BOOKS:

S.No	Title	Editors	Publisher
1	Pediatric Surgery – seventh edition	Arnold G. Coran	
2	The Kelalis–King–Belman Textbook of Clinical Pediatric Urology	Steven G Docimo MD	Informa Healthcare UK Ltd
3	Newborn Surgery	Professor Prem Puri	Hodder & Stoughton Ltd
4	OperativePediatric Surgery	Lewis Spitz , Arnold G Coran	Taylor & Francis Group, LLC
5	Anorectal Malformations in Children Embryology, Diagnosis, Surgical Treatment, Follow-up	Alexander M. Holschneider · John M. Hutson	Springer Berlin Heidelberg
6	Atlas of Endoscopic Major Pulmonary Resections	Dominique Gossot	Springer Berlin Heidelberg

7	Endoscopic Surgery in Infants and Children	Klaas (N) M.A. Bax Keith E. Georgeson	Springer Berlin Heidelberg
8	Hirschsprung´s Disease and Allied Disorders	A. M. Holschneider · P. Puri	Springer Berlin Heidelberg
9	Operative Endoscopy and Endoscopic Surgery in Infants and Children	Azad Najmaldin	Hodder Arnold
10	Hinman's atlas of Pediatric urologic surgery	Frank Hinman , Jr.,	Saunders,
11.	Monograph –Hirschprungs disease		
12	Monograph – Anorectal Anomaly		
13	Monograph – Oesophageal atresia TEF		

****Note:** The editions are as applicable and the latest editions shall be the part of the syllabi.

14. <u>JOURNALS:</u>

i) Journal of Paediatric surgery

ii) Paediatric surgery International

iii) European Journal of Paediatric surgery

iv) Journal of Paediatric Urology

v) Journal of Indian Association of Paediatric Surgeons

vi) Indian Pediatrics

vii) Seminars in Pediatric Surgery

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