Course Contents

M.Ch. Paediatrics Surgery

The M.Ch. (Paediatric Surgery) candidate is a full time trainee and the general outlay of the training shall adhere to the residency pattern. The curriculum shall have the following goals and objectives -

Goals:

The goals of training in M.Ch. (Paediatric Surgery) are:

a. To inculcate and further human values of empathy, care and discipline in medical practice
b. To enable the candidate to view the child as a special individual with unique needs and Paediatric Surgery as a specialty.
c. To train the candidate to practice Paediatric surgery based on a sound back ground knowledge and skill
d. To train the candidate to be a teacher of Paediatric surgery and continually update himself/herself with recent advances / changes in medical practice.
e. To empower the candidate with the necessary knowledge and expertise to set up a Paediatric surgery unit / department.
f. To contribute to the all round formation and development of the student in a holistic sense.

Objectives:

The training should aim to facilitate the candidate's acquisition of a judicious mix of the three domains of learning –
Cognitive (knowledge),
Psychomotor (practice) and
Affective including communication abilities.

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

a. Knowledge

- Be conversant with the etiology, pathophysiology, diagnosis and management of common neonatal and Paediatric surgical problems; both elective and emergency in nature.
- 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 management of various Paediatric surgical disorders and obtain relevant specialist / ancillary services' consultation where appropriate.
- Gained experience in clinical 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 post operative period.
- Be conversant with counseling techniques for the family / primary care takers.
- Be skilled in the performance of routine ward procedures (eg. venesection, bladder catherization, dressings, 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 in the intensive care setting / routine post op ward.
- Be ready to provide relevant advice to patient and family at discharge for follow up.

c. Communication skills

- Develop and practice effective communication skills.
- Professionally interact and obtain relevant specialist/ancillary services' consultation where appropriate
- Display the ability to impart the acquired training to others in a teaching unit and establish a Paediatric surgical unit.

d. Medical Ethics and Human values

Adoption of ethical principles in all aspects of Paediatric surgical practice/ research. (Professional honesty and integrity, humility, informed consent, counseling, recognize patients' rights and privileges, etc).

Teaching Learning Methods

(The general aspects are described in detail in Chapter IV)

1. Academic sessions

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

An academic session may be any of the following –

i. *Subject seminar and / or symposium*- at least 2 such sessions are recommended every month. The presenter is either one (*Seminar*) or a multidisciplinary team (*Symposium*). The seminars / symposia are aimed to cover the majority of topics in the syllabus. Each candidate shall present at least 6 seminars/symposia in one academic year and attend at least 12 others.

ii. *Journal review* -: Recommended at least once a fortnight. Relevant articles from recommended journals are reviewed. Each candidate shall present at least 6 journal reviews in one academic year and attend at least 12 others.

iii. *Clinical case presentation* – Representative clinical cases shall be presented and discussed in detail in these sessions. Two such sessions are recommended every month and should include a mix of short and long cases. Each candidate shall present at least 6 clinical cases in one academic year and attend at least 12 others.

iv. *Inter departmental meetings* –Inter departmental meetings shall facilitate clinical/ group discussion / symposia etc (e.g., paediatric pathology, radiology meeting.) Two such monthly meets are recommended. Each candidate shall present at least 6 such meets in one academic year and attend at least 12 others. eg.

Paediatric pathology meet –This is conducted in association with the consultant pathologist(s). The subject may include histopathology review, clinicopathological conferences, autopsy discussion etc.,

Paediatric radiology meeting –Organized along with consultant Radiologist(s), it enables a discussion of common and uncommon radiological investigations in general or certain clinical cases in particular.

v. *Operative procedures* – This session, recommended once a month, aims at discussing common operative procedures and practical details. Each candidate shall present at least 3 such meets in one academic year and attend at least 6 others.

vi. *Treatment planning* – Recommended once monthly, this session will focus on management strategies of specific clinical cases, particularly where a multi specialty approach is planned. Each candidate shall present at least 3 such meets in one academic year and attend at least 6 others.

vii. *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 3 teaching rounds per week are recommended involving detailed discussion on admitted clinical cases. Besides theoretical aspects, emphasis must be laid on bedside assessment and practical management issues.

2. External Postings

The M.Ch. (Paediatric Surgery) trainee will be posted in the following allied specialties. The total duration of these postings shall not exceed 4 months or 16 weeks.

a. *Paediatric Intensive Care Unit*: Duration- 4-6 weeks. This is intended to familiarize the candidate to the principles of Paediatric medical intensive care and its applications to Paediatric surgical care.

b. *Neonatology Intensive Care Unit*: Duration- 4-6 weeks. 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. hypoglycemia, hyperbilirubinemia) and advanced life support systems (e.g., ventilatory care) will be included.

c. *Paediatric Oncology*: Duration-4 weeks. The candidates will be posted in a Paediatric oncology unit to familiarize them with the management of common solid tumors of childhood.

d. *Optional* - other postings may be scheduled as deemed necessary for fulfillment of curricular demands e.g.: posting to other M.Ch training centers (at least for two weeks)**,** Plastic surgery, Neuro surgery, Vascular surgery, Obstetrics, Experimental/Animal lab etc.

3. Conference, 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 national level and two state level meets and present a paper in each of them.

4. Research activity

The candidate must be familiar with basic research methodology including statistical methods and undertake at least one research project under the guidance of a postgraduate 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.

5. Publications

The M.Ch. trainee will be required to prepare material for publication under the guidance of a postgraduate teacher. He / She must have submitted for publication at least 1 original article and 2 brief /case reports during the course.

6. Teaching

The candidate will assist and be involved in the teaching of under graduate medical/ nursing students and PG students in MS (Gen. Surg.) and MD (Paed). He/she will learn selection and application of various teaching methods and media.

Structure of the Training Course

I Year

Academic	Training	Procedure / operative skills
• Seminars • Journal Review • Departmental presentation (in house) • Project work	• Case Notes • Presentation on rounds • Summary • Communication skills • Computer skills; computer assisted learning • NALS/PALS course	• Resuscitation • Bedside procedures • Minor OT procedure (eg. Herniotomy, orchidopexy) • Major OT procedures (eg., neonatal colostomy, laparotmy for intestinal obstruction.)

II Year

Academic	Training	Procedure / operative skills
• Seminars • Operative procedure • Inter departmental presentation • Publication Conference / workshop/ CME	• External postings • Research activity • Pedagogy course. (Teacher's training)	• Simple endoscopic procedures (e.g. cystoscopy, bronchoscopy for foreign body) • Major OT procedures (e.g. pyelolithotomy, laparotomy for trauma.

III Year

Academic	Training	Procedure / operative skills
• Treatment planning • Operative procedures. • Symposium • Publication	• Planning a department (Equipment, administration etc.)	• Endoscopic procedure (e.g. laparoscopy) • Major OT procedure (e.g. neonatal bowel anastomosis, pyeloplasty) • Neonatal surgery.

Study Topics

GENERAL PAEDIATRIC SURGERY INCLUDING BASIC SCIENCES

- Medical Genetics.
- Antenatal diagnosis and fetal therapy
- Developmental and transitional physiology of the respiratory, cardiovascular and renal systems
- Neonatal physiology and assessment of the surgical neonate.

- Neonatal sepsis
- Nutrition – enteral, parenteral
- Vascular access
- Paediatric analgesia and anaesthesia.
- Biomedical ethics and legal issues in Paediatric surgical practice.
- Organisation of a Paediatric surgical unit
- HIV/AIDS in children

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

PAEDIATRIC ONCOLOGY
- General principles
- Wilm's tumor, Neuroblastoma, Liver tumours, Rhabdomyosarcoma, Teratomas and Germ cell tumours and Gonadal tumours – (details)
- Other tumour of childhood (outline)- Lymphomas, Bone tumours, Brain tumours, Retinoblasum.

TRANSPLANTATION
- General principles
- Kidney and liver transplantation (details)

HEAD AND NECK
- Craniofacial anomalies including congenital malformations of external ear.
- Cleft lip and palate
- Disorders of the upper airway and oral cavity.
- Salivary glands
- Disorders of lymph nodes.
- Thyroid and parathyroid gland
- Cysts and sinuses of the neck
- Torticollis

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

ABDOMEN

- Umbilical disorders and abdominal wall defects.
- Inguinal hernias and hydroceles
- Testicular maldescent, torsion
- Hypertrophic pyloric stenosis.
- Duodenal atresia, annular pancreas.
- Jejunoileal atresia and stenosis
- Meconeum ileus
- Meckel's diverticulum
- Intussusception.
- Disorder of midgut rotation.
- Short bowel syndrome
- Gastrointestinal endoscopy and laparoscopy.
- Gastrointestinal bleeding
- Gastrointestinal duplications.
- Mesenteric and omental cysts
- Ascitis
- Polypoid disease of the GIT
- Necrotising enterocolitis.
- Intestinal stomas
- Primary peritonitis.
- Inflammatory bowel disease in children.
- Colonic atresia and functional obstruction.
- Appendicitis
- Hirschsprung's disease, neuromuscular disorders of intestines
- Anorectal malformations.
- Colonic and rectal tumours
- Neonatal/Infantile obstructive cholagiopathy
- Congenital biliary dilatation.
- Infective and inflammatory hepatobiliary disorders.
- Benign liver tumours
- Portal hypertension.
- Disorders of the pancreas
- Splenectomy and post splenectomy sepsis.
- Adrenal gland.

GENITOURINARY AND RELATED DISORDERS.

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

SPECIAL PAEDIATRIC SURGERY

- Spina bifida
- Hydrocephalus
- Congenital heart disease
- Congenital orthopaedic deformities
- Amputation, bone and joint infections
- Conjoined twins
- Hemangiomas & vascular malformations.

Operative Procedures

The candidate should receive graded exposure in the performance of the following operative procedures. They are to be recorded as O-Observed, A-Assists senior, PA-Performs with assistance from a senior or under supervision, P-Performed independently during the course. The following is the suggested minimum number of procedures in each category over three years. The actual numbers performed may vary according to the patient load of the training unit and related departments

	O	**A**	**PA**	**P**
nt	3	3	5	15
	3	3	5	15
	1	1	1	0
auma	2	4	2	0
rauma	1	2	2	0
or biopsy	3	5	5	3
y	2	2	2	1
y	2	3	5	10
	5	10	3	1
CK				
	2	1	0	0
lateral	3	3	1	0
ateral	3	3	1	0
vision	2	2	0	0
	3	2	0	0
fistula repair	2	2	0	0
haryngoplasty	2	1	0	0
ision	3	2	0	0
fice dilatation	1	2	2	1
Ranula	1	2	2	2
	2	2	5	15
re	2	2	2	0
	1	1	0	0
ial remnants	1	2	2	1
id cysts.	1	1	2	2
ease	1	1	2	1

s	1	1	0	0
	1	1	0	0
xcavatum	1	1	0	0
Carinatum	1	1	0	0
aphragmatic hernia	3	3	2	1
ni hernia	1	1	0	0
rnia	1	1	0	0
on diaphragm	2	3	2	1
excisions.	2	2	1	0
	2	3	2	2
	10	10	5	3
c	10	10	5	3
	3	2	1	0
c	3	2	1	0
	3	5	5	15
	3	5	2	1
on.	3	2	1	0
	3	3	1	0
c	3	3	1	0
	5	2	0	0
	3	5	1	0
tion	2	2	0	0
ion	3	5	2	0
TEF	2	2	0	0
ion.	3	5	3	1
ement	2	2	0	0
	2	2	0	0
	1	1	0	0
	3	2	1	1
intestinal duct remnants	3	3	1	0
efect,				
	Primary repair			
	- Exomphalos	2	2	0	0
	- Gastroschisis	2	2	0	0
efects				
	1	1	0	0
d hydrocele	5	10	10	5
	2	3	2	1
staged	3	10	5	2

Staged – Open		3	3	1	0
assisted	2	2	1	0
stes	2	2	2	1
	1	1	1	0
cele	2	2	0	0
	3	5	3	1
tomy	2	2	0	0
wel atresia – REEA	2	5	1	0
ium ileus.	2	2	1	0
lectomy	2	3	2	1
uction of intussusception.	2	3	3	1
ssusception.	2	5	3	1
	2	4	2	0
ital bands	2	2	1	1
gnostic	10	5	3	1
rapeutic.	5	4	1	0
	3	2	0	0
y	5	3	3	5
mation	2	3	1	1
sure	1	2	1	0
ostomy / colostomy) mation.	3	10	5	2
sure	3	10	5	2
ny	1	2	1	0
	1	1	0	0
cision	2	3	1	0
ation cyst	2	2	0	0
C	3	8	2	0
	3	4	5	5
ess – drainage.	2	2	3	3
irschsprung's disease mel e lson's	3	10	1	1
	3	5	4	4
ny	1	2	0	0
RM (RVF, RUF)	3	12	3	1
for ARM	1	1	0	0
	2	2	2	1
	1	2	0	0
	2	5	3	0
am	3	5	2	0
	3	5	1	0
ledochal cyst	2	3	1	0

	1	2	1	0
g (burst abdomen)	2	3	2	1
utaneous)	2	3	2	1
nage	2	2	2	0
hydatid	2	3	1	0
	1	1	0	0
al hypertension				
-Devascularization	1	1	0	
-Splenectomy	3			
-Portosystemic shunts.	2	3	1	
reatic pseudocysts.	2	3	0	0
n	1	1	0	0
anastomosis.	1	2	0	0
RY SURGERY				
urs	2	3	0	0
ers	2	3	1	0
y	1	1	0	0
ration of PUV.	3	5	1	0
	3	5	2	1
raphy	1	2	0	0
aneous	2	2	1	0
	1	2	1	0
	2	3	1	1
ny	2	3	2	0
n	2	2	0	0
tomy	2	3	3	2
ation	2	3	3	1
re	2	3	2	1
ormation op	2	2	1	0
	1	2	0	0
sure	2	2	0	0
urn in)	2	2	0	0
tion	2	3	0	0
dure	2	3	0	0
ation	3	5	1	1
r	2	2	0	0
omy	2	2	0	0
	1	2	0	0
	2	2	0	0
r- e stage	3	10	2	1
d	2	3	1	1

plasty	2	3	3	1
pair	2	3	1	0
n / dilatation	3	3	3	5
ulus disease phrolithotomy	1	1	1	0
lotithotomy	2	3	2	1
terolithotomy	2	2	1	0
stolithotomy	3	3	3	1
	2	3	5	10
	2	2	2	2
sex disorder of penoscrotal transposition	2	1	0	0
nitoscopy	2	3	1	0
nadal biopsy	2	2	0	0
nadectomy	2	2	1	0
ticular prosthesis placement	1	1	0	0
nital reconstruction	2	3	0	0
RY				
ocele	2	2	1	1
ida	3	5	3	1
inal dysraphism	2	3	0	0
l shunts.	3	4	3	1
	2	3	2	1
r drainage	2	2	1	0

MISCELLANEOUS				
• Skin grafting - Partial thickness	3	5	5	5
- Full thickness	2	2	1	0
• Flap cover	2	4	1	0
• Excision of vascular anomalies				
- Venous	2	2	1	0
- Lymphatic	3	4	1	0
• Fasciotomy	3	3	3	1
• Contracture release	2	2	0	0
• Vascular anastomosis	2	3	0	0
• Arterial line placement	2	2	2	0
• Central venous line insertion- - Percutaneous	3	5	5	2
- Open	2	2	3	5
• Muscle biopsy	2	2	2	5
• Nerve biopsy	1	1	1	2
• Umbilical vein cannulation	2	2	2	5
• PD catheter insertion	2	3	2	1
• HD catheter insertion	2	3	2	1
• Accessory digit excision	1	2	3	3

Evaluation:

Evaluation should be Formative and Summative
Formative evaluation (periodic, multiple) is an internal assessment by the teaching faculty of the department.
Summative evaluation (terminal, single) is a combined assessment by the internal and external examiners designated by the RGUHS at the end of the course.

I. Formative evaluation:

Formative evaluation is concurrent and periodic and evaluates academic sessions and operative procedures / skills. It is frequent, covers small content areas and provides immediate feedback to the teacher and the taught. The criteria of assessment and scoring is prescribed by the RGUHS (see Chapter IV for Check lists) and appended in the logbook.

Formative evaluation includes assessment of all of the following

a. Personal traits - A broad assessment would include comment on general attitude, interest in work, initiative, responsibility and reliability, organizational ability, communication skills, professional attitude, team work.
b. Academic: Participation in academic programmes.
c. Operative procedure / skills
d. Teaching skills
e. Log Book

A logbook is a comprehensive record of all academic events during the 3 years course.

It details –

(i) Academic session (s) (Seminar /Symposium, Journal review etc) attended and presented by the candidate.
(ii) Operative procedure / skills – minor and major.
(iii) Assessment of (a) and (b) in chronological order. The logbook is reviewed six monthly by the departmental faculty to supplement deficits if any in the succeeding six months. It shall be reviewed by the university designates similarly.

Annual examination- A formal periodic evaluation on the lines of a summative evaluation may be conducted by the training unit at the end of each academic year to assess the candidate. The third annual test may be held 3 months before the final examination. The candidate's performances at such internal evaluations shall be utilized to rectify any shortcomings in the training in the succeeding year.

The log book and the results of periodic/formative evaluations shall be made available to the university when desired / presented to the external examiners at the time of summative evaluation

II. Summative evaluation.

The purpose of summative evaluation is to decide whether the candidate is suitable for 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 formative/periodic evaluation by the departmental staff and minimum attendance (80%) as per MCI rules.

The general design of the examination is within the framework prescribed by the Medical Council of India in " Postgraduate Medical Education - Regulations, 2000, Part III, Section 4 of Gazette of India, Pg. 13."

The M.Ch. Paediatric Surgery examination shall consist of the following divisions with total marks of 700.

i. Theory (400 marks)
ii. Clinical examination (200 marks)
iii. Viva Voce (100 marks)

Scheme of Examination

i. Theory: 400 Marks

There shall be four question papers, each of three hours duration. Each paper shall consist of two long essay questions each question carrying 20 marks and 6 short essay questions each carrying 10 marks. Total marks for each paper will be 100. Questions on recent advances may be asked in any or all the papers. Details of distribution of topics for each paper will be as follows:

Paper I - General Paediatric Surgery including Basic Sciences, Neonatalogy and Paediatric as applied to Paediatric surgery.

Paper II - Trauma, Head and Neck, Thorax, Paediatric Oncology

Paper III - Abdomen, Genitourinary Surgery.

Paper IV - Organ Transplantation, Special Paediatric Surgery.

A knowledge of recent advances and neonatal surgery may be examined in any / all the papers. The above distribution is only broad and suggestive and not strict / exhaustive. The question paper is designed to test factual knowledge, ability to condense information and elicit specific information.

ii. Clinical Examination: 200 Marks

The clinical examination is designed to test clinical skills and practical ability, reasoning, confidence, communication skills, procedural skills and depth of knowledge
The clinical examination shall be divided into 2 parts and shall carry 200 marks in total.

a. Case examination (175 marks)
b. Operative procedure (25 marks)

a. *Case examination (175 marks):* This will include a complete evaluation of clinical case presentation and discussion ((history taking, physical examination, investigations, management etc). The examinee will face any / all of the examiners for one / all of the cases.
   There will be : a) One long case (1X 60 marks)
   b) Three short cases (3 X 30 =90 marks)
   c) Ward rounds (25 marks)

The assessment of the long case shall be structured to cover relevant aspects of clinical examination with proportionate allocation of marks to each criteria of assessment (eg. 10 marks for history taking, 10 marks for systemic physical examination, etc)

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 (25 marks)

The candidate is required to perform a minor / day care operative procedure with assistance and supervision. The examiner shall observe/ question the candidate on the concerned operative procedure. This will include the candidate's interview with the parent before and after the procedure giving more emphasis to the approach of the candidate to the setup of the operation and counseling rather than the actual surgical procedure itself. General technique, however, to be assessed. Failure to satisfactorily conduct the operation will not be grounds for failing the candidate.

iii. Viva Voce : 100 Marks

Viva Voce examination shall aim at assessing depth of knowledge, logical reasoning, confidence and oral communication skills. It may include x-rays, pathological specimens, surgical instruments, slide transparencies etc. and incorporate an objective assessment such as spotters. A special effort will be made to assess the candidate's awareness of the "frontiers" in medicine and specific knowledge of the government's (national programs) and private sector initiatives in the health care industry.

Recommended Books and Journals

Essential

- *Paediatric Surgery (Fifth edition, 1998).*
  Editors- O'Neill JA, Rowe MI, Grosfeld JL, Fonkalsrud EW, Corn AG.
  Publisher- Mosby.
- *Clinical Paediatric Urology (Third edition, 1992).*
  Editors- Kelalis PP, King LR, Belman AB.
  Publisher- W.B. Saunders Co.
- *Manual of Neonatal care (Fourth edition, 1998)*
  Cloherty JP, Stark AR.
  Publisher-Lippincott Raven
- *Paediatric Oncology (Fourth edition, 2002).*
  Editors- Pizzo PA, Poplack DG.
  Publisher-Lippincott, Williams and Wilkins.
- *Nelson Textbook of Paediatric (Sixteenth edition, 2000).*
  Editors-Behrman RE, Kliegman RM, Jenson HB.
  Publisher- W.B. Saunders Co.
- *Rob and Smith's Operative surgery -Paediatric Surgery (Fifth edition, 1995).*
  Editors-Spitz L, Coran AG.
  Publisher-Chapman and Hall Medical
- *An introduction to biostatistics – a manual for students in health care (Second Edition, 1983)*
  Editors- Sunder Rao PSS, Jesudian G, Richard J
  Publisher – Department of Biostatistics, CMC, Vellore.

Optional

- *Embryology for surgeons*
  Editors-Gray SW, Skandalakis JE.
  W.B.Saunders and Co.
- *Abdominal surgery of infancy and childhood (First edition, 1996).*
  Editors-Donnellan WL, Burrington JD, Kimura K, Schafer JC, White JJ.
  Publisher- Harwood academic publishers.
- *Adult and Paediatric urology (Fourth edition, 2002).*
  Editors-Gillenwater JY, Grayhack HT, Howard SS, Mitchell ME.
  Publisher- Lippincott, Williams and Wilkins.
- *Newborn surgery (First edition, 1996).*
  Editor-Prem Puri.
  Publisher-Butterworths, Heinemann.
- *Surgery of the Newborn (First edition, 1994)*
  Editor-Freeman NV, Burge DM, Griffiths DM, Malone PSJ.
  Publisher- Churchill Livingstone.
- *Surgery of liver, bile ducts and pancreas disease in children (Second edition, 2002)*
  Editors-Howard ER, Stringer MD, Columbani PM.
  Publisher- Arnold.
- *Caffey's Paediatric X-ray diagnosis (Ninth edition, 1993)*
  Editors-Silvermann FN, Kuhn JP.
  Publisher- Mosby.
- *Paediatric pathology (Second edition, 2001)*
  Editors-Stocker JT, Dehner LP.
  Publisher- Lippincott, Williams and Wilkin
- *Epidemiology, biostatistics and preventive medicine. (Second Edition, 2001)*
  Editor – Jekel JF, Katz DL, Elmore JG,
  Publisher – WB Saunders Co.,

Journals

Essential

- Indian Journal of Paediatric Surgery
- Journal of Paediatric Surgery
- Paediatric Surgery International
- European Journal of Paediatric Surgery
- Seminars in Paediatric Surgery
- British Journal of Urology International
- Journal of Urology
- Indian Paediatric
- Indian Journal of Paediatric

Optional

- The Journal of Paediatric
- Paediatric
- Paediatric Clinics of North America

Chapter IV

Monitoring Learning Progress

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only also helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Chapter IV.

The learning out comes to be assessed should included: (i) Personal Attitudes, (ii) Acquisition of Knowledge, (iii) Clinical and operative skills, and (iv) Teaching skills.

i) *Personal Attitudes.* The essential items are:

- Caring attitudes
- Initiative
- Organisational ability
- Potential to cope with stressful situations and undertake responsibility
- Trust worthiness and reliability
- To understand and communicate intelligibly with patients and others
- To behave in a manner which establishes professional relationships with patients and colleagues
- Ability to work in team
- A critical enquiring approach to the acquisition of knowledge

The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

ii) *Acquisition of Knowledge* : The methods used comprise of `Log Book' which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so, desired.

Journal Review Meeting (Journal Club): The ability to do literature search, in depth study, presentation skills, and use of audio- visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see Model Checklist – I, Chapter IV)

Seminars / Symposia: The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio-visual aids are to be assessed using a checklist (see Model Checklist-II, Chapter IV)

Clinico-pathological conferences : This should be a multidisciplinary case study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a checklist similar to that used for seminar.

Medical Audit: Periodic morbidity and mortality meeting be held. Attendance and participation in these must be insisted upon. This may not be included in assessment.

iii) Clinical skills

Day to Day work : Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills (see Model Checklist III, Chapter IV).

Clinical meetings : Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list (see Model checklist IV, Chapter IV).

Clinical and Procedural skills : The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book. (Table No.3, Chapter IV)

iv) Teaching skills : Candidates should be encouraged to teach undergraduate medical students and paramedical students, if any. This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students (See Model checklist V, Chapter IV)

vi) ***Periodic tests****:* The departments may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. The tests may include written papers, practicals / clinicals and viva voce.

vii) Work diary / Log Book- Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.

viii) ***Records:*** Records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or MCI.

Log book

The log book is a record of the important activities of the candidates during his training, Internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures carried out by the candidate.

Format for the logbook for the different activities is given in Tables 1,2 and 3 of Chapter IV. Copies may be made and used by the institutions.

Procedure for defaulters: Every department should have a committee to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set himself or herself right.

CHAPTER IV (Contd.)

Format of Model Check Lists

Check List -1. MODEL CHECK-LIST FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS

Name of the Student: Name of the Faculty/Observer: Date:

Sl. No.	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Article chosen was					
2.	Extent of understanding of scope & objectives of the paper by the candidate					
3.	Whether cross references have been consulted					

4.	Whether other relevant publications consulted					

5.	Ability to respond to questions on the paper / subject					
6.	Audio-Visual aids used					
7.	Ability to defend the paper					
8.	Clarity of presentation					
9.	Any other observation					
	Total Score					

Check List - 2. MODEL CHECK-LIST FOR EVALUATION OF SEMINAR PRESENTATIONS

Name of the Student: Name of the Faculty/Observer: Date:

Sl. No.	**Items for observation during presentation**	**Poor 0**	**Below Average 1**	**Average 2**	**Good 3**	**Very Good 4**

1.	Whether other relevant publications consulted					

2.	Whether cross references have been consulted					
3.	Completeness of Preparation					
4.	Clarity of Presentation					

5.	Understanding of subject					23

6.	Ability to answer questions					
7.	Time scheduling					
8.	Appropriate use of Audio-Visual aids					
9.	Overall Performance					
10.	Any other observation					
	Total Score					

Check List - 3

MODEL CHECK LIST FOR EVALUATION OF CLINICAL WORK IN WARD / OPD

(To be completed once a month by respective Unit Heads including posting in other departments)

Name of the Student: Name of the Unit Head: Date:

Sl. No.	**Points to be considered:**	**Poor 0**	**Below Average 1**	**Average 2**	**Good 3**	**Very Good 4**
1.	Regularity of attendance					
2.	Punctuality					
3.	Interaction with colleagues and supportive staff					
4.	Maintenance of case records					

5.	Presentation of cases during rounds					

6.	Investigations work up					
7.	Beside manners					
8.	Rapport with patients					
9.	Counseling patient's relatives for blood donation or PM					
10.	Over all quality of Ward work					
	Total Score					

Check List – 4 EVALUATION FORM FOR CLINICAL PRESENTATION

Name of the Student: Name of the Faculty: Date:

Sl. No.	Points to be considered	Poor 0	Below Average 1	Average 2	Above Average 3	Very Good 4
1.	Completeness of history					
2.	Whether all relevant points elicited					
3.	Clarity of Presentation					
4.	Logical order					
5.	Mentioned all positive and negative points of importance					
6.	Accuracy of general physical examination					
7.	Whether all physical signs elicited correctly					
8.	Whether any major signs missed or misinterpreted					
9.	Diagnosis: Whether it follows follows logically from history and findings					
10	Investigations required ▪ Complete list					
	▪ Relevant order					
	▪ Interpretation of investigations					
11.	Ability to react to questioning Whether it follows logically from history and findings					
12.	Ability to defend diagnosis					
13.	Ability to justify differential diagnosis					
14.	Others					
	Grand Total					

Check List - 5

MODEL CHECK LIST FOR EVALUATION OF TEACHING SKILL PRACTICE

Sl. No.		Strong Point	Weak Point
1.	Communication of the purpose of the talk		
2.	Evokes audience interest in the subject		
3.	The introduction		
4.	The sequence of ideas		
5.	The use of practical examples and/or illustrations		
6.	Speaking style (enjoyable, monotonous, etc., specify)		
7.	Attempts audience participation		
8.	Summary of the main points at the end		
9.	Asks questions		
10.	Answers questions asked by the audience		
11.	Rapport of speaker with his audience		
12.	Effectiveness of the talk		
13.	Uses AV aids appropriately		

LOG BOOK

Table 1 : Academic activities attended

Name: Admission Year:

College:

Date	Type of Activity Specify Seminar, Journal Club, Presentation, UG teaching	Particulars

LOG BOOK

Table 2 : Academic presentations made by the student

Name: Admission Year:

College:

Date	Topic	Type of Presentation Specify Seminar, Journal Club, Presentation, UG teaching etc.

LOG BOOK

Table 3 : Diagnostic and Operative procedures performed

Name: Admission Year:

College:

Date	**Name**	**ID No.**	**Procedure**	**Category O, A, PA, PI***

*** Key:**
O - Washed up and observed
A - Assisted a more senior Surgeon
PA - Performed procedure under the direct supervision of a senior surgeon
PI - performed independently

Model Overall Assessment Sheet

Name of the College:
Academic Year:

Check List No	Particulars	Name of Student and Mean Score				
		A	B	C	D	E
1	Journal Review Presentations					
II	Seminars					
III	Clinical work in wards					
IV	Clinical presentation					
V	Teaching skill practice					
Total Score						

Note: Use separate sheet for each year.

ANNEXURE-1

Sr. No	Faculty Name	Publication in Vancouver referencing style.	Pubmed Indexed Yes/No	Scopes
1	Dr. Girish ML	1. Gastric teratoma with thoracic extension in a 2-year-old boy O. S. Siddappa, M. L. Girish, and R. Shanthaveerappa. **Pediatr Surg Int (1991) 6:390** 2.Girish ML, Keshav MM, Raghunath BV, Sunil B. Gall bladder duplication associated with Duodenal atresia. **Journal of Neonatal Surgery 2013; 2(4): 46.** 3. Pediatric surgical specialty in India: Sunset or in an eclipse? Current status: 2014-15.B V Raghunath, M Keshav Murthy, M L Girish. Indian J Child Health **. Vol 3 | Issue 1 | Jan - Mar 2016** 4.Rectovestibular fistula: Is treatment always required B V Raghunath[1], M L Girish[1], Rajashekhar Jade[2]. **Indian J Child Health. Vol 3 | Issue 3 | Jul - Sep 2016** **5.** Neonatal meconium ileus: a rare presentation Sneha Hemachandran*, Chaithanya J., Anjala Kumar, Keshav Murthy, Girish M. L. **Int Surg J. 2019 Dec;6(12):4539-4542**	Yes	
	Dr. Keshava Murthy	1.Patent Urachus in a Neonate presenting with Severe Umbilical Bleeding: A Case Report. M. Keshava Murthy, Naveen S., Hanumanthaiah, Adarsh E., Sunil B.		

		Departments of Pediatric and Pediatric Surgery, RRMCH, Bangalore, Karnataka, India Case Report — Pyknodysostosis S.C. Sanjay1, Keshava Murthy2, Anil KumarShukla3, N. Krishnappa4 2. **CURRENT TRENDS IN PAEDIATRIC INTUSUSCEPTIONS** Keshava Murthy M1, Basawaraj N. G2, Tulsi T3,Vivekananda Kustagi4, Hari Prasad T. R5 **Fetus in Fetu: A Case Report and Review of literature.** ***M. Keshava murthy, Hanumanthaiah, Adarsh. E, Sahana*** *Department of Pediatrics and Pediatric Surgery, RRMCH, Bangalore,Karnataka, India* 3. **Gallbladder Duplication Associated with Duodenal Atresia** **Girish ML, Keshav MM, Raghunath BV*, Sunil B1** Departments of Pediatric Surgery and Pediatrics1, Rajarajeswari Medical College and Hospital, Bangalore 4. Hypospadias Repairs and Their Outcome in a Medical College Hospital in Rural India – A Prospective Study **Dr. Sunil Kumar .V1, Dr. Keshav Murthy2, Dr. Nanditha .G3, Dr. Prathik .R4** 1Associate Professor & consultant Endoscopist, Department of Surgery, PESIMSR, Kuppam, A.P., India 2Consultant Paediatric Surgeon, Department of Pediatric Surgery, PESIMSR, Kuppam, A.P., India 3Assistant Professor, Department of Pediatrics, PESIMSR, Kuppam, A.P., India 4Postgraduate, Department of Surgery, PESIMSR, Kuppam, A.P., India 5.**HYPOSPADIAS: RE-VISITED** *Raghunath B. V1, Keshav Murthy M2* **Journal of Evolution of Research in Pediatrics and Neonatology / Vol. 1/ Issue 1/ July-December, 2015** 6. **Pediatric surgical specialty in India: Sunset or in an eclipse? Current status: 2014-15** **B V Raghunath, M Keshav Murthy, M L Girish** Indian J Child Health **. Vol 3 | Issue 1 | Jan - Mar 2016**		

	Dr. Anjala Kumar	**1. Imperforate Hymen: Varied Presentation, New Associations, and Management** *Raghu Sampally Ramareddy, Anjala Kumar, Anand Alladi*. **Journal of Indian Association of Pediatric Surgeons / Volume 22 / Issue 4 / October-December 2017** 2. **Neonatal meconium ileus: a rare presentation** **Sneha Hemachandran*, Chaithanya J., Anjala Kumar, Keshav Murthy, Girish M. L.** 2019 Dec;6(12):4539-4542	Yes	Yes