



**PRAVARA INSTITUTE OF MEDICAL SCIENCES
(DEEMED TO BE UNIVERSITY)**
Loni, Tal. Rahata, Dist. Ahmednagar 413736
NAAC Re-accredited with 'A' Grade

SYLLABUS

Fellowship Programme – Paediatric Anaesthesia (Department of Anaesthesiology) (Academic Council Meeting Dated 20th March , 2019)

Proposal

Proposal to start one year fellowship in paediatric anaesthesia for post M.D. DNB Anaesthesia, DA with one year experience of anaesthesia work, candidates form RMC, PIMS (DU) Loni as well as from outside college candidates.

Introduction

Delivering anaesthesia for paediatric & neonate requires special amount of skill & knowledge with respect to anatomy, physiology, pharmacology, embryology, surgical procedure, fluid & electrolyte balance because children can not be considered as small adults.

In the course of postgraduate (M.D. DNB) training in anaesthesia there is rotation for paediatric surgery but the exposure to wide variety of cases in paediatrics age group & neonates may not be adequate enough to have confidence to provide anaesthesia in this group independently. This lacunae can be filled by the one year fellowship in paediatric anaesthesia. Different institutes are having such fellowship programmes.

In our Institutes we are having super specialist in paediatric surgery Dr. Gharpure (MCH, paediatric surgery AIMS Delhi) He is operating wide variety of neonatal & paediatric patients excellently and successfully. We are having Dr. Bhavika Singla who has done fellowship in paediatric anaesthesia from Bombay & she is taking keen interest in these cases. Anesthesiologists from our institute are exposed to such patients for providing anaesthesia & contribute for the success of these cases. Neonatal & paediatric ICUs are well developed & well equipped for taking good amount of post operative care of such patient which is also very important factor in contributing towards the success in these cases.

PIMS (DU), Fellowship Programme (Anaesthesiology)-Syllabus, implemented from Academic Year 2019-2020

Notification No. 47/2019

Academic Council Meeting dated 20.03.2019

In general surgery we are anaesthetising 35 to 40 paediatric patients per month. Apart from this we are facing orthopedic, ENT, Ophthalmology, burns & plastics, neurology surgeries in paediatric & neonatal patients. Outside OT we have to deal paediatric patients in CT & MRI setup.

No of operations done in surgical branches -

General Surgery	50-60 Pts/mth, Emergency - 15-20 Pts/mth
ENT	15-20 Pts/mth
Orthopedic	20-25 Pts/mth
Ophthalmology	10-15 Pts/mth
Burns/plastic	15-20 Pts/mth
Neurology	8-10 Pts/mth
MRI CT Scan	15-20 Pts/mth

Type of operations done:

General Surgery -

Tracheo -oesophageal fistula
Diaphragmatic Hernia
Imperforate anus
Anorectal malformations
Hirschsprung's Disease
Branchial Cyst
Intestinal obstruction
Intestinal perforation
Posterior urethral valves
Pelviureteric stenosis for Anderson Hynes operation
Tumours of kidney
Nephrectomy
Decortication of lung
Hypospadias correction
Circumcision
Congenital Hernia
Hydrocele
Undescended testes

Bladder Stone

Congenital Hypertrophic pyloric stenosis

Burns & Plastic

Cleft Lip & Cleft Palate

Contracture release

Burns Dressing

Skin Grafting

ENT

Foreign body in bronchus

Foreign body in oesophagus

Tonsillectomies

Adenoidectomy

Mastoid surgeries

Tympanoplasty

Tongue tie

Extraauricular appendages

Emergency tracheostomy

Orthopedic

CTEV correction

Hip Spika

Polydactyly

Syndactyly

R+U for nailing/plating

shaft femur for nailing & plating

Humerus fracture

External fixater application

Ophthalmology

Congenital cataract

Squint surgery

Corneal tear

Ptosis surgery

Probing for canalicular blocks

Chalasion

Eucleation

Evisceration

Foreign body in eye

Alkali Burns

Examination of Eye under GA

Occuloplastic surgery for the tumors of eyeball

Neurosurgery

Minigocoele

Minigomydocoele

Hydrocephalus for V. P. Shunts

Trauma-Head injury -Subdural haematoma

Extradural Haematoma

Considering the paediatric load for anaesthesia fellowship in paediatric anaesthesia can be welcomed under our esteemed institute PIMS Loni

Type of Anaesthesia

We have facility to provide general anaesthesia with modern anaesthesia workstations e.g. Draggars primus, Fabius plus which are having facilities to give IPPR with volume/pressure cycle mode of ventilation. All operation theater are modular one.

Volatile anaesthetic agents -Halothane, Isoflurane, Sevoflurane Delivered Through Tec Vaporisers.

Anti Cholinergic Drugs - Atropine, Glycopyrrolate

IV Anaesthetic Drugs - Ketamine, Propofol, Na Pentothal

Muscle Relaxants -Succinyl Choline, Atracurium, Vecuronium, Rocuronium

Analgesics-Paracetamol, Fentanyl, Diclofenac Sodium

Opioids & sedatives- Midazolam, Dexmedetomidine , Clonidine

Paediatric Spinal Anaesthesia - With 0.5% Bupivacaine With Adjuvants like Clonidine

Caudal Epidural-With Bupivacain 0.25%

Nerve Blocks - PNS or USG guided

Supraclavicular brachial plexus block

Interscalene block

Axillary block

Femoral nerve Block

Penile block

Peribulbar block for eye surgery

Intravenous regional anaesthesia

From this year input for the PG in anaesthesia has increased to 11 students per year & allotted also. These PG students are more likely to seek such fellowship from their parent institutes as they will be learning paediatric anaesthesia in more familiar atmospheres. As SR ship is compulsory now, the students can simultaneously do SR ship along with fellowship in paediatrics. Fellowship programme will also initiate newer development in the techniques & use of newer drugs & agents in the field of paediatric anaesthesia. With this additional qualification our students can also position themselves in large set up at metro cities & big cities to take our institutes name to higher level.

Curriculum

Curriculum will include following aspects with respects to premature infants, Neonates & paediatric population.

Anatomy

Physiology

Embryology

Pharmacology

Fluid & electrolyte management, Acid base balance

Pre operative check up & preparation of patients before operation

Premedication & understanding psychological impact of surgical stress & separation from parents, its long term effects, ways to reduce these impacts for the better outcome of surgery.

General anaesthesia & anaesthetic agents

Regional anaesthesia – Spinal, Caudal, epidural

Nerve blocks with PNS & USG guidance.

Special precaution to be taken while giving anaesthesia with respect to different types of surgery.

Monitoring under anaesthesia.

Invasive techniques for CVP, Arterial Line

Use of LMAs

Use of paediatric fiber optic scopes.

ICU care for premature, neonates & paediatric age group.

TPN-Fluid & electrolyte balance

Inotrope support with use of syringe pumps

BLS/ACLS

Ventilator setting & management

Pain management intra operatively & post operatively.

Course Structure

The total Duration of the course will be 12 months Distribution of posting will be as follows:

Operation theater

Paediatric OT	- 6 mth
Orthopedic OT	- 1 mth
Ophthalm OT	- 1 mth
ENT OT	- 1 mth
Burns, Plastic OT	- 1 mth
MRI, CT Scan	- 1 mth
Paediatric & Neonatal ICU	- 1 mth

During O.T. posting candidates will learn about

Importance of pre anaesthesia check up for planning anaesthesia IV cannulation for IV Fluids.

Type of pre medication

Type of anaesthesia

For general anaesthesia - anesthetic drugs & their doses, observation of their effect & learn about different ,volatile anaesthetic agents, learn the different aspects of surgeries in different branches.

Regional

a) Caudal anaesthesia – technique, diff drugs doses, observation of the caudal anaesthesia with respect to advantage & disadvantages

b) Spinal anaesthesia –technique diff drugs & doses, use of adjuncts study the effect of spinal anaesthesia.

c) Epidural anaesthesia – learn the technique of establishing epidural anaesthesia with specific no. Touhy needle & catheter, use of drugs with proper doses & adjuvants, Learning the advantages of techniques

d) Nerve blocks

Learning techniques of different blocks, under PNS & USG guidance knowing the doses of local anaesthetic drugs used, limitations of techniques. Need for supplementation of sedation for the successful utilization of nerve block.

These include supraclavicular brachial plexus block, Interscalene block, femoral block, peribulbar block, penile block, ankle block, wrist block,

There will be formal teaching, lecture, seminars, case presentations with respect to anaesthesia (paediatric) cases in general surgery, Orthopedics, Ophthalmology, ENT, Burns & Plastic, Neurosurgery CT & MRI cases.

Candidates will be given hands on for intubating premature, neonate & paediatric patients, establishing IV access in difficult cases, inserting central venous lines by different approaches establishing intra arterial catheter for invasive blood pressure monitoring , use of LMAS Candidates will have actually hands on in the management (Anaesthesia) of cases in general surgery, orthopedics, ophthalmology, ENT, Burns & plastics, Neuro surgery, CT MRI Cases & they will learn the specific precaution to be taken while anaesthetising the paediatric neonatal group in these different surgical & non surgical specialties.

Candidates should become member of Indian Association of Paediatric Anesthesiologist & expected to participate in one state/national/international conference & present paper, poster. Candidate will be expected to publish one paper during the year. Candidate should maintain log book for the entire course.

At the end of year there will be written exam consisting of two papers of 100 marks each & practical & viva examination of 100 marks.

After successful completion of the course the candidate will be awarded a certificate of completion & a certificate in Institution's annual convocation programme

Admission Criteria

- M.D., DNB in Anaesthesia, DA with one year experience of anaesthesia work from any recognized university in India or abroad.
- Overseas candidates will have to obtain MCI registration before joining.
- PIMS may conduct entrance examination if there more than 20 application otherwise candidates will be selected by interview.

Other Issue

- One lack per year course fees may be charged from candidates
- Post M.D./D.N.B. candidates DA with one year experience of anaesthesia work can be promoted to join fellowship programme during SR ship & pay for the course charges to university.
- Such candidates will get the payments of SR ship as per the rule of PIMS.
- Candidates will do emergency duties as per the departmental scheduled

SOP / Regulations for the fellowship programme in "Paediatric Anaesthesia"

1) Title of Programme, Programme objective , Year & date of Implementation

Title - Fellowship in "Paediatric Anaesthesia"

Objective -

- a) To train the postgraduate students in "Paediatric Anesthesia"
- b) To upgrade the Department of Anaesthesia by developing fellowship programmes.
- c) To highlight the prestige of PIMS through different fellowships.
- d) To initiate research work in paediatric anaesthesia.
- e) To avail the facility of such fellowship in rural area & giving the rural paediatric patients services as good as metro cities.
- f) To develop high standard in paediatric anaesthesia which will in turn attract the postgraduate

student from all over India & contribute towards the progress of the PIMS.

Year & Date of Implementation - May or Nov. of every year can be finalized after discussion.

2) Eligibility of the programme

- M.D., DNB in anaesthesia, DA with one year experience of anaesthesia work from any recognized university in India

- Postgraduate qualification in anaesthesia from any recognized universities from abroad,

provided candidate clears MCI examination & obtains MCI or state recognition

- If there are less than 10 applications candidates may be selected on the basis of interview only. If there are more than 10 applications a CET may be conducted. CET will include MCQS & justification essay.

3) Duration -

- One calendar year with two semesters

- 900 TL

- 40 Credits (20 Credits each semester)

4) Content / Syllabus of the programme

1) Anatomy of Neonate & paediatric age group

2) Physiology of Neonate & paediatric age group

3) Embryology

4) Pharmacology

5) Fluid & electrolyte management

6) Acid Base balance

7) Biochemistry in paediatrics

8) Preoperative check up & preparation of patient before operation.

9) Premedication & understanding psychological impact of separation from parent, stress of

surgery.

10) Type of Anesthesia whether general or combined with caudal/ epidural/ spinal. In general whether intubated or with LMA.

11) For General Anaesthesia induction agents, their doses, adverse reactions. Different volatile anaesthetic agents their advantage & disadvantage.

12) Regional Anesthesia-

Caudal anaesthesia - Different drugs used , technique of caudal anaesthesia, adjuvant which can be used, doses of adjuvants, complications of caudal anaesthesia

Spinal anaesthesia-technique, different drugs used intrathecally with proper doses , adjuvants which can be used, doses of adjuvant. Advantages of this techniques, disadvantage & complication of paed. spinal anaesthesia.

Epidural anaesthesia understanding the techniques of identifying epidural space with Touhy needle & passing epidural catheter, use of different drugs, adjuvants used, learning advantages disadvantages of the epidural anaesthesia. Awareness regarding complication & precautions to avoid it.

13)Nerve Block

Learning of technique of different nerve blocks under PNS & USG guidance knowing the doses of diff. Local anaesthesia drugs used. Limitation of techniques , prerequisites for conduction of nerve block, Need for supplementation of sedation for successfully utilization of nerve block.

These block include supraclavicular nerve block, interscalene block, femoral block, peribulbar block, penile block, ankle block, wrist block, finger block, IV regional anaesthesia.

14) Practical exposure for conducting cases in different surgeries like general surgery, ENT, ophthalmology, Burns, plastic, Neurosurgery, Orthopedics, CT, MRI & knowing the specific difference in giving anaesthesia in these different situations.

15)Learning central venous access in case of difficult Iv access.

Establishing intra-arterial catheter for invasive blood pressure monitoring.

16) Recent advances in paediatric anaesthesia

Text books on paediatric anaesthesia for reference

- 1) Smiths anaesthesia for infants & children.
- 2) Gregorys paediatric anaesthesia

- 3) Cote & Lerman's –practice of anaesthesia for infants & children.
- 4) Manual of paediatric anaesthesia-Lerman

Candidates will be expected to publish one research paper & attend one state/national / international conference & present paper or poster.

5) Curriculum Delivery /Transaction

- Candidates will be posted in different surgical faculties' e.g. General surgery, Neurology. Orthopaedics surgery, Ophthalmological surgery, ENT Surgery, Burns plastic surgery, MRI, CT Scan procedures. Candidate will learn giving anaesthesia & related problems under the faculties posted in these theaters. Candidates will rotate in these theaters.

- Each candidate will have one month rotation of paediatric ICU management.- Over the year candidates will have seminar, Case presentation, Journal club, and lecture in the afternoon session twice week. Detailed programme can be prepared for the year.

6) Programme outcome

After completing the fellowship programme the candidates will be confident in anesthetic management of neonatal, pre mature & paediatric patients for elective as well as emergency surgical cases from General surgery, Neurosurgery, ENT, Ophthalmology, Burns & plastic & outside of cases in the department radiology for CT & MRI.

Candidate will also be able to manage the post operative ICU neonatal, premature & paediatric patients as well as post operative pain management .

7) Examination & Evaluation Methods

Two examinations will be conducted at the end of each semester.

900 hr. OT TL Distribution -

200 hrs of OT training in General surgery/yr

100 hrs of OT training in Orthopedic surgery/yr

100 hrs of OT training in Ophthalmology surgery/yr

100 hrs of OT training in ENT/yr

100 hrs of OT training in Burns & plastic/yr

100 hrs of OT training MRI CT Scan/yr

100 hrs of OT training ICU/yr

100 hr for seminar, case presentation, journal club, One hr day, twice a week

In OT training in different specialties of paediatric surgery candidate will have hands on for induction of general anaesthesia, intubation, use of volatile anaesthetic agents, maintenance of anaesthesia, use of muscle relaxants, reversal of muscle relaxants, extubation & management of problems faced with preparation of drugs in paediatric concentration. Establishment of intravenous accesses

Hands on for regional techniques like caudal, epidural block, spinal anaesthesia, continuous epidural anaesthesia, nerve blocks under PNS or USG guidance.

Use of fiber optic intubation, Use of LMA. Candidates will be learning specific problems related to specialty paediatric surgeries like General surgery, Neurosurgery, Urosurgery, Orthopaedics, Ophthalmic, ENT, Burn & Plastic & MRI CT Scan Procedures.

In ICU training candidates learn about mechanical ventilation, water electrolyte balance, acid base balance & its management, intra arterial accesses, central venous line access & monitor different parameters in ICU, Insertion of chest drain, Insertion of peritoneal dialysis catheters.

First Examination at the end of first semester include

- a) Anatomy of neonate & paediatric age group.
- b) Physiology of neonate & paediatric age group.
- c) Embryology
- d) Pharmacology

- e) Fluid & electrolyte management
- f) Biochemistry in paediatrics
- g) Acid base balance

Second Examination at the end of second semester will include

- a) Preoperative checkup & preparation of patient before operation
- b) Premedication
- c) Type of anaesthesia –
General or combined with caudal spinal epidural, methods of intubation,
different type of endotracheal / LMA tubes
- d) For general anaesthesia –Iv induction agents, volatile anesthetic agents.
- e) Regional anaesthesia –caudal, spinal,epidural
- f) Nerve Blocks
- g) Specific problems related to different surgeries in General surgery ,Orthopedics
,ENT, Ophthalmology, Neuro surgery, Burns & plastics, CT MRI procedures.
- h) Central venous access, invasive blood pressure monitoring
- i) Recent advance in paediatric anaesthesia

Examination –

Each Examination will consist of two theory paper or 100 mark each.

Passing marks will be 50%

Papers will be evaluated by senior professor in anaesthesia

For practical –Oral –anatomy, physiology, embryology, Biochemistry, fluid & electrolyte management, acid base balance

Table viva for Drug's IV fluids Xray, ECG , ABG

Marks 100

Passing 50%

Examination II – at the end of 2nd semester.

Theory papers two – marks 100 Duration 3 Hrs.-

Portion

Pre operative check up & preparation of patients before operation

Premedication & understanding psychological impact of surgical stress & separation from parents, its long term effects, ways to reduce these impacts for the better outcome of surgery.

General anaesthesia & anaesthetic agents

Regional anaesthesia – Spinal, Caudal, epidural

Nerve blocks with PNS & USG guidance.

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Inotrope support with use of syringe pumps

BLS/ACLS

Ventilator setting & management

Pain management intra operatively & post operatively.

Practical- 100 marks-passing 50%

Consist of -case present-1 major & 1 Minor

Table viva-Instruments, Drugs, IV fluids, X-ray,EKG, ABG, Anaesthesia

Circuits

Paper will be evaluated by senior professor

8) Certification authority & design of certificate

- Certification authority will be Vice-chancellor, PIMS
- Certificate design will be according to PIMS design.

9) Place & venue of the academic work at the programme ,PIMS,RMC,Loni

10) Department offering the programme-Department of Anesthesia

11) Intake per batch-Two per year can be ---as per decision of higher authorities.

12) Academic Calendar – Admission in May every year examination in second half of april.

13) Time Table- to be submitted later

14) Maintenance of attendance-Via Biometric Attendance

15) Arrangement & conduction of programme-

- Class room session – In Seminar hall of Dept. of Anaesthesia.
- Practical session- In all operation theater & ICU (paeditric & neonatal)

16) Liasoning- HOD Anaestheisa or Senior Professor

17) Evalution- HOD & Senior Professor

18) Documentation-HD & Senior professor

19)Appointment of Director/Co ordinator. Resourse Person, Teacher Assistance – Dean RMC

20) Approximate Expenditure involved to run one batch per programme.

Administrative expenditure at 20000 is expected for paper work, processing of applications, advertisement & conducting interviews.

More expenditure may be incurred in getting external examination for practical examination

21) Fees proposed to be charged per course-1 lac/person/ yr.

22)Financial & administrative expectation from PIMS (Du)/PMT to run the programmes

PIMS-DU/PMT will be excepted to provide accommodation to the participants in postgraduate Hostel, Provide mess facilities & Library facility with books & journals on paediatric anaesthesia

Dedicated USG machine with high resolution for giving nerve block.

23) Infrastructure requirements-Classroom, operation theater with good no. of paediatric cases already available.

24) Yearly A-A-A0 Audile of the programme & financial audit process & format- according to the PIMS norms.

25) Annual metaevaluation & up gradation of the content & delivery of the programme.- according to PIMs norms

26) Central documents – According to PIMS Norms

27) Grievance redressal & appeals mechanism- According to PIMS Norms

28) Any other aspect of the programme not covered above

- Provision of leave

- separate provision of stipend not needed as the candidates will be working as SR level & so they will receive salary for the same post from the institute.

29) Saving clause whenever difficulty arises – powers of the authorities of the university. According to PIMs norms

The facility of the fellowship provision can be highlighted on PIMS website with special mention regarding the variety of surgeries performed & number of cases performed per year. This will definitely attract candidates for this fellowship.

