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

SYLLABUS

Title: FELLOWSHIP IN SURGICAL PEDIATRICS AND INTENSIVE CARE

Department of Surgery, Rural Medical College, Loni

Proposal

Proposal to start one year fellowship course in "Surgical Pediatrics and Intensive care" for post M.D. (Pediatrics) candidates at RMC, PIMS (DU), Loni.

Preamble

Children are not miniature adults. Their anatomy, physiology, response to trauma and stress is different from adults. This is all the more true for neonates. Approximately 1-2% of all children require surgical intervention. Though there are many pediatric surgical training centres in the country, there is little training provided to Pediatricians to diagnose pediatric surgical conditions, to assist surgeons in post-operative care.

Justification

This lacuna can be filled by a one year fellowship course for M.D.(Pediatrics) candidates. They have a basic understanding of pediatric physiology and pediatric medical illnesses, yet are inexperienced in management of surgical illnesses. We have a large caseload in pediatric surgery at PMT Hospital, Loni. We are operating on 35-40 children every month in department of surgery, 15-20 in ENT, 15-20 in Orthopedic surgery. A candidate completing this course will be fully trained to provide post-operative care, to these patients, in collaboration with the surgeon. In most large hospitals, corporate hospitals, post-operative care and intensive care of children is provided by pediatricians. With a formal qualification, the candidate will be better suited to work as pediatric intensivist in large hospitals.

This is a novel course, not existing in any other institute. Pravas Institute of Medical Science (D.U) is uniquely positioned to offer this. We have asufficiently large workload of pediatric surgery, orthopedics, english and other superspecialties. We can provide adequate training to the candidates, so that he becomes competent to provide that special, delicately balanced, nuanced care to the neonate/infant/child who has undergone major surgery or suffered major trauma.

Curriculum

Curriculum will cover all aspects of surgical pediatrics, including

a. Pediatric anatomy and physiology
b. Pediatric pharmacology
c. Response to trauma and surgery
d. Fluid and electrolyte management of surgical patients, antibiotic therapy, basics of wound care, and surgical monitoring
e. Diagnosis and immediate management of common surgical conditions
f. Pediatric radiology, cranial ultrasound, special investigations,
g. First aid, transport, retrieval of surgical neonates and infants
h. Post-operative care (including intensive care) of common surgical illnesses, ventilatory care, cardiovascular stabilization,
i. Chronic care of neurosurgical patients. Hygiene, nutrition, preventive care, rehabilitation guidance
j. Postoperatively cardiac care
k. Follow-up care of surgical patients

Course structure

The course will consist of 12 months, 10 months in Pediatric surgery, and one month each in ENT and Orthopedic surgery.

The candidate will work in the surgical wards, closely supervised by the Surgeon. He/she will take rounds with the surgeon, perform bedside procedures, but will not be responsible for surgical assistance in the operation theatre. He/she will attend OPD to diagnose and observe post-operative care, follow-up care of patients.

Candidate will work in orthopedics and learn acute management and first aid of trauma. He/she will be trained in identification an evaluation of orthopedic malformations, principles of intervention, timing of surgery.

Candidate will work in ENT department, OPD and wards and develop expertise in identification of common pediatric ENT problems, evaluation, referral and follow-up care. Emphasis will be given on diagnosis and management for foreign bodies in airway, bronchus and esophagus, post op care of tracheostomy.

Candidate will assist in performing radiological procedures and develop expertise in procedures and interpretation.

There will be formal teaching, lecture, seminar, case presentation in surgical physiology, radiology, intensive care, and other allied subjects.

Candidate will be expected to participate in one state/national/international conference and present a paper/poster. Candidate will also be expected to publish one paper during the year.

At the end of one year, there will be a written examination, consisting of two papers, of 100 marks each, and a practical and viva examination.

After successful completion of course, the candidate will be awarded a certificate of completion. and a Certificate in Institute's annual convocation.

Admission criteria

M.D (Pediatrics) or D.C.H. from any recognized university in India or abroad. M.D. (Anesthesia) or D.A., MBBS with two years experience, can also be considered.

Overseas candidates will have to obtain MCI registration before joining. PIMS may conduct a entrance examination if there are more than 20 applicants. Otherwise, candidates will be selected by interview.

SOP/ Regulations for the Fellowship Program in "Surgical Pediatrics and Intensive Care"

1. Title of Program, Program objectives, year and date of implementation
Title: - Fellowship in Surgical Pediatrics and Intensive Care.
Objectives: To train qualified Pediatricians in General Pediatric surgical principles, Pre and Post-operative care of children, and intensive care of surgical patients in pediatric and neonatal age group.
Year and date of Implementation: - May and November every year, subject to change.
2. Eligibility for the program
M.D. (Pediatrics), D.N.B. (Pediatrics) from any of recognized universities in India.
Post-graduate qualification from recognized university abroad, provided the candidate clears MCI examination and obtains MCI or State registration.
DCH (Pediatrics) from any recognized university in India, with two years experience
If there are less than 10 applications, candidates may be selected on basis of interview alone. If there are more applicants, a CET may be conducted. CET will consist of MCQs and a justification essay.
3. Duration
One calendar year, two semesters.
900 hours TL
4. Content/Syllabus of the Program
A. Pediatric and neonatal anatomy and physiology
B. Fetal physiology, Transitional physiology
C. Embryology of congenital malformations
D. Pediatric pharmacology
E. Response to trauma and surgery
F. Fluid and electrolyte management of surgical patients, antibiotic therapy, basics of wound care, and surgical monitoring
G. Diagnosis and immediate management of common surgical, orthopedic, ENT, and Ophthalmologic conditions
H. Pediatric radiology, cranial ultrasound, special investigations,
I. First aid, transport, retrieval of surgical neonates and infants
J. Post-operative care (including intensive care) of common surgical illnesses, ventilatory care, cardiovascular stabilization, orthopedic, ENT and ophthalmologic conditions.

K. Chronic care of neurosurgical patients. Hygiene, nutrition, preventive care, rehabilitation guidance
L. Postoperatively cardiac care
M. Follow-up care of surgical patients
200 hours of teaching and learning will be spread over 200 working days, generally, one class of one hour, four days per week. Daily ward rounds, will be included in this teaching, as every round is a teaching round.
100 hours of seminar/tutorial/assignment will be spread over 100 working days, generally, one hour per day, and two days a week.
300 hours of practical/demonstration/hands on experience will be spread over the year, performing
Examination Two, at end of second semester will also have two theory papers, each lasting three hours. Total marks will be 100. Passing marks will be 50. This examination will be related to specific surgical/orthopedic/ent/trauma conditions. The examination paper will be set by a panel consisting of 1. Pediatric surgeon 2. HOD orthopedics 3. HOD ENT. Paper will be evaluated by all, each one evaluating question related to his specialty.
Practical examination will last one day, and candidates will be assessed on clinical scenarios, patients, radiology, specimen, instruments, etc. Examiners will include 1. Pediatric surgeon 2. HOD Orthopedics 3. HOD ENT.
8. Certification authority and design of certificate
Certification authority will be Vice-Chancellor, PIMS.
Certificate design will be according to PIMS design
9. Place and venue of the Academic work of the Program
PIMS, RMC Loni
10. Department and Institute offering the program and overall co-ordination
Department of Surgery
Overall co-ordination Dr. Vivek Gharpure
Intake per batch - Two per year. May be increased to Two every semester
Academic calendar - Admissions in May every year. Examination in second half of April.
Time table to be submitted later
Maintenance of attendance - via biometric attendance

Arrangements and conduction of program - all classroom sessions will be conducted according to convenience of concerned teacher, either in Seminar room, department of surgery, or clinic room, Surgery OPD, or concerned other OPD
Liaisoning - Dr. Vivek Gharpure
Evaluation - Dr Vivek Gharpure and HOD Pediatrics
Documentation - Dr Vivek Gharpure and HOD Pediatrics
Feedback - Designated faculty member, Department of Pediatrics
Appointment of Director/Co-ordinator/Resource persons, Teachers and Assistance Dean, RMC
11. Approximate expenditure involved to run one batch per program
Administrative expenditure of Rs 20,000 is expected for paperwork, processing of applications, conducting selection interviews.
More expenditure may be incurred in getting external examiners for the practical examinations
12. Nominal fees proposed to be charged per course per participant with approval of authorities
According to PIMS norms.
13. Financial and administrative expectations from PIMS-DU/PMT to run the program
PIMS-DU/PMT will be expected to provide accommodation to the participants in post-graduate hostel, provide mess facilities
14. Infrastructure requirements - Classrooms, practical halls, hospital, PHC, any other
dummy procedures, training on tissue models, assisting in pediatric procedures, performing pediatric procedures, like insertion of chest tubes, insertion of central lines, removal of central lines, insertion of peritoneal dialysis catheter, assisting in flexible bronchoscopy etc.
300 hours of field work/clinical work will be spread over the year, attending rounds, procedures, observing surgical procedures.
The candidate will be expected to publish one research paper, and attend one national conference and present a paper/poster.
15. Curriculum delivery/Transaction
This will be carried out by faculty members in Pediatrics/Pediatric Surgery/Orthopedics/ENT and Ophthalmology. Detailed time table will be prepared later.

16. Program outcome
After completing the program, the candidate will be competent to provide pre and post-operative care to children suffering from surgical illnesses. He/she will be able to independently, look after intensive care of children suffering from major trauma, major reconstructive surgery, malignant illnesses, airway obstructions. etc.
17. Examination and Evaluation Methods
Two examinations are proposed. One at end of each semester.
First examination at end of first semester will cover
a. Pediatric anatomy and physiology
b. Surgical physiology
c. Response to trauma and stress
d. Pediatric pharmacology
e. IV fluid, electrolytes, acid-base related to surgical conditions, trauma, burns
Second examination at end of second semester will cover
a. Specific conditions, situations and their diagnosis, pre-operative management
b. Specific conditions, situations, their post-operative care, specific intensive care issues
c. Pediatric radiology
d. Transport
e. Long term assessment
Each examination will consist of two theory papers of 100 marks each. Each paper will last three hours. Passing marks will be 50.
First examination theory papers will be evaluated by 1. Pediatric surgeon and 2. Designated Pediatrician.
First examination will have two practical examinations, and viva voce examinations. The examination will last one day. Evaluation will be done by 1. Pediatric surgeon 2. Designated Pediatrician. Total marks will be 100. Passing marks will be 50.
None. As there will be only two candidates per year, their classes can be conducted wherever space is available. They will be working in wards/ICU alongside other staff. No special provision will be necessary. However, it is recommended that a area within NICU and PICU be earmarked as SNICU and SPICU. SNICU may have provision for 5 admissions at a time. SPICU may have provision for 3 admissions at a time. SNICU and SPICU will have same infrastructure as NICU and PICU, warmer, ventilator, monitor, infusion pump etc.

In addition, we will need a Laminar flow hood within the SNICU/SPICU for preparing TPN solutions.
18. Yearly A-A-A Audit of the program and financial audit-process and format
According to PIMS norms
19. Annual Meta-evaluation and up-gradation of the content and delivery of the program
According to PIMS norms
20. Central documentation
According to PIMS norms
21. Grievance redressal and appeals mechanism
According to PIMS norms
22. Any other aspect of the program not covered above
Provision for leave of absence.
Provision for stipend if applicable
23. Saving clause whenever difficulty arises - powers of the authorities of the university
According to PIMS norms.

To get applicants to join this program, PIMS RMC will have to highlight work done in Pediatric Surgery in last three years, covering number of surgeries, varieties of procedures, potential for growth. This may be presented on PIMS website and also on social media such as Facebook, Twitter, Instagram. Without such buzz, potential candidates may now learn about the program.

Annexures :-

1. Detailed syllabus and Examination pattern

Proposal to start a fellowship program in "Surgical Pediatrics and Intensive care"

Annexure 1.

Syllabus and Curriculum

1. Pediatric anatomy and physiology	6 hours
Anatomy facts about pediatric anatomy and physiology, and how they are different from standard adult population. Application of these differences in managing pediatric patients. How fluid requirement, ventilation settings, blood pressure standards have to be remembered and used in managing children	
2. Neonatal anatomy and physiology	6 hours
Anatomy and physiology facts about neonate. How these facts/numbers change principles of management in neonate.	
3. Fetal and transitional anatomy and physiology	6 hours
Fetal changes at birth. Differences between IUGR, preterm and normal neonate. Post- surgical management in each.	
4. embryology of common congenital malformations	12 hours
Normal embryology of major organ systems. Teratology and factors responsible. Principles of diagnosis and post-operative care. Principles of antenatal diagnosis and management.	
5. Neonatal and Pediatric pharmacology	6 hours
Fharmacodynamics, pharmacokinetics of common drugs in neonates and infants. Monitoring of drug levels, monitoring response.	
6. Response to trauma and surgery	6 hours
Response to trauma and stress. Differences between adults and neonates. Differences between full term neonate and preterm. Differences between IUGR and normal neonate	
7. Fluid and electrolyte management of surgical patients, antibiotic therapy, basics of wound care, and surgical monitoring	12 hours
Surgical fluid therapy. Principles. Strategies. Monitoring. Clinical and other. Principles of antibiotic therapy in different types of surgical interventions, principles of wound care, types of wounds, monitoring of wounds and healing response, and principles of surgical monitoring, which are different from medical monitoring.	

8. Diagnosis and immediate management of common surgical, orthopedic, ENT, and Ophthalmologic conditions	12 hours
Common surgical illnesses affecting children, with emphasis on early diagnosis, red flags, false alarms. Principles of immediate treatment to enable the pediatrician provide better service.	
9. Pediatric radiology, special investigations	12 hours
Interpretation of chest x-ray, plain film abdomen, special investigations like MCU, ba swallow, ba meal, ba enema, IVP. Performance and interpretation. Isotope scans of kidney, liver, interpretation, fallacies	
10. First aid, transport, retrieval of surgical neonates and infants	6 hours
First aid in a injured child, a child with acute surgical illness. Principles of stabilization, how to avoid aggravating injury, systemic treatment to improve general condition till patient reaches appropriate specialist, principles of transport of sick children, monitoring during transport, precautions to take during transport, preparedness, communication during transport	
11. Post-operative care (including intensive care) of common surgical illnesses, ventilatory care, cardiovascular stabilization, orthopedic, ENT and ophthalmologic conditions.	12 hours
Routine post-operative care in day-care surgeries, post-op care in more serious illnesses, essential and optional monitoring, care of drains and tubes, including ICD drain, nasogastric tubes, bladder catheters, ventilatory care of neonates and children, ICP monitoring, tracheostomy care, care after bronchoscopy	
12. Chronic care of neurosurgical patients. Hygiene, nutrition, preventive care, rehabilitation guidance	6 hours
Chronic care of children with head trauma, principles of nursing care, principles of monitoring, nutrition, physiotherapy,	
13. Postoperatively cardiac care	6 hours
Care of children undergoing open/closed heart surgery, principles of monitoring, acid-base balance, wound care	

14. Follow-up care of surgical patients	6 hours
A child having undergone surgical may develop other illnesses, or develop a complication of the surgical illness/procedure. This module will discuss identification of such events, early diagnosis, stablilization, referral. Monitoring of patients with VUR, GER, PUJO,	
15. Post operative care of orthopedic patients	6 hours
Post operative care including fluid therapy, antibiotic therapy, splinting, plaster cast, traction, external fixators, dynamic splints, early and late mobilization and ambulation, chest physiotherapy, DVT prophylaxis	
16. post-operative care of ENT patients	6 hours
Post-operative care including fluid therapy, antibiotics, monitoring and observation, care of tracheostomy, post bronchoscopy care,	
17. Palliative care/ terminal care	6 hours
Terminal care in children with advanced malignancy. Principles of pain therapy, comforting,	
18. Counselling, psychological support to parents, siblings	6 hours
A child with serious surgical illness has anxious parents and siblings. They need counselling, guidance. Principles of communication. How to present a balanced picture of illness	

Examination pattern for Fellowship program in "Surgical Pediatrics and Intensive care"

Two examinations.

One at end of each semester.

Final result will include marks of both examinations

Examination 1.

One Theory paper of 100 marks.

Syllabus

1. Pediatric anatomy and physiology
2. Neonatal anatomy and physiology
3. Fetal and transitional physiology
4. Response to trauma and stress
5. Fluid and electrolyte therapy, antibiotics,
6. Embryology and teratology
7. Pediatric and neonatal pharmacology
8. Pediatric radiology

Paper will have

1. 10 MCQ type questions each with two marks. Option to solve 10 out of 12 questions. Each two marks	20 marks
2. Long answer questions Two questions each of 20 marks	40
3. Short notes, 5. Option to solve 5 out of six. Each 8 marks	40
Total	100

Practical, Viva-voce examination of 100 marks

1. X-rays, CT/Isotope scan, imaging	30
2. Table viva Fluid electrolytes, acid-base, antibiotics	35
3. Table viva Anatomy, physiology, transitional physiology, embryology	35

Examination 2

One Theory paper of 100 marks

Syllabus

1. Diagnosis of common surgical/orthopedic/ent conditions 2. Pre hospital care of these conditions
2. Pre hospital care of these conditions
3. Transport of patients to surgical centre
4. Post-operative care, monitoring, clinical and otherwise
5. Post-operative care of orthopedic patients
6. Post-operative care of ENT patients
7. Post-operative care of cardiac patients
8. Follow-up care
9. Care of comatose patient
10. Terminal and palliative care
11. Counselling and communication

Paper will have

1. 10 MCQ type questions each with two marks. Option to solve 10 out of 12 questions. Each two marks	20 marks
2. Long answer questions Two questions each of 20 marks	40
3. Short notes, 5. Option to solve 5 out of six. Each 8 marks	40
Total	100

Practical examination will be of 100 marks

1. X-ray, imaging	20
2. Instruments, equipment	20
3. Table viva - counselling and communication	20
4. General pediatric surgery - case and viva	20
5. Orthopedics - case and viva	10
6. ENT case and viva	10
Total	100

Recommended books

1. Pediatric surgery – Arensman
2. Embryology - Inderbirsingh
3. Orthopedics - Adam's outline of orthopedics
4. ENT- Practical ENT. Vikas Sinha
5. Fluid and electrolytes - Fluid, electrolyte and Acid Base. Gireesh Kumar
6. Radiology Pediatric radiology. Ammar
7. Pharmacology - Pediatric pharmacology