



**PRAVARA INSTITUTE OF MEDICAL SCIENCES
(DEEMED TO BE UNIVERSITY)**

**Loni, Tal. Rahata, Dist. Ahmednagar 413736
NAAC Re-accredited with 'A' Grade**

SYLLABUS

**Post Doctoral Fellowship in Pain Management (Dept. of Anaesthesiology)
(Dr. Balasaheb Vikhe Patil Rural Medical College)
(Academic Council Meeting Dated 25th August 2022)**

Title: Post Doctoral Fellowship in Pain Management

Proposal

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

Introduction

Pain management is an emerging branch in the field of Anaesthesia. Pain management clinics specialize in helping patients achieve the best quality of life possible. As the trend in pain management has been moving towards a multi-disciplinary approach, setting up a good pain management clinic means assembling the right skills and knowledge with respect to anatomy, physiology, pharmacology, radiology, aiding instruments like USG, C-ARM and Computed tomography.

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

In our Institute we have a successfully running Pain management clinic OPD since 2019. Dr. Amol Bhalerao is working at this clinic as a pain management physician having experience of 5 years in interventional pain management. Anesthesiologists from our institute are exposed to patients for providing analgesia & contribute for the success of this clinic. We have well developed & well equipped Post operative recovery rooms for taking good post operative care of patients which is also very important factor in contributing towards the success of the clinic.

In general we are providing pain free life for 30-40 patients in OPD and around 10-15 interventions are being done per month. Outside OT we have to deal with acute traumatic pain and post operative analgesia in wards and ICU for the patients who undergo orthopedic or major general surgeries.

Considering the patient load for pain management, this fellowship can be welcomed under our esteemed institute PIMS Loni.

Program Highlights :

1. Module Based learning.
2. Full-time residential program including hands-on experience with qualified dedicated faculty for acute and chronic pain services.
3. Best & Latest equipment (Ultrasound, C-ARM guided Fluoroscopy, computed tomography guided etc) available for teaching & training.
4. Experience and Training in managing an Acute Pain Service.
5. Compulsory training, participation, and completion of one research paper as original research.
6. Regular didactic lectures.
7. Possibility of linkage with Senior Residency in Anaesthesiology.

From the year 2019, PG seats in anaesthesia have increased to 11 students per year. These PG students are more likely to seek such fellowship from their parent institutes as they will be learning pain management in more familiar atmospheres. This permits students to pursue fellowship alongside 1 year senior residency. Fellowship programme will also initiate newer development in the techniques & use of newer drug agents in the field of pain management. With this additional qualification, our students can also position themselves in large set up at metro cities & big cities to project our institute's name to higher level.

Curriculum / Course syllabus:**A. Gain proficiency in managing Chronic Pain**

- The fellow will be exposed to the pharmacologic, interventional, as well as the conservative treatments of the non-cancer pain conditions like discogenic low back pain, sciatica, headache, pelvic pain, neuropathic pain (postherpetic neuralgia, CRPS, trigeminal neuralgia etc) and also cancer pain.
- The fellow will have clinical experience with patients with chronic benign pain syndromes during their outpatient clinic experiences and will document a minimum of 200 different patients over a 12 months period.
- He/she will also learn to interpret and become familiar with basic neuro-imaging, identify significant findings, including MR and CT of the spine and brain and/or MRI studies drawn from the examples within the following areas: brain, cervical, thoracic, and lumbar spine when assessing patients with chronic pain.
- Gain proficiency in interventional Fluoroscopy / Ultrasound Assisted Blocks/ interventional Procedures: The fellow will be exposed to interventional procedures such as discography, intradiscal techniques, radiofrequency ablation and long term management. Each fellow will document the involvement of a minimum of 50 patients who undergo interventional procedures.

B. Gain exposure to the Multidisciplinary treatments of pain.

- The fellow will rotate through the Hospice and palliative care service for management of cancer pain and palliative medicine experience. In addition, other specialists (physical therapists, neurosurgeons, neuroradiologists, etc.) may also be invited to give lectures to the fellows.

Gain exposure to teaching, administrative aspects associated with practices of Pain Medicine, Research and Projects:

- The fellow will present formal lectures to the residents rotating through the service.
- Depending on his/her expertise and enthusiasm, the fellow will have the opportunity to present cases and lectures to the department.
- Each fellow must present one Morbidity/Mortality Case discussion to the section of pain medicine during the academic year. A post-lecture self-evaluation would also be completed by each fellow.
- All fellows will gain exposure on the administrative aspects of pain management which include setting up a pain practice, conducting public awareness campaigns, etc.
- The fellows will be involved with problem-solving aspects and process improvement of the Pain Medicine practice and would also pursue, develop, plan and execute a project that will improve patient safety and promote “best practice” principles. A timeline for this project will be presented by the project guide. The project must be fully completed prior to completion of the fellowship. Failure to complete this project may result in probation or suspension.

C. Gain exposure to the Principles of Physician and Patient Safety:

- All fellows will participate in formal and informal lectures regarding radiation safety, addiction and or dependence issues in pain practice, etc.

Required Teaching List:

A schedule of lectures for the fellows and residents shall be made every month and distributed to the fellows. The schedule will be given to the fellow at the end of the previous month, All topics to be covered in the curriculum would be covered. The topics that can be covered throughout the year include, but should not be limited to, the following topics of pain assessment and treatment:

1. Prevalence, the magnitude of Problem of chronic non-cancer and cancer pain
2. Brief History of Pain Management
3. Anatomy and Physiology
 - Peripheral Mechanism.
 - Central Mechanism.
 - Pain Modulation.

4. Pharmacology of pain transmission and modulation
 - a. Peripheral Mechanism.
 - b. Synaptic transmission in dorsal horn.
 - c. Central sensitization.
 - d. Neurotransmitters in pain modulation.

5. Psychosocial aspect of pain
 - a. Definition and measurement of pain
 - b. Individual differences
 - c. Behavioural processes
 - d. Emotional problem and psychiatric disorders associated with pain

6. General principles of pain evaluation
 - a. Diagnosis
 - b. Clinical History & Patient Examination
 - c. Investigation: Interpretation in reference to various Pain Syndromes:
 - i. PCR (Tuberculosis)/ Anti- ccp / HLA B-27/ Common blood investigations
 - ii. Radiological: X-Ray, MRI,CT, CT Angio, Bone Scan, BMD/DEXA
 - iii. Neurological : NCV/ H-Reflex

7. Drug treatment
 - a. Analgesics,* NSAID,* Antidepressant, anticonvulsant and miscellaneous agents :Narcotics Morphine, Oxycodone, Hydromorphone, buprenorphine, Methadone, Tramadol, Fentanyl.
 - b. Adjuvants: TCA, SSRI ,Dothiapine, Milnacipram, Duloxetine, Gabapentin, Pregabalin.
 - c. Bisphosphonates, Calcitonin, Parath. Hormone.
 - d. Neurotropic / Vitamin: Methocobalamine, Vit E, Vit D, Folic Acid.
 - e. Muscle relaxants: Baclofen.
 - f. Miscellaneous: L-Carnitine, Botulinum Toxin, Hylaluronate.
 - g. Anti-rheumatoid(DMRD): Leflunamide, Methotrexate, Biologicals, Steroids.
 - h. Neurolytic Drugs: Alcohol, Phenol, Chloro-cresol, Hypertonic Saline, anhydrous Glycerol, Ozone , Radio-Frequency(Auto/Pulse) , Cryo-Lesion.
 - i. Anti-Tubercular Drugs.
 - j. Local Anaesthetics.

8. Aetiopathogenesis, Clinical history, Examination, Diagnosis , D/D, Management , complications and Follow Up of following Pain Syndromes: (10 hours)
 - a. Headache/ Migraine/ Trigeminal Neuralgia/ Oro Facial Pain.
 - b. Discogenic Pain / IDD (Intradiscal Disc Disruption).
 - c. Lumbar Canal Stenosis(LCS).
 - d. Facet Joint Arthropathy, Kochs Spine, Discitis (tubercular/ Pyogenic).

- e. Osteoarthritis, Osteoporosis ,Ankylosing Spondylitis, Rheumatoid Arthritis.
- f. Sacroilitis, Coccydynia.
- g. Urogenital Pain Syndromes / Pelvic Pain.
- h. Low backache due to disc prolapse.
- i. Neuropathic Pain including syndromes like post herpetic neuralgia.
- j. Complex Regional Pain Syndromes(CRPS).
- k. Vascular & Sympathetic Mediated Pain.
- l. Pain during pregnancy.
- m. Management of Cancer Pain: Magnitude of problem, Etiopathogenesis, Clinical presentation, Diagnosis and Management of Cancer Pain.
 - 1. Medication: NSAID, Narcotics(Morphine, Codeine, Tramadol, Oxycodone, Hydromorphone, Methadone, Fentanyl(Patch/Nebulised).
 - 2. Adjuvants.
 - 3. WHO Analgesic Ladder / WHO Cancer Pain relief Programme.
 - 4. Neuroablative Procedures
 - 5. Vertebroplasty
 - 6. Percutaneous Chordotomy
 - 7. Intrathecal/ Epidural Infusion Device
- 9. Non-surgical neuro augmentative techniques (2 hours)
 - a. Nerve blocks
 - b. Surgical approaches
- 10. Stimulation techniques (3 hours)
 - a. Spinal Cord Stimulation.
 - b. DRG Stimulation.
 - c. Peripheral Nerve Stimulation.
- 11. Physical medicine and rehabilitation (3 hours)
 - a. TENS.
 - b. Acupuncture.
 - c. Vibration / USG.
 - d. Physiotherapy
- 12. Psychiatric and Psychological treatments (2 hours)
 - a. Cognitive Behavioural Therapy
 - b. Psychotherapy, Counselling
 - c. Hypnotherapy, Yoga
- 13. Multidisciplinary management

14. Interventional pain management
 - a. Radiofrequency (RF) / Drug induced Nerve Ablation technique.
 - b. Gasserian Ganglion RF Lesion / steroid injection / neurolysis.
 - e. Stellate Ganglion RF lesion.
 - f. Celiac Plexus Block (TransDiscal/ Trans Aortic).
 - g. Splanchnic Nerve RF lesion.
 - h. Supra scapular RF lesion.
 - m. Medial branch RF lesion.
 - n. Sacroiliac Inj., Ganglion impar RF lesion.
 - o. Superior Hypo gastric Plexus Block(Trans Discal).
 - p. Ganglion Impar RF.
 - q. Intraarticular Inj.
 - r. Platelet Rich Plasma(PRP) Therapy.
15. Post-operative pain – PCA/PCEA (1 hour).
16. Acute Pain Service (2 hours).
17. Pain in children (1 hour).
18. Obstetric analgesia (1 hour).
19. Stem Cell Therapy/ Genetic Basis of Pain (1 hour).
20. Ethical aspect of pain management (1 hour).
21. Euthanasia (1 hour).
22. Research (Pain management) (5 hours).
23. Palliative Care: Cancer/ AIDS/ Motor Neurone Disease: (6 hours)
 - a. Cancer Pain: Prevalence, magnitude of problem , current status , WHO cancer Pain Relief Programme Definition , essentials of Palliative Care.
 - b. Physical aspect.
 - c. Disease process.
 - d. Symptom control: Pain,Anxiety, depression, anorexia, asthenia, Lymphoedema, ascites.
 - e. Pharmacological management of cancer pain.
 - f. Management of terminally ill patients- last 24 hours.
 - g. Family and social background.
 - h. Communication skills, bereavement.
 - i. Religious and cultural aspects.
 - j. Ethical aspect.
 - k. Team work.
 - l. Organizational aspect: Home, Hospice and Hospital based Palliative care.
 - m. Research in Palliative care.
 - n. Hospice, End of Life Care.

24. Rheumatology (2 hours).

25. Functional assessment and disability adjustment (1hour).

26. Endoscopic Spine surgery Transforaminal approach

The transforaminal approach with endoscopic spine surgery is a minimally invasive surgical technique used to treat various spinal conditions. It involves accessing the spine through small incisions on the side of the spine, known as the neuro foramen. This approach is often used for conditions that affect the nerve roots exiting the spine, such as herniated discs, foraminal stenosis, and nerve root compression.

27. Endoscopic spine surgery interlaminar approach

Endoscopic spine surgery with an intralaminar approach is a minimally invasive surgical technique used to treat various spinal conditions. In this approach, the surgeon accesses the spine through the lamina, which is a thin bony plate that covers and protects the spinal canal.

28. Regenerative therapy

A. Stem cell therapy

Regenerative therapy, specifically using stem cells, is a field of medicine that focuses on harnessing the body's natural ability to repair and regenerate damaged tissue and organs. Stem cells are unique cells with the remarkable capacity to develop into various specialized cell types and, in some cases, help repair injured or diseased tissues.

B. PRP

Regenerative therapy using Platelet-Rich Plasma (PRP) is a medical procedure that aims to accelerate the healing and regeneration of injured tissues in the body. PRP is a concentrated solution of platelets and growth factors derived from the patient's own blood, making it an autologous treatment.

29. Vertebroplasty

Vertebroplasty is a minimally invasive medical procedure used to treat compression fractures in the spine, often caused by osteoporosis or other conditions that weaken the vertebrae. This procedure is primarily performed to alleviate pain and stabilize the fractured vertebra.

30. Baclofen therapy

A baclofen pump, also known as an intrathecal baclofen pump, is a medical device used to administer baclofen directly into the spinal fluid. Baclofen is a muscle relaxant and antispastic medication that is commonly used to manage conditions associated with muscle spasticity, such as multiple sclerosis, cerebral palsy, spinal cord injuries, and other neurological disorders.

31. Botox injection

Botox, short for Botulinum toxin, is commonly known for its cosmetic use to reduce wrinkles and fine lines. However, it has also found applications in pain therapy and medical treatments due to its ability to block nerve signals and relax muscles. While it might not be the first-line treatment, it has shown effectiveness in managing certain types of chronic pain conditions.

32. *Prolotherapy*

Prolotherapy, short for "proliferative therapy" or "regenerative injection therapy," is a medical treatment used to stimulate the natural healing process of damaged or weakened connective tissues, such as tendons, ligaments, and joint capsules. It involves the injection of a solution, typically containing a local anesthetic and a substance that promotes inflammation and tissue repair, into the affected area.

33. *Spinal cord stimulation*

Spinal Cord Stimulation (SCS) is a medical procedure used to manage chronic pain conditions that have not responded well to other treatments. It involves the implantation of a small device, often referred to as a spinal cord stimulator, which delivers electrical impulses to the spinal cord to interfere with pain signals and reduce pain perception.

34. *Neuropathic pain management*

Nerve blocks are a type of medical procedure used in the management of neuropathic pain. They involve the injection of medications, such as local anesthetics or steroids, into or around specific nerves or nerve bundles to block pain signals from reaching the brain. Nerve blocks can be useful in diagnosing the source of pain and providing temporary or, in some cases, long-term relief from neuropathic pain.

35. *Sympathectomy*

Sympathectomy is a medical procedure that involves the surgical removal, destruction, or interruption of certain nerve fibers of the sympathetic nervous system. The sympathetic nervous system is a part of the autonomic nervous system, responsible for regulating involuntary bodily functions, such as heart rate, blood pressure, and body temperature.

36. *Imaging in interventional pain management and basic of ultrasonography*

37. *Spine anatomy and ultrasound guided spine injection like thoracic nerve block, cervical nerve root block, USG guided caudal epidural injection*

38. *USG guided abdominal pelvic block like TAP block, ganglion impar block*

39. *USG guided peripheral block and catheter*

40. *USG guided atlantoaxial and atlantooccipital injection for neck and cervical pain.*

SOP / Regulations for the fellowship Programme in “Pain Management”

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

Title -Post Doctoral Fellowship in “Pain Management”

Objective -

- a) To train the postgraduate students in management of Pain.
- 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 pain management.
- e) To avail the facility of such fellowship in rural area & giving the rural patient services as good as metro cities.
- f) To develop high standards in pain Management this will in turn attract postgraduate students from all over India & contribute towards the progress of PIMS.

Year & Date of Implementation - January and June 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 that the 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)

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

4) Certification authority & design of certificate

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

5) Place & venue of the academic work at the Programme - PIMS, RMC, Loni

6) Department offering the programme-Department of Anesthesia

7) **Intake per batch-** maximum intake of **five students** per year.

8) **Academic Calendar** - Admissions in the month of January and July if seats are vacant every year. And Examinations will be conducted at the end of 12 months of fellowship programme.

9) **Time Table-** to be submitted later

- 10) **Maintenance of attendance**-Via Biometric Attendance
- 11) **Arrangement & conduction of programme**-
 - Class room session – In Seminar hall of Dept. of Anaesthesia.
 - Practical session- In all operation theaters and Pain Clinic OPD.
- 12) **Liaison**- HOD Anaesthesia or Senior Professor
- 13) **Evaluation**- HOD & Senior Professor
- 14) **Documentation**-HOD & Senior professor
- 15) **Appointment of Director/Coordinator. Resource Person, Teacher Assistance** -Dean, DBVPRMC, Loni.
- 16) **Approximate Expenditure involved to run one batch per programme.**
Administrative expenditure at 20,000 is expected for paper work, processing of applications, Advertisement and conducting interviews. More expenditure may be incurred to procure external examiners for practical examination
- 17) **Fees proposed to be charged per course-1 lakh/person/ yr.**
- 18) **Financial and administrative expectation from PIMS (DU)/PMT to run the programmes :**
PIMS-DU/PMT will be expected to provide accommodation to the participants in postgraduate Hostel, Provide mess facilities & Library facility with books & journals on pain management and dedicated USG machine with high resolution for giving nerve block.
- 19) **Infrastructure requirements**- Classroom, Operation Theater, dedicated pain clinic with good number of patient influx.
- 20) **Yearly A-A-A0 Audile** of the programme & financial audit process & format- according to the PIMS norms.
- 21) **Annual meta-evaluation** and up gradation of the content & delivery of the programme.- according to PIMS norms
- 22) **Central documents** – According to PIMS Norms
- 23) **Grievance redressal and appeals mechanism**- According to PIMS Norms
- 24) **Any other aspect of the programme not covered above :**
 - Provision of leave
 - The candidates will be working at SR level and thus will receive salary for the same post from the institute.
- 25) **Saving clause in case of difficulty** – powers of the authorities of the university.
According to PIMS norms

Mandatory Fulfillment:-

- 1) To participate in UG teaching / PG teaching.
- 2) Presentation of 6 assignments.
- 3) One Research Methodology Workshop.
- 4) Participation / Presentation with minimum One Research article in Seminars/Conferences/workshop etc.
- 5) One Research Paper in Indian / Scopus / UGC Care list journal.

SCHEME OF EVALUATION**Evaluation:-**

Term end examination will be arranged and conducted by Dept. of Anaesthesiology, Dr. Balasaheb Vikhe Patil Rural Medical College and declare the result.

Examination Scheme

Paper – I: Post Doctoral Fellowship in Pain Management – I

Paper – II: Recent advances in Post Doctoral Fellowship in Pain Management

Theory Examination:- (1 Paper of 100 marks)

MCQ	= 40 Marks	} 100 Marks
SAQ (6 each 10 Marks)	= 60 Marks	

Practical Examination:- 100 Marks

One Long Case	= 40 Marks	} 100 Marks
One Short Cases	= 20 Marks	
2 Table Viva of 20 Marks each	= 40 Marks	

Minimum Passing:-

- Minimum 50% in Theory papers (Each paper minimum is 40%)
- Minimum 50% in Practical /Clinical & Viva Voce
- Overall 50% Theory & Practical/Clinical

Award of class:-

- 50% to 59.5% = IInd class
 60 to 74.5% = Ist Class
 Above 75% = Ist Class with Distinction

Attempts:-

- A student shall clear the Examination only within three attempts or within 4 years of admission.
- Result / Issue of Mark Sheet – Head of Institute & HOD will jointly issue the Mark Sheet.

Certification:-

- Title – Post Doctoral Fellowship in Pain Management.
- A fellowship is awarded upon successful completion of the prescribed study program, which will state that i) Candidate has completed the prescribed course of Post Doctoral Fellowship in Pain Management, ii) Candidate has completed prescribed clinical experience. iii) Candidate has passed the prescribed examination.
- Certificate will be issued with the signatures of concern Dean, Dr. Balasaheb Vikhe Patil Rural Medical College & Vice-Chancellor, Pravara Institute of Medical Sciences (Deemed to be University).
- Certificates to be prepared by concern College.




 Registrar
 Pravara Institute of Medical Sciences
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