

**Competency Based Curriculum for
AORA Fellowship**

1. Course title

Academy of Regional Anaesthesia Fellowship - AORA India.

2. Duration of the course

One year.

3. Nature of the course

Full time

4. Aims and Objectives

On successful completion of the course the fellow should be able to demonstrate competency in terms of skill, knowledge and attitude in delivering safe and effective Regional anaesthesia for better patient care.

5. Eligibility criteria for admission

MCI recognized MD / DA / DNB degree in Anaesthesiology/ any equivalent Anaesthesiology degree from their home country (for NRI candidates)

6. Selection process

Candidates need to apply directly to the recognized institute of their choice. Selection will be done by the AORA recognized teacher of the respective institute based on candidate's eligibility which should be confirmed by the individual teachers & institutes.

The selection process may vary institute to institute, it is at the sole discretion of Teacher and institution. AORA is not involved in selection process directly or indirectly.

Candidates will be paid a salary/stipend as per the rules of the institute where they are appointed.

7. Registration

After selection trainee must register himself/herself with AORA by filling online trainee registration Form with fee of 60,000/- which includes the registration (50,000) & examination (10,000) fee for the first attempt.

No hospital, institute or individual may levy any direct or indirect fee to an individual trainee in any relation to the course. The only fee is that which is to be given directly to the society at the time of registration or repeat examination. Once selected, it is mandatory for the trainee to become AORA Life member.

Course start date: January 1st.

Last Date for the candidate to register with the AORA society: Feb 28.

8. AORA recognized Institute and Teachers

The list of AORA recognized Institutes and their corresponding Teachers will be notified in the AORA website.

10. Practical and projects if any, details of the same.

1. Fellow has to maintain a dedicated log book / e portfolio indicating the number of cases assisted, performed under supervision, and performed independently.
2. Fellow has to enroll himself into any one of the research projects involving regional anaesthesia and contribute to the designing, data collection, analysis and interpretation, manuscript writing and publication process of the research project.
3. Publication is not mandatory but the AORA teacher should certify involvement in various steps of any regional anaesthesia research project.

11. Eligibility criteria for appearing for the exam.

1. Attendance certificate indicating at least 80% attendance to be provided by the AORA teacher
2. Attendance certificate of any one AORA accredited RA workshop (Basic / Advanced) in one-year duration.
3. Any one-paper/poster presentation at any one of the AORA conferences.

12. Repeat exam.

1. Trainee who pass theory but fail the practical exam may make ONE more attempt at Practical exam within two years of completion of the theory exam.
2. All trainee who repeat the exam would have to pay the additional fee of Rs. 10,000/- per attempt.

- All trainees who is appearing for the exam primary or supplementary exams should fill the examination application form to obtain the hall ticket.

13. Evaluation pattern

Enclosed

Ref: curriculum.

14. References

The Regional Anesthesiology and Acute Pain Medicine Fellowship Directors group. Guidelines for fellowship training in Regional Anesthesiology and Acute Pain Medicine. [Reg Anesth Pain Med.](#) 2015;40:213-7.

15. Composition of board of studies

Should include chairman, member secretary and members. This committee will prepare, monitor and review all the process related to the academic activities of the fellow training. The committee recommendation will be submitted to the Executive committee for final approval.

1.	Dr Vrushali Ponde Director Children Anaesthesia Services Mumbai, ASPA Education Lead, WFSA Paediatric Committee Member.	Chairperson
2.	Dr T Sivashanmugam Professor Anaesthesia, Mahatma Gandhi Medical College and Research Institute, Puducherry.	Secretary
3.	Dr Satish Kulkarni Senior Consultant Anaesthetist, Lilavati Hospital, Mumbai.	Member
4.	Dr Murali Thondebhavi Senior Consultant Anaesthetist, Apollo Hospitals, Bengaluru.	Member
5.	Dr Subramanyam Mahankali Senior Consultant Anaesthetist, Aster RV Hospital, Bengaluru.	Member

6.	Dr Vandana Mangal Senior Professor Anaesthesia, Sawai Man Singh Medical College, Jaipur.	Member
7.	Dr Amit Dikshit Consultant Anaesthetist, Ruby Hall Clinic, Pune.	Member
8.	Dr Archana Areti Consultant Anaesthetist, Mahatma Gandhi Medical College and Research Institute, Puducherry.	Member
9.	Prof Manoj Kumar Karmarkar Director of Paediatric Anaesthesia Department of Anaesthesia and Intensive Care	External Expert

16. Proposed fees to be collected.

Registration fee – 50000

Exam fee – 10000

17. Accreditation of Hospital / Institute

- a. Application for hospital recognition & teacher recognition are to be filled online and the required fee has to be paid online, through the AORA website.
- b. The institute and teachers applications will be scrutinized by the BOS and the Accreditation Secretary.
- c. If found eligible, Accreditation secretary will appoint 2 inspectors who will make an on-site inspection visit of the institute.
- d. The Institute shall look after the travel & stay of the inspectors desirous of recognition.
- e. The inspection report will be tabled at the next BOS meeting and the decision of BOS will be ratified by EC.
- f. Once recognition is granted, institutes may start taking candidates from the same academic year if the process is completed before the last date of registration to the courses, or the next academic session if the process is completed later.
- g. In case institutes do not meet the criteria, they will have to reapply after fulfilling all criteria, which will be followed by a re-inspection.
- h. All appeals regarding the inspection report or recognition will be put up at the BOS, and AORA executive committee.
- i. The decision of the AORA executive committee will be final and binding in all respects.

18. Eligibility Criteria for Teachers accreditation:

In order to be able to impart a high quality of training to candidates the teacher must fulfill the following minimum requirements:

- a) Teacher application will be considered along with the Institution's application. Teacher accreditation in isolation independent of Institute accreditation is not allowed (except for additional teacher from an already accredited institute)
- b) Teacher should be working full time in the institute to be considered as a teacher for the AORA course.
- c) Teacher should be a Life Member of AORA.
- d) Teacher should be a post graduate degree with MCI recognised qualification- MD / DNB with at least 8 years of experience in Anaesthesiology post MD/DNB qualification, in a recognized major hospital.
- e) Teachers with a MCI recognised Post Graduate Diploma-DA (Diploma in Anaesthesia) with at least 10 years of experience in Anaesthesiology after MCI recognised Post Graduate Diploma, in a recognized major hospital.
- f) Since there is no formal degree available for RA in India, the aspiring teacher will claim his/her position by submitting the necessary credentials to the BOS which will be assessed case by case basis and decision regarding the approval will be made.

After a teacher has left an institute, he cannot take a new student in another institute for one year from the time of leaving the previous institute.

Curriculum

A curriculum should define three components, namely, Knowledge to be learned (Syllabus, Cognitive domain), Skills to be acquired (practical training, psychomotor domain) and the Attitude to be developed (Behavioral changes to be brought about, Affective domain) and the Teaching-Learning methods to be adopted to achieve the goals and the methods of assessment throughout the training period (Formative assessment) and at the completion of training (Summative assessment).

1. Knowledge to be learned (Theory, Cognitive domain)

The candidate should be able to demonstrate a clear understanding of the following aspects in RA.

(i) Equipment

- a) Physical principle behind the US image generation
- b) Knobology, Transducers and its application.
- c) Potential pitfalls and artifacts in US imaging of nerves.
- d) Colour Doppler principle and its application
- e) Special software available for better needle nerve visualization
- f) Biological effects of US
- g) Equipment disinfection and sterilization procedures.
- h) Physical principle behind the PNS equipment
- i) Setting up and troubleshooting of PNS.

(ii) Applied Anatomy

- a) Regional innervation and anaesthesia strategies for head and neck surgery
- b) Regional innervation and anaesthesia strategies for Upper limb
- c) Regional innervation and anaesthesia strategies for thorax
- d) Regional innervation and anaesthesia strategies for abdominal cavity

- e) Regional innervation and anaesthesia strategies for Hip and Lower limb.
- f) Potential US window and cross sectional anatomy for regional anaesthesia.
- g) Epidural and Intrathecal space
- h) Nerve architecture and implications with respect to RA

(iii) Applied physiology

- a) Nerve conduction and type of nerve fibers
- b) Pain pathway – visceral and somatic
- c) Pathophysiology of acute and chronic pain – difference between nociceptive/neuropathic pain
- d) Autonomic nervous system and differential blockade
- e) Nerve Injury – assessment, treatment and follow-up.
- f) Nomenclature and Intraneural injection definition and implications
- g) Tourniquet implications

(iv) Applied Pharmacology

- a) Pharmacokinetics and dynamics of Local anaesthetics (Single injection/continuous infusions)
- b) Pharmacokinetics and dynamics of LA adjuvants.
- c) Pharmacokinetics and dynamics of Anticogulants.
- c) Conscious sedation
- d) LA Systemic Toxicity
- e) Neurolytic agents.

2. Skills to be acquired (practical training, psychomotor domain)

What to focus in teaching? Landmark guided / PNS guided / US guided Regional anaesthesia?

The focus of the training program is to train the resident to deliver **appropriate safe** and **effective** regional anaesthesia for optimal perioperative outcome. The **appropriate** component of RA delivery can be taught through theory (Knowledge) whereas **safe and effective** delivery needs guidance device. We evolved from Landmark to PNS to US guidance to deliver local anaesthetic close to the nerves. It is needless and gross ignorance to compare and debate, which one is better because each one is a different tool, helped us to deliver the effective RA at different time. In terms of safety and efficacy US guidance unparallelly superior because it shows what we are doing. However the ideal regional anaesthesiologist should have through understanding of the three-dimensional anatomy including surface landmark to guide where to place the probe to search the nerves, and skill of stimulating the doubtful targets (PNS) where US resolution is not able to discriminate nerves from the surrounding structure and skill of using US to see, interpret and reach the target of interest. Hence the teacher should instill the skill of using all three tools to complement each other wherever it is appropriate to deliver safe and effective RA. In an ideal setup US guidance occupies 80% of the interventions and PNS compliments US in 20 % of the deeper location (lumbar plexus / Parasacral sciatic etc) where US axial and lateral resolution is poor to discriminate nerves and understanding regional anatomy.

At the end of 12 months the fellow should be able to demonstrate competency in performing various RA techniques in the following aspects.

- a) Find the target of interest in the center of the image
- b) Place the machine focus on the target structures
- c) Place depth setting at 1 cm deep to target structures
- d) Adjust gain, time gain compensation, and frequency as necessary
- e) Appreciate Joint Committee recommended standardization of patient-screen relationships
- f) Initiate the PART maneuvers to optimize image quality
- g) Define relevant anatomy in each region including the ability to identify muscle, pleura, nerve, tendon, and bone.
- h) Able to use PNS appropriately to locate the peripheral nerves.
- i) Scan anticipated needle trajectory with color Doppler to identify any unsuspected vascularity.
- j) Define needle insertion technique using the Joint Committee recommended terminology

- k) (in-plane vs out-of-plane)
- l) Recognize correct and incorrect distributions of local anesthetic
- m) Understand potential difficulties and pitfalls.
- n) Use of nerve stimulator along with USG to detect intraneural needle placement
- o) Rescue blocks
- p) Block failure management plans
- q) Application of the acquired knowledge and skill for providing
 1. Acute pain relief – such as management of post- operative pain by continuous catheter techniques
 2. Rehabilitation – such as in peri-arthritis shoulder, knee mobilization following TKR surgeries.

Levels of difficulty of USG guided blocks based on learning curve required to achieve success rate

	UPPER LIMB	LOWER LIMB	TRUNCAL BLOCKS
LEVEL 1	Interscalenebrachial plexus Supraclavicular brachial plexus Axillary brachial plexus Superficial cervical plexus	Femoral Saphenous Popliteal sciatic	Transversus abdominal plane Rectus sheath Ilio-inguinal / iliohypogastric nerve block.
LEVEL 2	Costoclavicular Lateral infraclavicular Suprascapular nerve Mid- forearm (wrist) Mid- humeral	Subgluteal sciatic nerve Common peroneal nerve Tibial nerve Ankle block	PEC 1/2, SAP 1/2 Erector spine block/ Multifidus block. Caudal block
LEVEL 3	Truncal injection Root level injections Stellate ganglion Deep cervical plexus Diaphragmatic function assessment	Obturator nerve Parasacral sciatic Lumbar plexus	Quadratuslumborum Thoracic paravertebral Lumbar paravertebral Central neuraxial blocks 1. Spinal 2. Epidural
	CONTINUOUS CATHETER BASED TECHNIQUES		
	HEAD & NECK BLOCKS		

3. Attitude to be developed (Behavioral changes to be brought about, Affective domain)

At the end of training programme the fellow should develop the attitude to

- a) Communicate sensitively and effectively with patients and their families regarding ultrasound findings
- b) Explain the merits and demerits of RA techniques in terms that the patient can understand
- c) Demonstrate team leadership/management skills for the management of an effective regional anesthesia service
- d) Recognize costs associated with RA practice
- e) Collaborate with other members of the health care team to ensure quality patient care
- f) Use evidence-based, cost-conscious strategies in caring
- g) Identify and acknowledge gaps in personal knowledge and skills in the care of patients presenting for UGRA
- h) Use textbook and online and computer-based resources to broaden knowledge base regarding UGRA techniques
- i) Perform electronic searches of the medical literature to identify articles that address the medical issues surrounding RA.
- j) Understand and critically evaluate outcome studies related to the influence of UGRA on Perioperative outcome.
- k) Develop time management skills to perform the required tasks in a reasonable amount of time with satisfactory quality.

4. Teaching and Learning Methods – (The actual timing is given as a model different method can adapted by the institute but the minimum teaching hours should be met)

Theory	Practical
Friday 3pm – 4pm	<u>Clinical training</u> Monday to Saturday

<p>1class /week 1×40 = 40classes</p> <p>Once in 4weeks one class should be dedicated to Journal club.</p> <p>The candidate should have the ability to critically review the article and aware of recent concepts about all the existing blocks as well the newer one.</p>	<p>8:30 to 2:30pm</p> <ul style="list-style-type: none"> • Observing / Facilitating / Conducting exclusive Ultrasound Guided Regional Anaesthesia list. • Minimum exposure: Aiming to attain the level of competency as indicated in the EPA by the end of one year training. <p>Should be available in house to attend emergency calls for regional anaesthesia.</p>
<p><u>Teaching and Learning methods</u></p> <p>Didactic lecture</p> <p>Microteaching</p> <p>Discussion</p> <p>Demonstration</p> <p>Simulation based teaching</p>	<p><u>Cadaveric training</u></p> <p><u>Aim</u> – to make the candidate understand the correlation between sonoanatomy and gross anatomy so that he/she can identify all the relevant structures needed for the performance of RA.</p> <p>Areas to dissect –</p> <ol style="list-style-type: none"> 1. Upper limb. <ol style="list-style-type: none"> a) BP above clavicle. b) BP below clavicle. 2. Lower limb. <ol style="list-style-type: none"> a) Sciatic nerve. b) Femoral nerve 3. Abdomen – <ol style="list-style-type: none"> a) TAP, rectus sheath. b) Lumbar plexus , quadratus lumborum 4. Thorax – thoracic paravertebral

	2hrs / month = 20 to 24hrs /year should be spent on the cadaveric lab.
<p>Log book maintenance</p> <ul style="list-style-type: none"> -E- portfolio -RA record <p>Research Activities.</p> <p>Active participation in ongoing RA research projects.</p>	<p><u>Phantom training</u></p> <p>Integral part of clinical Training for</p> <ol style="list-style-type: none"> 1. Needling skills <ul style="list-style-type: none"> a) Out of plane technique b) In plane technique c) Walk down technique d) Rocking e) Jiggling f) Hydro-dissection g) Hydro-location h) Angle on insonation and principles i) Advanced software usage – needle guides/ profile 2. Water bath spine phantom- for spine anatomy.

5. Formative assessment

Formative assessment will be performed through Entrustable Professional Activity Scoring System. Converting each block into a professional activity develops EPA’s. Each block performance will be assessed by three specific competencies (medical knowledge, skills and system based practice) and three general (problem based learning improvement, professionalism, inter-personal communication skills) competencies. Each competency will be evaluated and scored as per the policy document [Annexure 1] and the final verdict on the competency level will be granted.

The competency will be divided into levels of increasing Entrustability as follows.

Level	Task
I	can observe
II	can perform under strict supervision
III	can perform under loose supervision
IV	can perform independently
V	can teach

The final competency level will be derived by computing scores obtained in the individual competency domain as described into department EPA policy document.

The candidate should achieve minimum of level III or IV in various EPA's as described in the policy document. The road map to achieve it (milestones) has been described in the EPA milestone document Annexure 2.

6. Summative assessment

(i) Theory

Title	Regional Anaesthesia
Time	3hrs
Mark Distribution	Equipment and technology – 20% Applied Anatomy and physiology – 20 % Applied pharmacology – 10% RA strategies for specific surgery – 30 % Complications – 10% Recent advances – 10%
Pattern	10 short notes 10 × 10 = 100.
Pass	Minimum 45%

(ii) Practical (3Hrs)

Components:

1. Clinical case discussion
2. Viva voce

The practical examination should be structured and objective as much as possible.

Clinical Cases	No	Duration	Method of assessment	Marks
Long case	1	30 minutes case exposure. 30 minutes assessment	Detailed history, examination management and complications to be discussed. (mark distribution given below)	40
Short case	2	15 minutes exposure for each case. 15 minutes assessment for each case	Key positive and negative findings with relevance to the RA strategy. Detailed discussion about the proposed strategy. The long case and short case should have different regional areas. (U/LL/Thorax/Abdomen)	30 (15 each)

Long case structured assessment (Mark distribution)

Segment	Percentage
Oral skills / presentation	10%
<u>Preoperative assessment</u> Surgical illness General system pathology and its implication <u>Risk stratification</u> ASA classification Perioperative Cardiovascular events Preoperative neurological dysfunction <u>Preparation</u> Anti platelets Bridging anti coagulants	30%
Anaesthetic management	50%
<u>Bed side clinical discussion</u> Regional anaesthesia strategy Merits and demerits of the proposed plan	
<u>Bed side demonstration</u> Patient positioning and Ergonomics	

Consent Execution Management plan for immediate, late complication and failure.	Image acquisition and optimization Interpretation of sonoanatomy Proposed needle trajectory	
<u>Post operative analgesia</u> Modes Merits and demerits Pharmacological regimen Complication and its management		10%

(iii) Viva-Voce (Structured)

1.	Equipment and PNB gadgets	10 Marks
2.	Drugs	10 Marks
3.	Sonoanatomy interpretation	10 Marks

Segments	Total Marks
Theory	100
Practical including viva	100 (70+30)
Grand Total	200
Pass	Minimum 45% in two segments (Theory, Practical) but the aggregate should be more than 50%.