

Training for USRA

Aim

- credentialed as proficient practitioners in administration of regional block with US guidance
- become trainers
- to ensure the safe and efficient practice of regional anaesthesia
- Mandatory posting for Masters Training.

Curriculum

- as per ASRA-ESRA Joint Committee recommendations (Skill sets and proficiency- 2010)
- weekly discussions and review of cases or problems encountered eg failed blocks

TABLE 2. Skill Sets Associated With Proficiency

Understanding Ultrasound Image Generation and Device Operations	Image Optimization (Non-Device Related)	Image Interpretation	Needle Insertion and Injection
Understanding basic technical principles of image generation	Learn the importance of transducer pressure	Identify nerves	Learn the in-plane technique, maximizing needle visualization
Selection of the appropriate transducer	Learn the importance of transducer alignment	Identify muscles and fascia	Learn the out-of-plane technique
Selection of the appropriate depth and focus settings	Learn the importance of transducer rotation	Identify blood vessels, distinguish artery from vein	Learn the benefits and limitations of both techniques
Understanding and appropriate use of both time gain compensation and overall gain	Learn the importance of transducer tilting	Identify bone and pleura	Learn to recognize intramuscular needle location
Understanding and application of color Doppler		Identify common acoustic artifacts	Learn to recognize correct and incorrect local anesthetic spread
Archiving images		Identify common anatomic artifacts (pitfall errors)	Conduct proper ergonomics
Follow ASRA-ESRA standardization for screen orientation to the patient		Identify vascularity associated with needle trajectory	Minimize unintentional transducer movement Identify intraneuronal needle location

Curriculum Content: Scanning Techniques

- The role of physics for UGRA; understand terminology (eg, piezoelectric effect, frequency, resolution, attenuation, echogenicity, color Doppler)
- The role of instrumentation in image acquisition (eg, image mode, gain, time gain compensation, transducer types)
- Equipment requirements: types of transducers (linear, curved and phased array for different indications and scanning at different depths), footprint length, frequency (range, 2–15 MHz)
- Ultrasound acoustic artifacts and imaging artifacts (pitfalls). These include reverberation artifacts, acoustic enhancement, acoustic shadowing, gain-related artifacts, resolution-related artifacts, mistaking tendon or muscle for nerve^{11,12}
- Techniques to perform effective ultrasound examinations; appreciate the Joint Committee recommended “PART” maneuvers for generating optimal imaging: Pressure, Alignment, Rotation, and Tilting

Curriculum Content: UGRA Procedures

Define indications and contraindications

- Practice procedural technique on available organic and inorganic simulators
- Define relevant anatomy in each region including the ability to identify muscle, pleura, nerve, tendon, and bone
- Define needle insertion technique using the Joint Committee–recommended terminology (in-plane vs out-of-plane: see Appendix V)
- Understand potential difficulties and pitfalls
- Describe ultrasound appearance of common anatomical variations seen during upper and lower extremity block
- Recognize correct and incorrect distributions of local anesthetic
- Appreciate Joint Committee–recommended standardization of patient-screen relationships

Centres

- Must have multi-disciplinary specialties which consist of
 - * Orthopaedics- Hand
 - * Orthopaedics -Joint ie Shoulder, knee
 - * urology
 - * vascular
 - * laparoscopic procedures
 - * paediatrics
- adequate USRA trainers, equipment
- facilities for media library
- appointed USRA Coordinator
- Acute Pain Service for post operative review

Training Requirement

- Various approaches of UL blocks
 - * interscalene
 - * supraclavicular
 - * infraclavicular
 - * axillary
 - * median, ulnar, radial, musculocutaneous
 - * catheter technique
- Various approaches of LL blocks
 - * femoral
 - * sciatic (anterior, posterior)
 - * popliteal
 - * ankle block
 - * lumbar plexus
- Trunk blocks
 - * TAP block
 - * spinal
 - * epidural
 - * paravertebral

* caudal

* ilioinguinal

- Doing regional list of at least 60% of weekly workload
- log book containing details and outcome of blocks.
- Static and video images of performed blocks with regular reviews by USRA coordinator/Certified Trainers.

Document prepared by Dr Azrin MohdAzidin
DrAmiruddinNik Mohamed Kamil
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PROGRAMME FOR REGIONAL ANAESTHESIA WORKSHOPS
(Appendix 1)

**ULTRASOUND GUIDED REGIONAL ANAESTHESIA
BASIC PROVIDER WORKSHOP**

LECTURES;

Basic Principles of Ultrasound

Peripheral Nerve Stimulator

Anatomy / Landmarks and Sonoanatomy for common plexus and nerve blocks (upper limb)*

- interscalene
- supraclavicular
- infraclavicular
- axillary
- specific nerves

Anatomy / Landmarks and Sonoanatomy for common plexus and nerve blocks (lower limb)*

- femoral / 3-in-1 block / fascia iliaca block
- sciatic
- tibial
- common peroneal
- obturator
- ankle block

Monitoring and Risk Reduction in Regional Anaesthesia

Monitoring

Complications

LAST

Management of Nerve Injury

DAY 1 (PM)*

HANDS-ON SESSIONS

UL BLOCKS

- landmark
- sonoanatomy

LL BLOCKS

- landmark
- sonoanatomy

PHANTOM

DAY 2 (AM-PM)

LIVE OT SESSIONS

----- End of Session -----

* For Advanced Block, sessions will be on the relevant sonoanatomy and landmark from;

Spinal/Para-spinal

Catheter

Thoracic/Abdominal Wall Blocks