

CREDENTIALING AND PRIVILEGING FOR ULTRASOUND GUIDED REGIONAL ANAESTHESIA

With regards to 'Credentialing and Privileging', The American Society of Regional Anaesthesia (ASRA) and the European Society of Regional Anaesthesia (ESRA) Joint Committee omitted any specific recommendations for the credentialing or privileging of individual practitioners to perform Ultrasound Guided Regional Anaesthesia (RA). Because RA is practiced internationally and within a wide spectrum of anaesthesiology practice settings, the Joint Committee believes that each institution must develop an individualized process for credentialing and privileging. Any decisions regarding the need for an RA credentialing and privileging process should be made at the local hospital level through collaboration between the RA coordinator, the anaesthetic department and the institution. Nonetheless, it is the hope of the Joint Committee that this document can provide a framework for anaesthesiology departments and institutions to establish the highest quality of training and ongoing QI that will ensure the safe and effective conduct of RA worldwide.

Commonly performed USG regional blocks as described by the Joint Committee are as illustrated in Table 1.

| Upper Extremity | Lower Extremity | Other |
|------------------------|-------------------------|----------------------------|
| Interscalene | Posterior lumbar plexus | Ilioinguinal |
| Supraclavicular | Femoral | Iliohypogastric |
| Infraclavicular | Saphenous | Rectus sheath |
| Axillary | Sciatic-transgluteal | Neuraxial-spinal |
| Mid humeral | Sciatic-subgluteal | Neuraxial-epidural |
| Forearm: median | Sciatic-popliteal | Neuraxial-caudal |
| Forearm: ulnar | Common peroneal | Pediatric blocks |
| Forearm: radial | Tibial | Paravertebral |
| Suprascapular | Ankle-tibial | Sympathetic ganglia blocks |
| Deep cervical | Ankle-deep peroneal | Trigger point injections |
| | Ankle-sural | |
| | Obturator | |

This list is not meant to represent a complete or exhaustive list. Other blocks or approaches may be possible with ultrasound guidance.

In view of differing levels of expertise, the committee also recognizes that exact number of procedures and CME events required to master the skills for RA varies according to the level of experience. We have defined certain criteria for the credentialing of anaesthesiologists in administration of regional blocks with US guidance, and RA trainers.

We describe level of expertise as;

- A) Certified Providers
- B) Trainers

A) CERTIFIED PROVIDERS

- Defined as 'acquired adequate and appropriate knowledge and is proficient in performing regional block with or without US guidance, safely and competently'.
- must undergo training modules* consisting of 3 (three) components;
 - a) Lecture module (Appendix 1)
 - principles of US and nerve stimulators
 - anatomy and sonoanatomy
 - needling techniques - in plane and out of plane
 - management of technique or drug-related complications
 - b) hands on sessions
 - on models and phantom under guidance of a person credentialed as RA Trainers (see below) for a duration of at least 2 hours
 - c) hands on sessions on patients under operative conditions
 - under the supervision of RA Trainers for a duration of at least 4 hours.
 - Learn other skill sets and curriculum as recommended by ASRA and ESRA Joint Committee Guidelines (see Tables 2 and 3)

*Modules must be supervised by Trainers

- Providers must keep documentation logs (with database logbook containing details and/or static or video images of block performed), of a total of forty (40) blocks, with a case mix consisting of;
 - a) Upper limb blocks: 20 cases
 - Minimum of 2 each from:
 - interscalene approach
 - supraclavicular approach
 - infraclavicular approach
 - axillary approach
 - b) Lower limb blocks: 20 cases
 - Minimum of 5 each from:
 - Femoral nerve
 - Popliteal approach
- All cases done are to be supervised, and validated by a certified '**Trainer**'.
- A candidate will **ONLY** be certified as 'Provider' after fulfilment of all 4 components of the training modules.

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 |

TABLE 3 CURRICULUM CONTENTS FOR RA PROVIDER

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

TRAINERS

To facilitate teaching and training of RA, we recommend that trainers;

Have done at least one hundred (100) '**Basic**' and '**Advanced**' level nerve blocks under US guidance (with database logbook containing details of static or video images of block performed) consisting of:

- Upper limb blocks:

minimum of 10 of each from:

- interscalene approach
- supraclavicular approach
- infraclavicular approach
- axillary approach
- median, ulnar and radial nerve block

- Lower limb blocks:

minimum of 10 of each from:

- Femoral nerve
- Sciatic nerve (various approaches)
- Popliteal approach

- Advanced block:

minimum of 3 of each from:

- Catheter technique
- Spinal/Para-spinal
- TAP/Ilio-inguinal/Hypogastric
- Modern Blocks (PECS/Quadratus Lumborum)

RA COORDINATORS

Local hospitals may choose to select an anaesthesiologist to become the coordinators for regional block based on their interest and expertise. To ensure that he/she is proficient to administer regional blocks, we recommend that the person selected must be a certified Trainer.

Reference:

1. The American Society of Regional Anesthesia and Pain Medicine and The European Society of Regional Anesthesia and Pain Therapy Joint Committee Recommendations for Education and Training of Ultrasound Guided Regional Anesthesia

*Brian D. Sites MD, Vincent W Chan, MD, Joseph M, Neal, MD, Robert Weller, MD, Thomas Grau, MD, PhD, Zbigniew J. Koscielniak-Nielsen, MD, PhD and Giorgio Ivani, MD
Regional Anesthesia and Pain Medicine. Volume 34, Number 1, January-February 2009*

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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