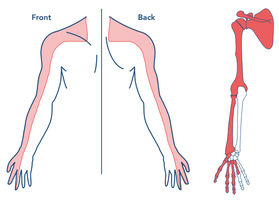
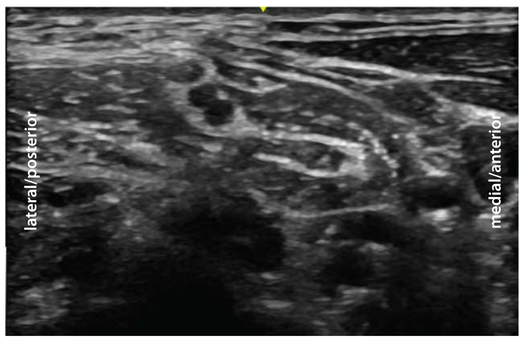
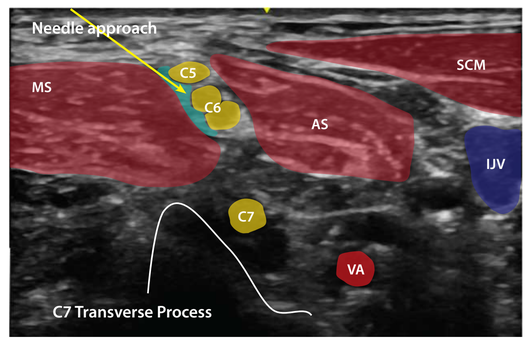
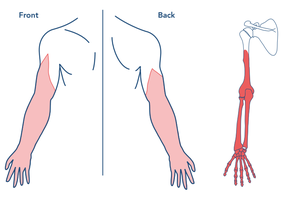
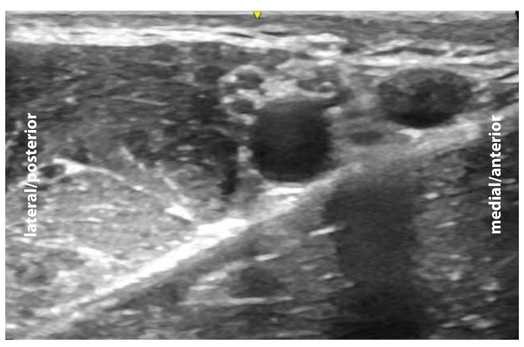
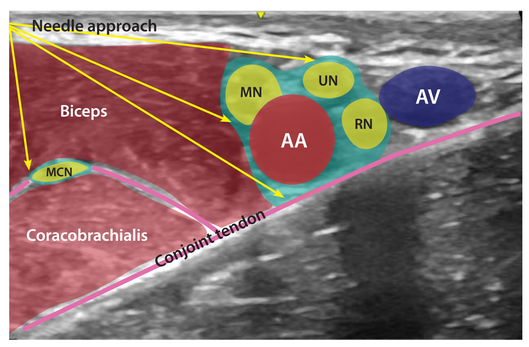
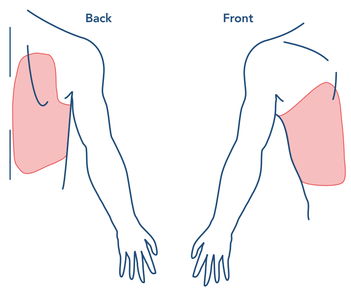
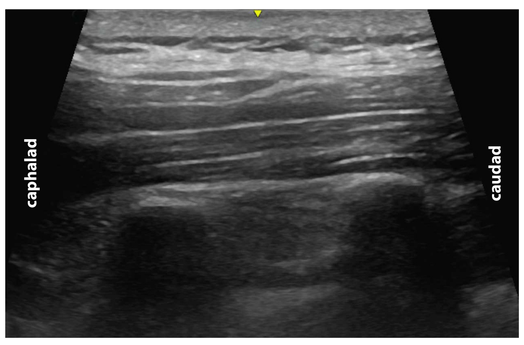
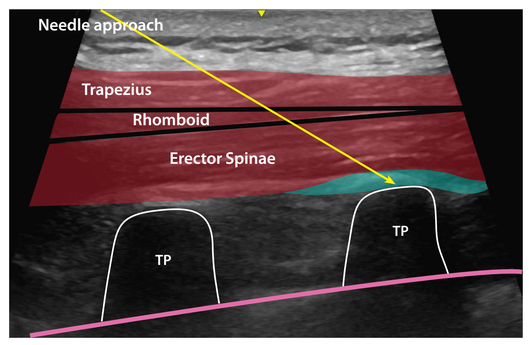
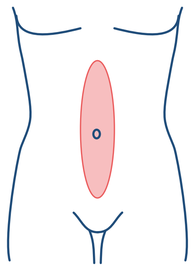
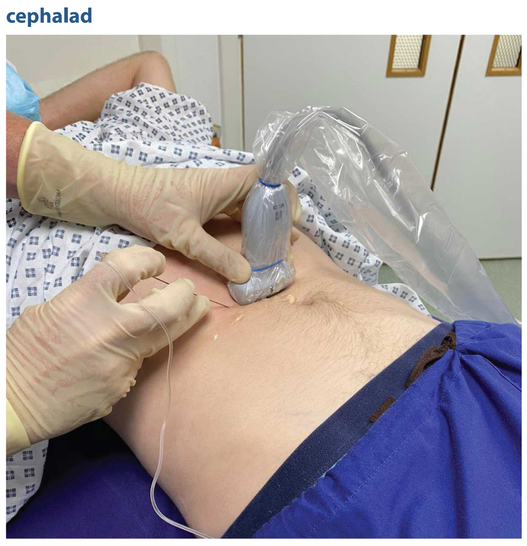
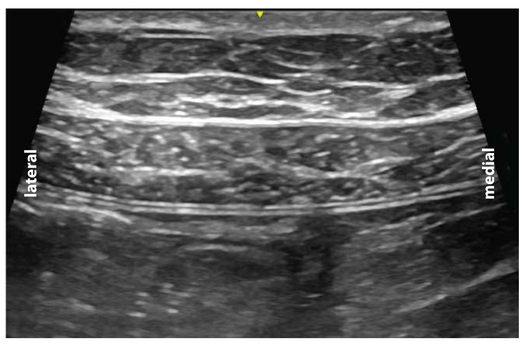
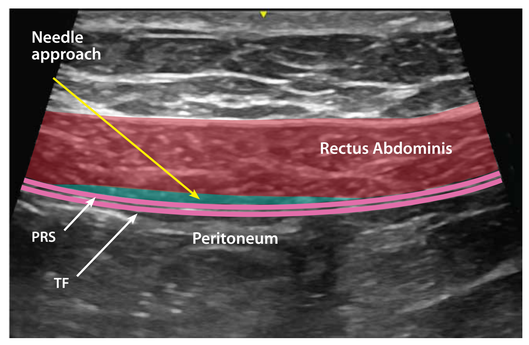
UPPER LIMB & TRUNK
PLAN A BLOCKS

RA-UK Regional Anaesthesia United Kingdom

Supported by B BRAUN SHARING EXPERTISE

	PROBE POSITION	ULTRASOUND IMAGE	ULTRASOUND ANATOMY
INTERSCALENE BRACHIAL PLEXUS BLOCK **Indications:** Shoulder procedures **Positioning:** Supine, head turned to contralateral side **Depth:** 1 – 4 cm **Needle:** 22G, 25 – 50 mm **Volume:** 10 ml for analgesia / 15 – 20 ml for anaesthesia  **Abbreviations** **MS** = Middle Scalene Muscle **AS** = Anterior Scalene Muscle **SCM** = Sternocleidomastoid Muscle **VA** = Vertebral Artery **IJV** = Internal Jugular Vein **LA** = Local Anaesthetic	cephalad  caudad	 **Probe position:** Level of the cricoid cartilage over external jugular vein. **Needle approach:** In-plane, posterior to anterior or out-of-plane. **Best view:** C5, C6 and C7 between the AS and MS. **Technique:** Needle insertion towards the C6 nerve root avoiding the dorsal scapular and long thoracic nerve with in the MS.	 **Spread of LA:** Spread around C5 and C6 nerve roots. **Tips:** Scan proximally from supraclavicular fossa. Use colour doppler to identify the vertebral artery. Avoid injecting near to C7 nerve root due to the risk of puncturing the nerby vertebral artery. ● = Local Anaesthetic Spread
AXILLARY BRACHIAL PLEXUS BLOCK **Indications:** Procedures below shoulder **Positioning:** Supine, arm abducted and / or elbow flexed **Depth:** 1 – 4 cm **Needle:** 22G, 50 – 100 mm **Volume:** 15 – 25 ml  **Abbreviations** **AA** = Axillary Artery **AV** = Axillary Vein **MN** = Median Nerve **UN** = Ulnar Nerve **RN** = Radial Nerve **MCN** = Musculocutaneous Nerve	cephalad  caudad	 **Probe position:** Transversely across the axilla at junction of biceps and pectoralis muscles. **Needle approach:** In-plane. **Best view:** Axillary artery at the level of the conjoint tendon with the three nerves surrounding. MCN between biceps and coracobrachialis. Trace the nerves in the upper arm to confirm identity of the nerves. **Technique:** Start with the radial nerve, deep to the artery. Then surround the median and ulnar nerves. May need a separate injection for MCN.	 **Spread of LA:** Aim for 5 mls of LA around each nerve. **Tips:** There is a large amount of anatomical variation. Always scan within the upper arm to locate the nerves. Use small amounts of LA to hydrodissect the nerves and vessels. ● = Local Anaesthetic Spread
ERECTOR SPINAE PLANE BLOCK **Indications:** Chest wall procedures and rib fractures **Positioning:** Sitting, lateral decubitus or prone **Depth:** 4 – 10 cm **Needle:** 22G 50 – 100 mm or 18G Tuohy **Volume:** 20 – 30 ml, do not exceed max. dose of LA  *This is the dermatomal spread we hope to cover **Abbreviations** **TP** = Transverse Process	cephalad  caudad	 **Probe position:** Sagittal plane about 3 cm lateral to the midline. **Needle approach:** In-plane, cephalad to caudad or caudad to cephalad. **Best view:** Identify the transverse process in the middle of the intended dermatomal spread. Two transverse processes with the muscle layers in view. **Technique:** Needle insertion towards the TP at the desired level. Inject below erector spinae muscle.	 **Spread of LA:** Inject a small amount of LA to confirm needle in correct fascial plane. LA should spread below the erector spinae muscle, caudal to cranial. **Tips:** Aim for the transverse process and use it as a back stop to avoid over inserting your needle. This is a fascial plane block which requires high volumes for spread. Be cautious to not exceed maximum dose of LA. Consider using dilute solution of LA. ● = Local Anaesthetic Spread
RECTUS SHEATH BLOCK **Indications:** Midline abdominal procedures **Positioning:** Supine **Depth:** 3 – 6 cm **Needle:** 22G 50 – 100 mm **Volume:** 10 – 20 ml each side, do not exceed max. dose of LA  *This is the dermatomal spread we hope to cover **Abbreviations** **PRS** = Posterior Rectus Sheath **TF** = Transversalis Fascia	cephalad 	 **Probe position:** Above the level of the umbilicus, lateral and in a transverse position **Needle approach:** In-plane, lateral to medial **Best view:** Identify linea alba in the midline and scan laterally to rectus. View the fascial plane deep to the rectus muscle. **Technique:** Insert the needle through the rectus muscle aiming towards the fascial plane between the rectus muscle and PRS.	 **Spread of LA:** LA spread between the rectus muscle and PRS. The muscle will peel away from the PRS. **Tips:** Innervation of the midline is from both sides, therefore bilateral blocks are required for midline procedures. The epigastric vessels can lie deep to or in the rectus muscle, use colour doppler to help identify the vessels. ● = Local Anaesthetic Spread

@RegionalAnaesUK
Created by **Ann Barron** @ann_barron1 // **Stuart Wade** @drstu_wade // **Craig Johnstone** @c_johnstone1980 // **Amit Pawa** @amit_pawa

Designed by fourandtwentydesign.com

LOWER LIMB
PLAN A BLOCKS

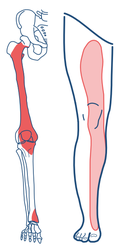
RA-UK Regional Anaesthesia United Kingdom

Supported by B BRAUN SHARING EXPERTISE

	PROBE POSITION	ULTRASOUND IMAGE	ULTRASOUND ANATOMY

FEMORAL NERVE BLOCK

Indications: Hip (or knee) procedures
Positioning: Supine, leg slightly abducted
Depth: 1 – 4cm
Needle: 22G 50 – 100 mm
Volume: 10 – 20 ml

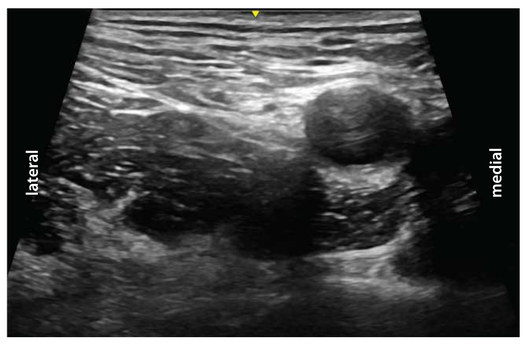


Abbreviations
FN = Femoral Nerve
FA = Femoral Artery
FV = Femoral Vein

PROBE POSITION

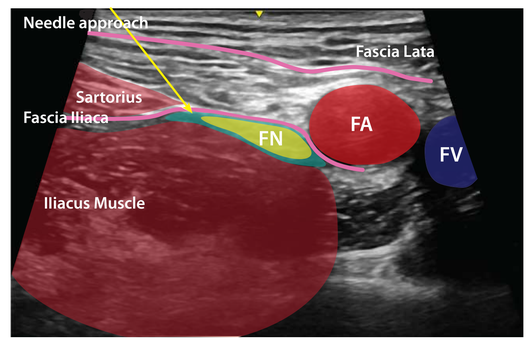
cephalad

ULTRASOUND IMAGE



Probe position: Transverse across upper thigh, just below the inguinal ligament.
Needle approach: In-plane, lateral to medial.
Best view: Femoral artery and vein medially, femoral nerve just lateral to the artery underneath fascia iliaca.
Technique: Needle insertion lateral to the nerve below the fascia iliaca. Needle can be moved to ensure LA surrounding the nerve.

ULTRASOUND ANATOMY

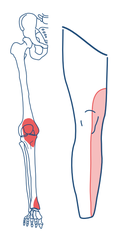


Spread of LA: Below the fascia iliaca, surrounding the nerve.
Tips: The femoral nerve can be difficult to visualise. Optimise the image using a caudal and cranial tilt of the probe. If the nerve is still difficult to visualise, perform a fascia iliaca block by depositing LA below the fascia iliaca.

● = Local Anaesthetic Spread

ADDUCTOR CANAL/FEMORAL TRIANGLE BLOCK

Indications: Knee procedures
Positioning: Supine, leg slightly abducted and externally rotated
Depth: 1 – 6 cm
Needle: 22G, 100 – 150 mm
Volume: 10 – 20 ml



Abbreviations
SN = Saphenous Nerve
NVM = Nerve to Vastus Medialis
FA = Femoral Artery
FV = Femoral Vein

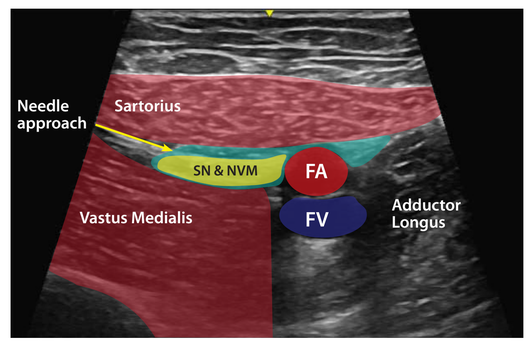
PROBE POSITION

cephalad

ULTRASOUND IMAGE

Probe position: Transverse position at mid-thigh level, medial aspect.
Needle approach: In-plane, lateral to medial.
Best View: Femoral artery below the sartorius muscle between vastus medialis and adductor longus. SN and NVM are seen just lateral to the artery.
Technique: Needle insertion towards the femoral artery, deep to sartorius.

ULTRASOUND ANATOMY

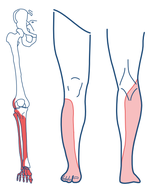


Spread of LA: In the plane below sartorius muscle.
Tips: Identify the femoral artery in the upper thigh and trace it distally to the mid-thigh. When this block is performed in the upper/middle thigh, the needle is usually located in the femoral triangle.

● = Local Anaesthetic Spread

POPLITEAL SCIATIC BLOCK

Indications: Foot and ankle procedures
Positioning: Supine with hip and knee flexed / lateral / prone
Depth: 2 – 6cm
Needle: 22G 50 – 100 mm
Volume: 20 ml



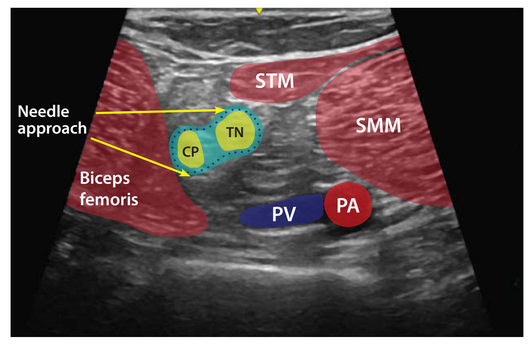
Abbreviations
CP = Common Peroneal Nerve
TN = Tibial Nerve
PV = Popliteal Vein
PA = Popliteal Artery
SMM = Semimembranosus Muscle
STM = Semitendinosus Muscle
····· = Circumneural Sheath

PROBE POSITION

ULTRASOUND IMAGE

Probe position: Transverse approximately 5cm above the popliteal crease.
Needle approach: In-plane, lateral to medial or out-of-plane.
Best view: CP and TN just separate and contained within circumneural sheath.
Technique: Needle insertion parallel to the probe, aiming above and below the nerve.

ULTRASOUND ANATOMY



Spread of LA: Surrounding the two nerves and inside the circumneural sheath.
Tips: Use gentle pressure to avoid obliterating the popliteal vein. If the nerve is difficult to visualise, tilt the probe towards the knee. The "see-saw sign" can be used to identify the nerve. Aim to inject within the circumneural sheath but outside the epineurium.

● = Local Anaesthetic Spread

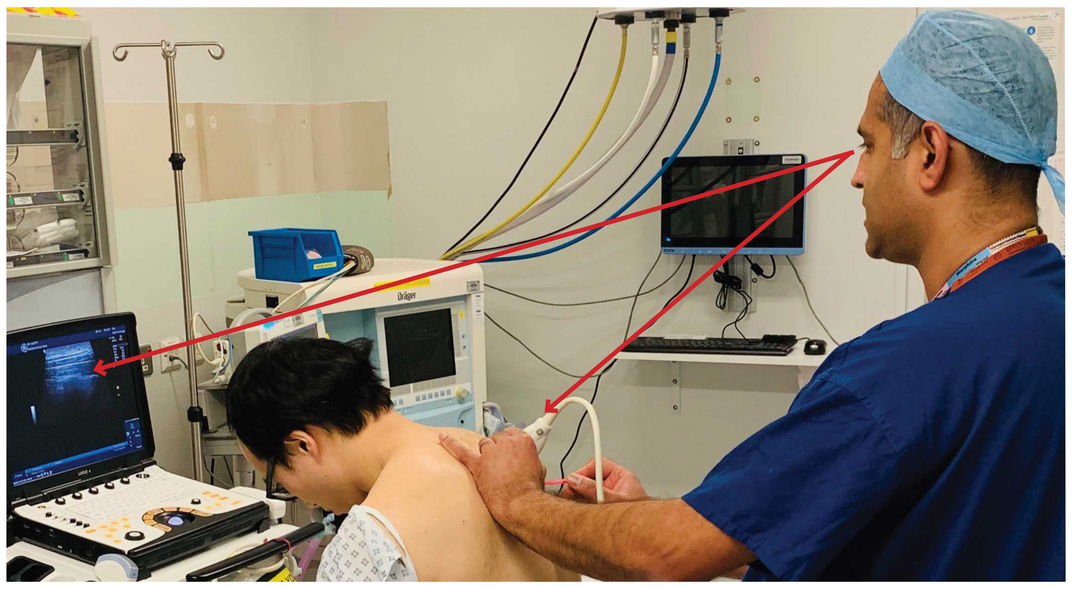
LEARN MORE

https://ra-uk.org/index.php/news/365-plan-a-blocks

Plan A Blocks Editorial

BJA Education RA Safety & Quality

ERGONOMICS



Getting the best image

- Find a comfortable position, relaxed shoulders and back.
- Stabilise your hand on the patient, using the ulnar border of your hand.
- Optimise ergonomics: Position the patient, needle and US machine all in line of sight.
- Optimise US machine settings: Select correct probe, depth and gain.

Needling tips

- Perform a **STOP** moment, involving the anaesthetic assisant, immediately before needle insertion.
- Identify the needle tip at all times, use small movements or hydrolocation.
- Place the needle next to the nerve, not contacting the nerve.
- Observe injection – if you can't see spread of LA – STOP.
- Injection should be low pressure and painless – if not – STOP.

REFERENCES

Turbitt et al. Future directions in regional anaesthesia: not just for the cognoscenti. Anaesthesia 2020; 75: 293– 7

Townsley et al. A pocket guide to ultrasound-guided regional anaesthesia. 2nd Edition 2019.

@RegionalAnaesUK

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