

## Retrospective analysis of analgesia provided for hip fracture from presentation to 24 hours postoperatively

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### **Abstract**

#### Introduction

We present an audit of hip fracture (HF) patients, the analgesia provided and their pain scores from presentation to 24 hours post-operatively. Standards used were the NICE and Association of Anaesthetists (AoA) guidelines.

#### Methods

We collected data on analgesia provided including peripheral nerve blocks (PNB), perioperative pain scores, the presence of cognitive impairment on presentation (AMTS) and delirium (4AT) postoperatively by retrospective analysis of 57 patient notes.

#### Results

In ED, 44/57 patients received a landmark fascia iliaca block (FIB), and all received IV paracetamol. Of the 9 patients with severe post-operative pain, 7 received a spinal anaesthetic without PNB. All of the 13 patients with delirium postoperatively had cognitive impairment on presentation.

The technique of nerve block in the anaesthetic room was ultrasound guided in 12/28 blocks. High volume blocks (30mL or more) were used in 12/28.

Our results are summarised in the table below.

Anaesthetic technique	Total	Severe post operative pain score (score 7 or more)	Delirium (total represents number of patients assessed)	Cognitive impairment pre-operatively (AMTS 7 or less)
GA + block	22	2	8 / 21	12
GA without block	15	0	5 / 14	8
Spinal + block	4	0	0 / 4	1
Spinal without block	13	7	0 / 5	5
Block with sedation	1	0	0 / 1	0
Not specified	2	0	0 / 2	1

## Discussion

Preoperative PNB is a valuable technique to reduce pain from HF and to facilitate positioning for a spinal anaesthetic, and is recommended by NICE and the AoA guidelines. Our audit data supports this, particularly if a spinal is the chosen anaesthetic technique in order to prevent rebound pain from the offset of neuraxial blockade. In this frail patient cohort, avoidance of severe pain may help to reduce postoperative delirium. Our data showed the presence of delirium was more associated with cognitive impairment on presentation. Formal analgesia pathways for this patient group should take into account the offset of neuraxial blockade and PNB.

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## Regional anaesthesia and upper limb surgery: creating a new pathway

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### Abstract

Table 1. Theatre timings. Values are number or median (interquartile range[range])

<b>Patients</b>	6
<b>Time from intravenous cannulation to 'ready for surgery', minutes</b>	32 (28-35 [25-36])
<b>Time from entering theatre to knife to skin, minutes</b>	16 (12-20 [11-49])
<b>Time to next case in theatre, minutes</b>	12 (10-14 [5-20])
<b>Time from exiting theatre to discharge, minutes</b>	55 (48-68 [50-80])

### Introduction

Regional anaesthesia can improve patient outcomes, patient experience, reduce complications and improve efficiency (1). It can play a central role in minimising risk to staff (2). It lends itself well to upper limb surgery and the avoidance of sedation and general anaesthesia. We introduced an 'awake surgery' pathway at our institution.

### Methods

The surgeon, with experience of operating under regional blockade alone, selects appropriate patients in clinic and informs them that surgery is performed under a block. Patients are given information leaflets in their pre-assessment visit. These interventions manage expectations and help avoid changes or cancellation on the day of surgery. Patients are given a leaflet on discharge.

Each operating session has three cases; one performed under local anaesthetic infiltration and two under brachial plexus blockade. The first block is performed whilst the first case is in theatre. The 'blocked patient' is then monitored in the recovery area. The second block is not performed until surgery is safely underway. RA-UK guidelines for the supervision of patients were followed (3).

### Results

The pathway was introduced in January 2020. The SARS-COVID-19 pandemic resulted in limited data collection. Despite this we have been able to demonstrate efficiency in case turn over and discharge

(Table 1). All patients bypassed theatre recovery. There were no failed blocks and no patients required rescue analgesia or anti-emesis.

### **Discussion**

This model represents a simple and efficient pathway for upper limb surgery. When elective activity resumes we will continue to record data and patient-reported outcome measures.

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## **Ultrasound-guided supra-inguinal fascia-iliaca compartment block as part of an opioid-free anaesthetic technique for hip fracture patients in a rural hospital.**

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### **Abstract**

#### **Introduction :**

Hip fractures cause significant pain and analgesic optimisation can be challenging. Opioid analgesia is associated with significant side-effects and poor perioperative outcomes.

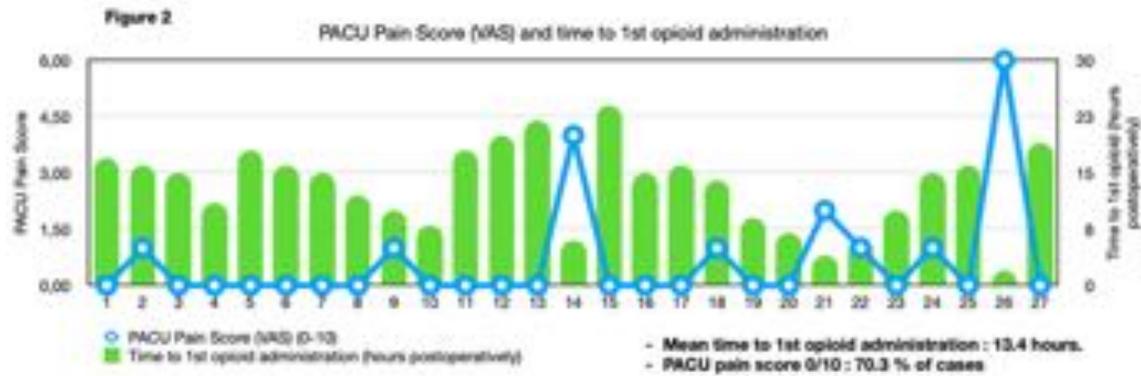
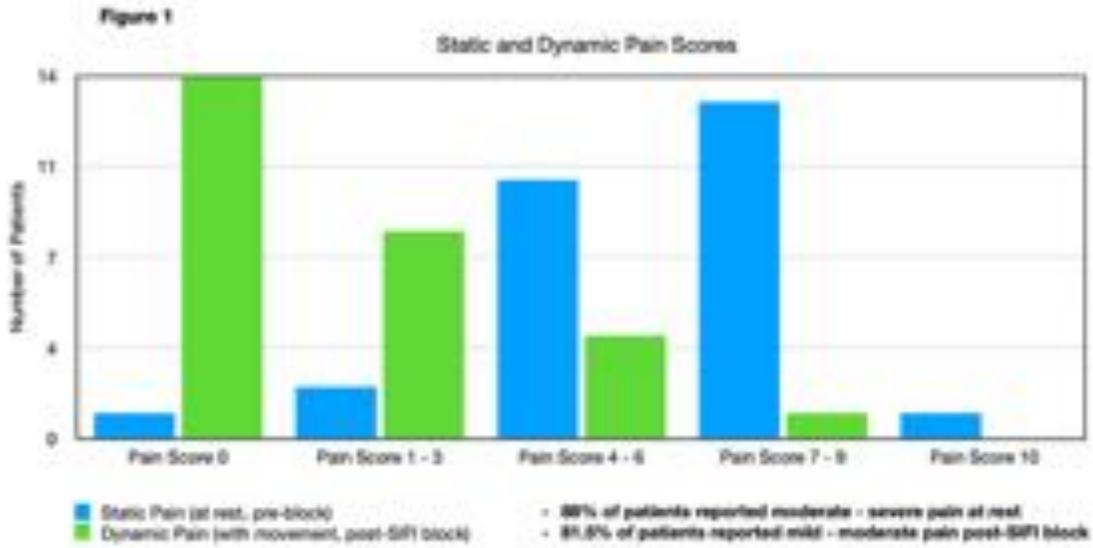
Regional anaesthesia improves perioperative pain scores, decreases perioperative opioid requirements and is associated with decreased perioperative morbidity and mortality.

This observational study aims to report perioperative pain scores and time to first postoperative opioid administration in adult patients undergoing hip fracture surgery who have received an US-guided suprainguinal fascia-iliaca compartment block (SI-FICB) followed by a low dose, opioid-free subarachnoid block (SAB)

#### **Methods :**

IRB approval was obtained and 27 patients undergoing hip fracture surgery between October 2019 and March 2020 received an USG SI-FICB followed by an opioid-free, low dose SAB (7.5 - 9mg hyperbaric bupivacaine). Static (pre-block) and Dynamic (post-block) pain scores (NRS) were evaluated. Pain scores were assessed in the PACU and patients were subsequently reviewed in the surgical ward. Ward charts were reviewed as to timing of 1st post-operative opioid administration. Standard doses of 0.25% Bupivacaine were used (30 - 40 ml).

#### **Results :**



### Discussion and Conclusion :

Dynamic pain scores following an US-guided SI-FICB and a low-dose, opioid-free SAB in patients presenting for hip fracture surgery in a rural hospital were generally low.

The mean time to first opioid administration postoperatively was 13.4 hours.

70.3% of patients had a PACU pain score of 0/10.

US-guided SI-FICB is an effective analgesic adjunct to an opioid-free anaesthetic technique comprising a SAB for hip fractures.

More research is needed however this approach provides an analgesic option within an enhanced recovery after surgery (ERAS) paradigm, particularly in a low-resourced clinical setting.

## References

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2.Griffiths R et al Guidelines for the management of hip fractures 2020 : Guideline by Association of Anaesthetists *Anaesthesia*, 2020; 76 (2) : 225-37

## **Ambulatory Anaesthetic Practice in a Post-Covid World: General Anaesthesia (GA) v. Spinal Anaesthetic Audit in Gynaecology Day Surgery**

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### **Abstract**

#### **Background**

COVID-19 has prompted many changes within anaesthesia and recent guidance suggests regional anaesthesia use over GA<sup>1</sup>. Short-acting intra-theal agents can offer an anaesthetic alternative within ambulatory surgery<sup>2,3</sup>. We analysed the pandemic's impact on our hospital's anaesthetic practice among day-case gynaecological procedures.

#### **Methods and Results**

A 5-month period during 2020 was analysed retrospectively and generated 89 suitable cases. This cohort had an average ASA of 2 and an average BMI of 36.9. There were 39 general, 44 spinal, and 5 local anaesthetic cases. This compared to 62 GAs and 7 spinals among a comparative 79 cases within 2019. Within the 2020 cohort the average time to 'fit for discharge' for a GA case was 110 minutes and 172 minutes for spinal anaesthetic. This time was reduced with use of prilocaine (160 minutes) and 2-chloroprocaine (77 minutes). The average procedure time was 21.7 minutes.

#### **Discussion**

There was a 34.6% reduction in GA and a 40.6% increase in spinal anaesthetics between 2019 and 2020 among day-case gynaecological procedures. Spinal anaesthesia had a longer average time to discharge but still proved an adequate alternative among ambulatory day cases, including for high BMI patients. 2-chloroprocaine appears to offer a quicker time to discharge than both GA and other intra-theal agents and its duration of action lying well within the average procedure time. The pandemic has clearly promoted use of regional anaesthesia, but will this change in practice persist beyond the end of Covid-19?

This audit was approved by the local audit department.

#### **References**

1. Tweedie, O.J, Erskine, R, Fox, B, Guntz, E, La Malfa, M, Schmitter, M.D and Stimpson, J. 2018. Spinal anaesthesia in day surgery. Right Drug, Right Patient, Right Procedure. *Sintetica*. Available at: [https://www.ra-uk.org/images/Covid\\_Webinar\\_2020/Spinal\\_Anaesthesia\\_in\\_Day\\_Surgery.pdf](https://www.ra-uk.org/images/Covid_Webinar_2020/Spinal_Anaesthesia_in_Day_Surgery.pdf). [Accessed: March 2021].

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# A Rack of Ribs : A QI project evaluating chest trauma management at Musgrove Park Hospital, Taunton

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## Abstract

### Introduction

Rib fractures are seen in up to 10% of all injured patients. Complications including pneumonia, pleural effusions, and ARDS can be significant, especially in the elderly<sup>1</sup>. Effective analgesia is a cornerstone of management and has been shown to reduce both morbidity and mortality<sup>2</sup>.

In our trust, we devised a chest trauma protocol, and needed to ascertain the current baseline management of patients to drive improvement.

**Adult Chest Injury Tool**

*Add the appropriate score from each category and then correlate with the management protocol. If number of significant chest trauma exceeds 27 or/and the total injury score then GSI*

Number of fractures	Ribs						TOTAL SCORE
	1-2	3-4	5-6	7-8	9-10	11-12	
1	0	0	0	0	0	0	
2	0	0	0	0	0	0	
3	0	0	0	0	0	0	
4	0	0	0	0	0	0	
5	0	0	0	0	0	0	
6	0	0	0	0	0	0	
7	0	0	0	0	0	0	
8	0	0	0	0	0	0	
9	0	0	0	0	0	0	
10	0	0	0	0	0	0	
11	0	0	0	0	0	0	
12	0	0	0	0	0	0	

**Management Recommendations:**

- 0-10 Conservative:** Consider discharge (NICE 176)
- 11-20 Progressive:** Refer to CCU (NICE 176) or Refer to acute pain team (NICE 176)
- 21-26 Aggressive:** As previous + discuss with CCU/Respiratory or call MDT
- 27+ Severe:** As previous + discuss with CCU/Respiratory or call MDT

**Additional instructions:**

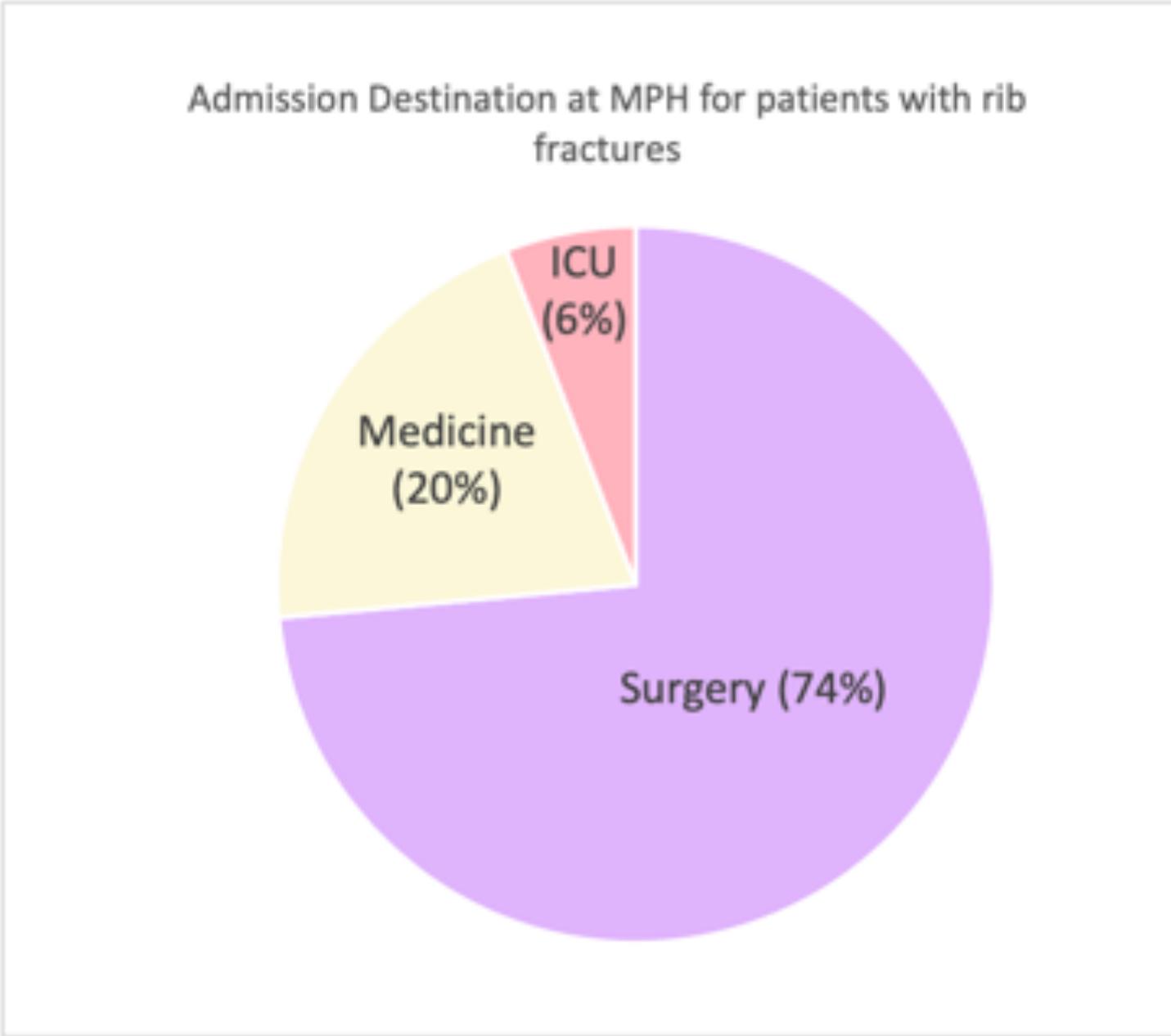
- For chest trauma patients with respiratory distress should be managed in critical care or CCU under the MDT lead. Monitoring chest X-rays and management plan is key.
- Document any non-respiratory complications.
- Progression-related patients require assessment in CCU or Respiratory or call MDT.
- Refer patients to acute pain team for consideration of regional analgesia.
- Refer patients to physiotherapy for chest physio and consider options.
- Refer to MDT/Respiratory if applicable.

### Methods

We collected data from all rib fractures presenting to the trust over 10 months (retrospectively and prospectively), including admission rates, inpatient destination, pain team involvement, regional anaesthesia techniques and their success.

Results

283 patients presented to our trust, and 73 (26%) were admitted (average age 70 years old). The pain team were involved in 38 admissions (52%).



Eleven patients (15%) had a regional technique, all bar one receiving an erector spinae block. 50% of these were completed by a member of the pain team (regionally experienced) with an average longevity of 6/7 days. The remainder were placed out of hours by the general anaesthetic pool and lasted 3/4 days before failing. One thoracic epidural was placed.

### Discussion

Almost half of admissions had no pain team involvement, despite being considered an essential component of care and best practice.

Early pain team referral and consideration of a regional technique has been emphasised to colleagues. ESP block training has been offered to improve operator skill and out-of-hours availability. Reluctance to place thoracic epidurals is reflected in lack of expertise and options for post procedure after care.

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## The Gender Confidence Gap in Ultrasound Guided Procedures

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### Abstract

#### Introduction

Women underrate their visuospatial ability in comparison to men despite equivalent performance levels, this has also been demonstrated in procedure-based medical specialities[1,2]. This confidence gap has yet to be investigated in ultrasound-guided procedures. We hypothesise that male clinicians have higher confidence learning ultrasound guided venous cannulation (USVC) than female counterparts where prior clinical experience is equal.

#### Methods

We provided 1 hour practical training on the basics of USVC for novice clinicians. Written feedback included grade of training and self-reported confidence in their ability to identify structures using ultrasound and USVC before and after teaching. Confidence in male and female candidates was compared using a two-tailed Mann-Whitney U test.

#### Results

28 participants attended the teaching sessions; 18 females and 10 males. Participants included foundation year 1 doctors, internal medical trainees, acute medical registrars and nurse practitioners. Male participants were more confident to try USVC after the teaching ( $p=0.026$ ), despite there being no difference between sexes for confidence in identifying structures ( $p=0.55$ ) or clinical experience ( $p=0.42$ ).

#### Discussion

We observed a gender disparity in confidence for USVC even after a 1 hour teaching session. We did not assess competence, which is a limitation, but women are known to rate their own ability more accurately[1]. It is recognised that women are underrepresented in Regional Anaesthesia and the reasons for this are likely multifactorial and complex. However, there are concerns that this confidence gap could lead to an inequality in training opportunities between genders and should be recognised by trainers[2].

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## Beyond NELA: A Cross-site Quality Improvement Project Establishing Rectus Sheath Nerve Catheters for Post-Laparotomy Analgesia

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### Abstract

#### Introduction

Midline laparotomy is associated with significant complications due to inadequate analgesia and analgesia-related sequelae such as hypotension, delirium and ileus. Rectus sheath catheters (RSC) contribute to effective multimodal analgesia whilst minimising such complications<sup>1</sup>.

#### Methods

The National Emergency Laparotomy Audit (NELA) database was used to collect data spanning a six month period<sup>2</sup>. Outcome measures included the use of regional techniques, post-operative pain scores and opioid requirements. The preliminary findings informed our divisional governance board proposal for RSCs as a viable contribution to post-operative pain management. This included the development of a local guideline, a protocolised care pathway, staff education, electronic prescribing and repeated audit<sup>3</sup>. We measured the impact of our intervention over a six month pilot period by repeating data collection to compare the performance of rectus sheath catheters versus alternative regional analgesic techniques.

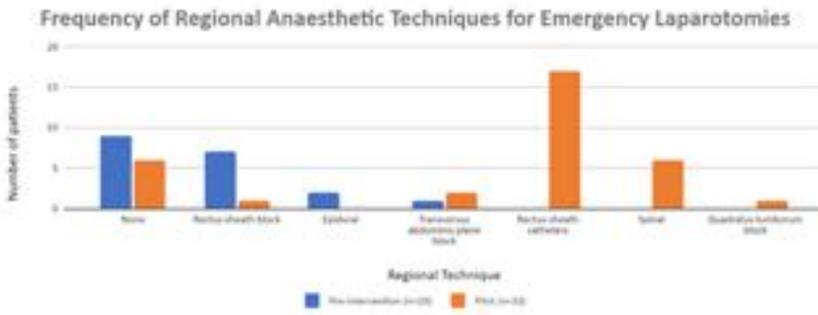
#### Results

Eighty-two NELA cases were analysed, thirty of which were excluded (laparoscopic approach or insufficient data in notes). There was greater use of regional anaesthetic techniques in the pilot compared with the pre-intervention dataset (see Figure 1). Furthermore, the RSC group reported lower mean pain scores and reduced opioid requirement on both post-operative days one and two, compared to patients receiving spinal or other single shot blocks (see Figure 2).

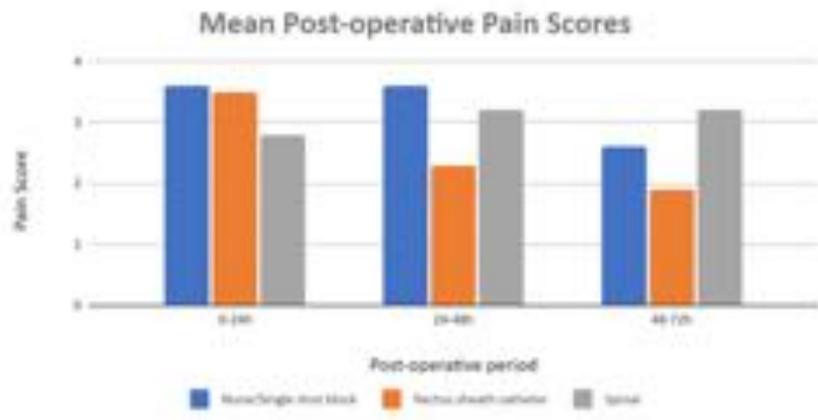
#### Discussion

This Quality Improvement Project has established cross-site guidelines and culture change, promoting RSCs for emergency laparotomy patients, leading to reductions in post-operative pain and opiate use. It has also enabled the development of further nerve catheter services, benefiting other patient groups.

**Figure 1**



**Figure 2**



**References**

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## **“Block Party”: creating new regional anaesthesia virtual teaching resources based on the RA-UK-endorsed Plan A Blocks**

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### **Abstract**

#### Introduction

Virtual teaching is an effective teaching method in the COVID-19 era (1,2). Enthused by a recent article discussing training in regional anaesthesia (RA) (3) and encouraged by RA-UK’s adoption of the Plan A Blocks, we created a package of online videos to replace traditional group tutorials as a way of supplementing local education in RA.

#### Methods

An initial survey of ST5-7 trainees assessing the adequacy of RA training in the Severn Deanery achieved 28 responses. Videos were produced, and refined after feedback, covering each Plan A Block and run as virtual tutorials before being distributed online. Questionnaires (45 responses) assessed pre- and post-video confidence scores for each block.

#### Results

61% of senior trainees were not aware of the Plan A Blocks initiative. 89% agreed with the principle of widespread implementation of a small number of versatile blocks. Only 25% believed they would achieve competence in all seven Plan A Blocks by the completion of their training. 93% confirmed interest in regular Plan A Blocks teaching.

Following “Block Party” teaching, confidence scores increased for all blocks, by an average of 59%. All respondents found the videos relevant to their practice and all stated they would find a ‘pocket guide’ useful. This was subsequently produced and has been downloaded 139 times up to March 2021.

## Discussion

We successfully implemented a virtual teaching package focused on the Plan A Blocks. We have shown a need exists locally for further RA training and hope these resources may continue to supplement face-to-face teaching.

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## Acute Kidney Injury in Patients with Fractured Neck of Femur: Opportunity for Improvement?

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### Abstract

#### Introduction

Hip fractures are a major economic challenge, with UK hospital costs estimated at >£1 billion annually.<sup>[1]</sup> Local data suggests that renal impairment is common in this population with the condition being associated to increased morbidity and mortality.<sup>[2]</sup> This project aimed to improve understanding of acute kidney injury (AKI), and guide QI work to improve the care of patients presenting with hip fractures.

#### Methods

Patients admitted to Ninewells Hospital with a hip fracture (01/06/19 – 10/09/19) were identified using Scottish Hip Fracture Audit data. Those identified to suffer from an AKI (RIFLE criteria) within 30 days were included in a detailed notes review.<sup>[3]</sup> See table 1 for data points.

#### Results

Of the 216 patients admitted with a hip fracture, 46 (21.3%) developed an AKI (table 1).

Table 1

Parameter	Value
Median age (range)	84 (57-97)
Female	65%
Percentage of patients with an ASA ≥3	67%
Median number of medications on admission (range)	Nine (0-23)
No. Receiving general anaesthesia	21
No. Receiving spinal anaesthesia	26
Median dose of 0.5% levobupivacaine	2.5ml
Patients catheterised	26 (17 pre-operatively, 2 intraoperatively)
Patients receiving at least one nephrotoxic drug pre-operatively in hospital	43% (n=20, 11 excluding antibiotics and diuretics)
Patients deceased within 30 days of operation	Five (three within first five days)

## Discussion

Fractured neck of femur presentations to Ninewells Hospital has doubled in seven years, and the incidence of AKI remains high (21.3% in 2019, 21.8% in 2012-13).<sup>[2]</sup> A large proportion of this group were given nephrotoxins perioperatively which appears to be mostly avoidable. GAs are disproportionately represented in patients with AKI, as the majority of hip fractures are managed using spinal anaesthesia in this hospital. Spinal doses are higher than reported elsewhere.<sup>[4]</sup> An opportunity therefore exists to reduce the spinal dose and consequential haemodynamic effects. Intraoperative hypotension is an independent risk factor for AKI.<sup>[5]</sup>

Areas for ongoing QI are perioperative fluid management, nephrotoxic prescribing, use of urinary catheters and lower dose spinals to minimise renal insult.

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## Post-Operative Neurological Symptoms (PONS) after Brachial Plexus Block & Surgery: Cohort Study & New Joint Guideline

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### Abstract

#### Introduction

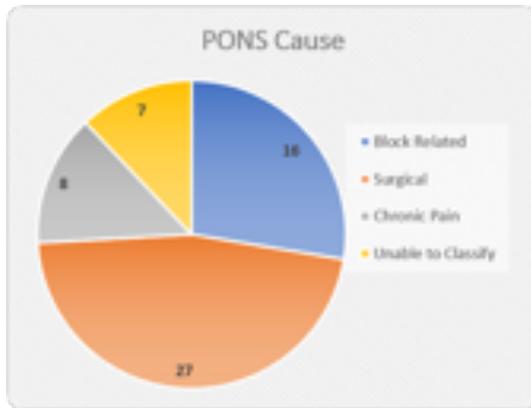
Regional anaesthesia for upper limb surgery improves pain relief, day-case rates and reduces length of stay<sup>1,2,3</sup>. This series examines PONS (pain/weakness/paraesthesia lasting >7 days) in a cohort of 5469 brachial plexus blocks performed by a block room in a large NHS DGH. We introduce new guidelines on management of PONS developed jointly by RA-UK and the British Orthopaedic Association (BOA).

#### Methods

5469 brachial plexus blocks (4007 axillary, 144 supraclavicular & 1318 interscalene) were performed at Sunderland Royal Hospital between 12/07/2013 and 14/10/2020. Telephone follow-up was undertaken 1-3 days post-operatively. Cases of PONS were referred to anaesthetic or surgical teams for follow-up using the local trust guideline. These were retrospectively analysed by a surgeon, anaesthetist and pain specialist to determine causation.

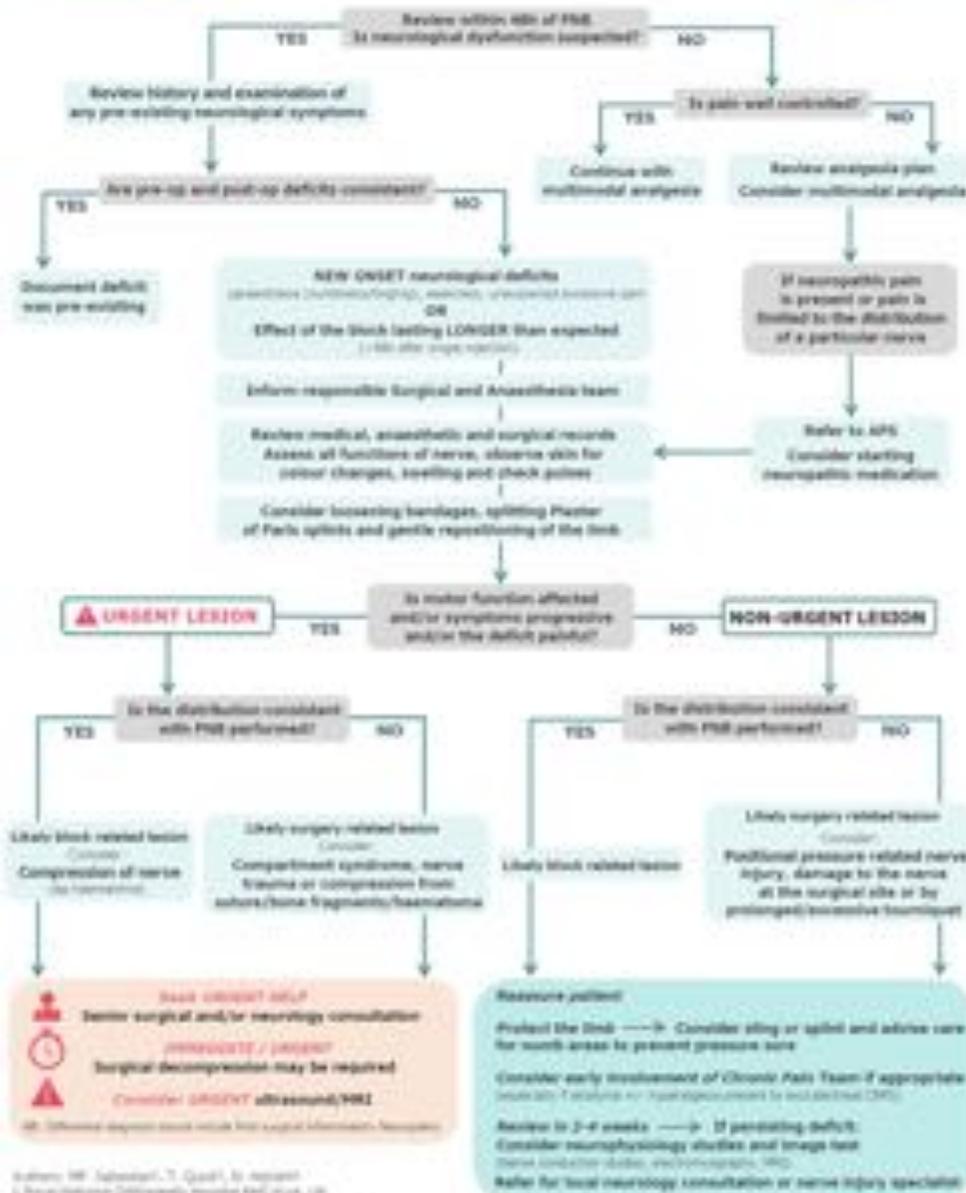
#### Results

- 58 cases of PONS identified from 5469 blocks (1.06%) (42 axillary, 16 interscalene).
- PONS causes: 16 blocks, 27 surgery-related, 8 CRPS/pre-existing chronic pain, 7 unable to classify.
- 55/58 blocks performed awake.
- 14/16 block-related PONS cases resolved by first clinic appointment.
- 1 case of permanent nerve injury (>1 year).
- 96% of patients 'satisfied' or 'very satisfied'.
- Block-related PONS presented with: paraesthesia (12), numbness (8), weakness (4), pain (2)



### **Conclusion**

- Incidence of PONS after block & surgery is low at 1%
- Only 28% of PONS cases following surgery were block-related.
- 88% of block-related PONS resolved by first clinic appointment.
- Accurate diagnosis and management of PONS after surgery can be challenging.
- This case series helped develop the joint RA-UK and BOA guideline.



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 2. South Tyneside and Sunderland NHS Foundation Trust, UK

Fig. 1. Peripheral nerve block follow up and initial management of postoperative neurological symptoms

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## Opportunity Blocks: Launching a Block Room

Andrew Beck, Iain Thomson

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### Abstract

#### Background:

Increased resource pressures and drive to avoid aerosol generating procedures (AGPs) during the pandemic provided the ideal climate for the implementation of a block room. Block rooms have been shown to improve theatre efficiency through parallel processing of patients<sup>1,2</sup> and block-only cases reduce AGPs<sup>3</sup>. A block room ran for 70 days in 6 months. The analysis of these cases describes our success.

#### Methods:

A single centre retrospective review of patients receiving peripheral nerve blocks within the block room setting for analgesia or block-only surgery. The primary outcome was success rate of block-only cases (failure - conversion to general anaesthesia or central neuraxial block). Other data collected included blocks performed, type of surgery, and surgical start time in renal theatres.

#### Results:

Data was collected for 368 patients (n=368). Chart 1 shows cases by speciality - most cases: trauma (n=147, 39.9%) and renal (n=137, 37%). 66% (n=243) of cases were block-only. Failure rate was 2.05% (n=5); all occurred during upper limb trauma cases.

Fistula lists had surgical start time expedited by 45 minutes.

Break down of blocks are shown in Chart 2.

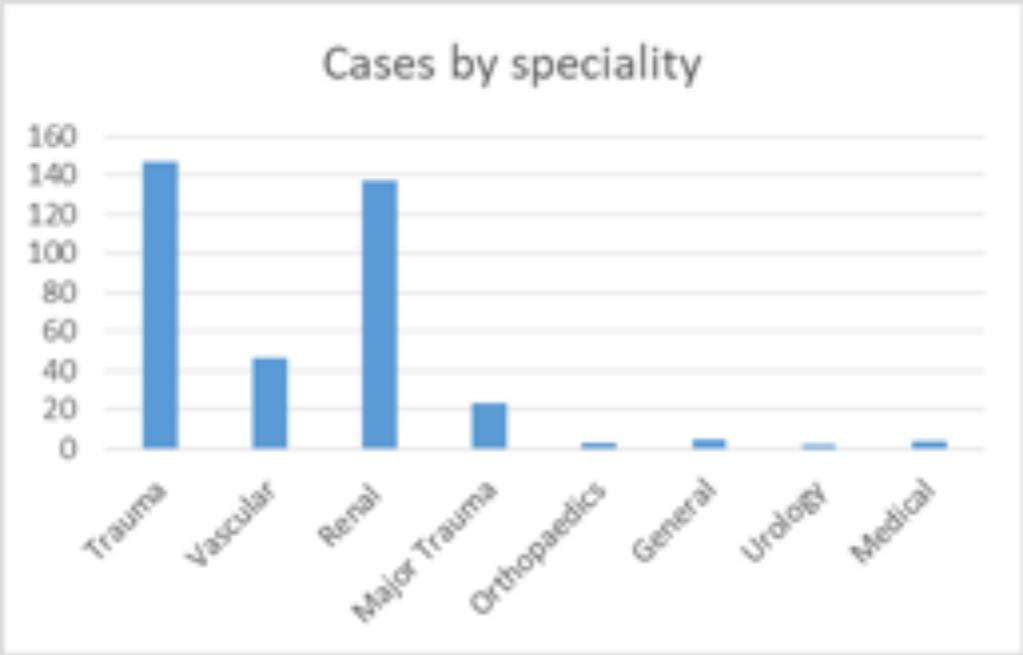


Chart 1

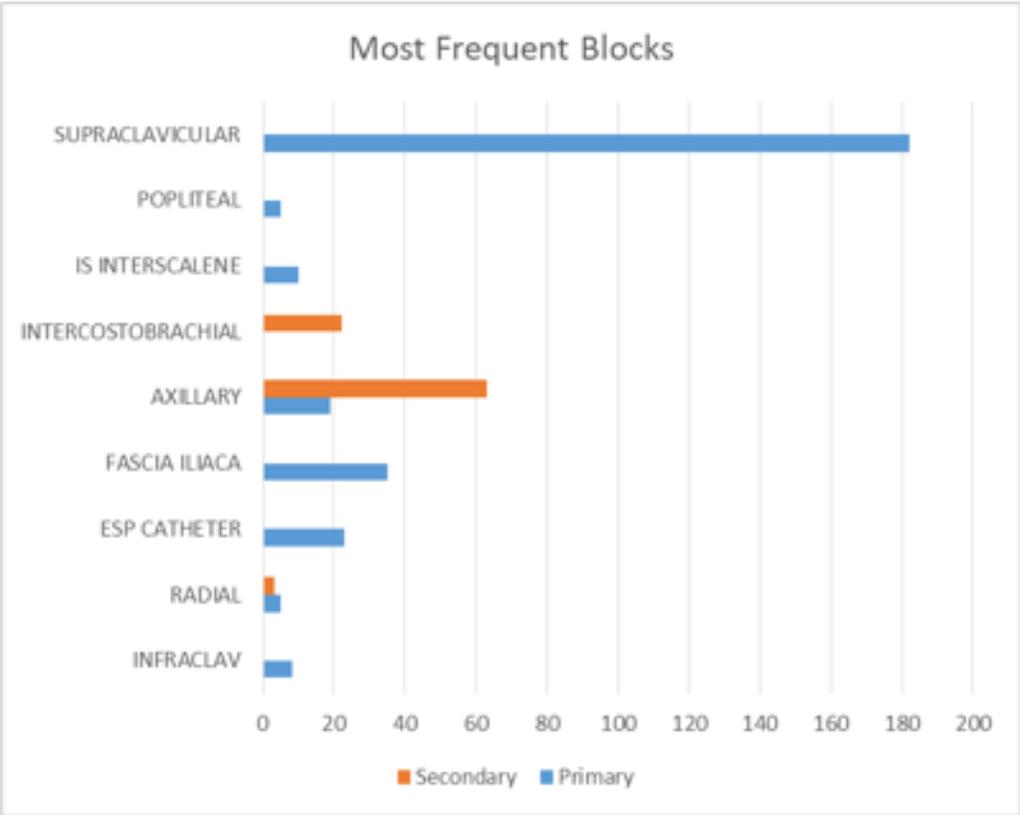


Chart 2

**Discussion:**

Block room implementation has improved the provision of regional anaesthesia within our large teaching hospital. Low failure rates and high uptake have helped to build confidence in the service by all users, and early data shows improved theatre efficiencies. The training opportunities this have provided have been praised at training school level. We aim to roll out to a permanent 5-day service.

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## Regional recipes in day surgery: shoulder anaesthesia

George Couch<sup>1</sup>, Matthew White<sup>2</sup>, Sophie Moore<sup>2</sup>, Ben Fox<sup>2</sup>

<sup>1</sup>Cambridge University Hospital, Cambridge, United Kingdom. <sup>2</sup>Queen Elizabeth Hospital, King's Lynn, United Kingdom

### Abstract

#### Introduction

Day-case surgeries account for >55% of procedures in England.<sup>1</sup> Regional anaesthesia provides excellent analgesia with low complication rates.<sup>2-4</sup> However, there remains significant variability in technique and dosing.<sup>5,6</sup> This analysis of regional anaesthesia for adult shoulder surgery in the day surgery unit (DSU), Queen Elizabeth Hospital King's Lynn, aimed to determine common practice allowing future standardisation.

#### Methods

Adults undergoing nerve blockade for DSU shoulder surgery from September 2017 to January 2020 were included. Data contributed to development of a standardised approach. The project was registered with the trust audit committee; ethical approval was not required.

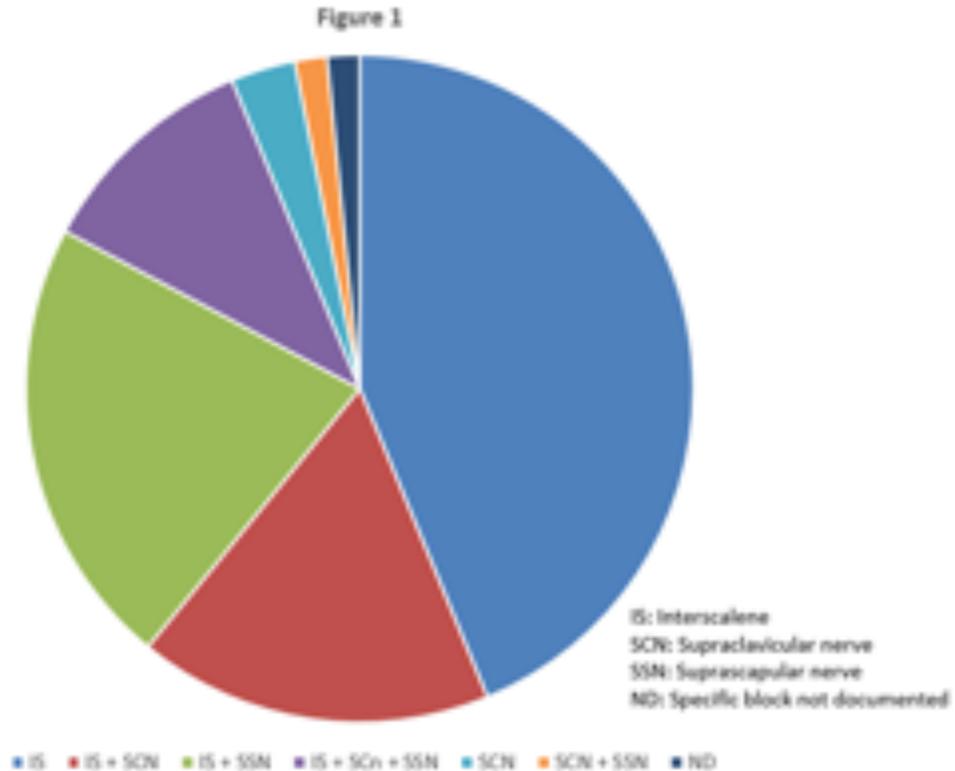
#### Results

128 patients underwent 204 documented nerve blocks (Figure 1). 120 patients had interscalene blockade (median volume 15ml), many supplemented with supraclavicular (5ml) and/or suprascapular (5ml) nerve blockade. 60% included adjuncts of dexamethasone and clonidine. 36% of patients were sedated; none were converted to general anaesthesia. On follow-up 9% of patients complained of discomfort and 23% of poor sleep; 97% would have regional anaesthesia again.

#### Discussion

Regional anaesthesia is appropriate for DSU shoulder surgery, providing analgesia with good patient satisfaction. Poor sleep may be associated with immobility, paraesthesia or rebound pain.<sup>7</sup> The modal regime was interscalene blockade using 15ml 0.75% ropivacaine, +/- supraclavicular (5ml) / suprascapular (5ml) nerve blocks using 0.75% ropivacaine or 0.5% levobupivacaine. 4mg dexamethasone and 75mcg clonidine may increase the density and duration of blockade.<sup>8,9</sup> A standardised 'recipe' was

derived and disseminated in local/regional teaching sessions and via an infographic. Local practice will be re-reviewed to determine impact on practice.



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The authors received no financial support for this work. BF has received speaker honoraria from Sintetica. MW, GC and SM have no conflicts of interest to declare.

## Regional recipes in day surgery: spinal anaesthesia

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### Abstract

#### Introduction

Day-case surgery accounts for >55% of procedures in England.<sup>1</sup> Spinal anaesthesia provides excellent analgesia, with reduced post-operative opiate requirements and low complication rates.<sup>2</sup> However there remains significant variability in technique and dosing.<sup>3</sup> This analysis of adult spinal anaesthesia in the Queen Elizabeth Hospital King's Lynn day surgery unit (DSU) aimed to determine common practice to allow future standardisation.

#### Methods

Adults undergoing spinal anaesthesia in the DSU from September 2017 to January 2020 were included. Data were utilised to generate a standardised pathway. The project was registered with the trust audit committee; ethical approval was not required.

#### Results

120 patients underwent spinal anaesthesia. 83.9% had prilocaine (median volume 2ml), 11.9% had chloroprocaine (5ml), and 4.2% had bupivacaine (2.2ml). 88% had an adjunct of fentanyl (median dose 10 mcg). One case required conversion to general anaesthesia. The median time to discharge for chloroprocaine was 3h40, prilocaine 4h45, and bupivacaine 7h05. 81 patients responded to the follow up survey of whom 96% said they would have spinal anaesthesia again, 12% reported headache post operatively, and 22% reported poor sleep.

#### Discussion

Spinal anaesthesia can be tailored for the day surgery setting, providing analgesia with good patient satisfaction. Poor sleep may be associated with immobility, paraesthesia or rebound pain,<sup>4</sup> and headaches were self-reported, therefore not necessarily representing PDPH. A standardised pathway was developed and was disseminated via a national infographic<sup>5</sup> and an internationally presented

webinar<sup>6</sup> “Ambulatory Spinal Anaesthesia in 8 Steps”. Local practice will be re-reviewed to determine impact on standardisation of practice.

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The authors received no financial support for this work. BF has received speaker honoraria from Sintetica. MW, GC and SM have no conflicts of interest to declare.

## **Survey of current practice, proficiency and training in placement of erector spinae plane (ESP) blocks in Glasgow Royal infirmary (GRI).**

Michelle McGarraghy, Catherine Ward, Richard Cowan

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### **Abstract**

**Introduction:** The ESP block has recently been endorsed by RA-UK as one of 7 “Plan A” blocks that all anaesthetists should become proficient in.

**Methods:** For this survey ethical approval was deemed unnecessary. Given Covid-19 restrictions an online survey format was chosen. In January 2021 all anaesthetists at GRI were invited to respond to determine current practice, proficiency and training in the technique.

**Results:** Results were analysed from 65 respondents (44.5% of anaesthetists invited to respond). Fifty eight percent of respondents were consultants and 42% trainees. Sixty five percent of respondents had never performed an ESP block while 23% had performed between 1-5 blocks and only 2% had placed between 16-20 blocks. Seventeen percent would feel confident performing the block unsupervised. Sixty three percent of respondents had not received any formal training on ESP block or catheter placement but 89% felt that this would be valuable. Fifty eight percent of respondents were aware that the ESP block is now one of 7 plan A blocks endorsed by RA-UK. When asked what resources for training are available respondents stated NYSORA, RAUK/RCOA block webinars, YouTube videos, local and cadaveric courses.

**Discussion:** Our survey suggests that further training is required before we can meet the suggested standard of all anaesthetists being proficient in performing ESP blocks and we can offer this as a reproducible standard of care. We have provided socially distanced lecture sessions and hands-on training to trainees and hope to roll this out further to the rest of our department.

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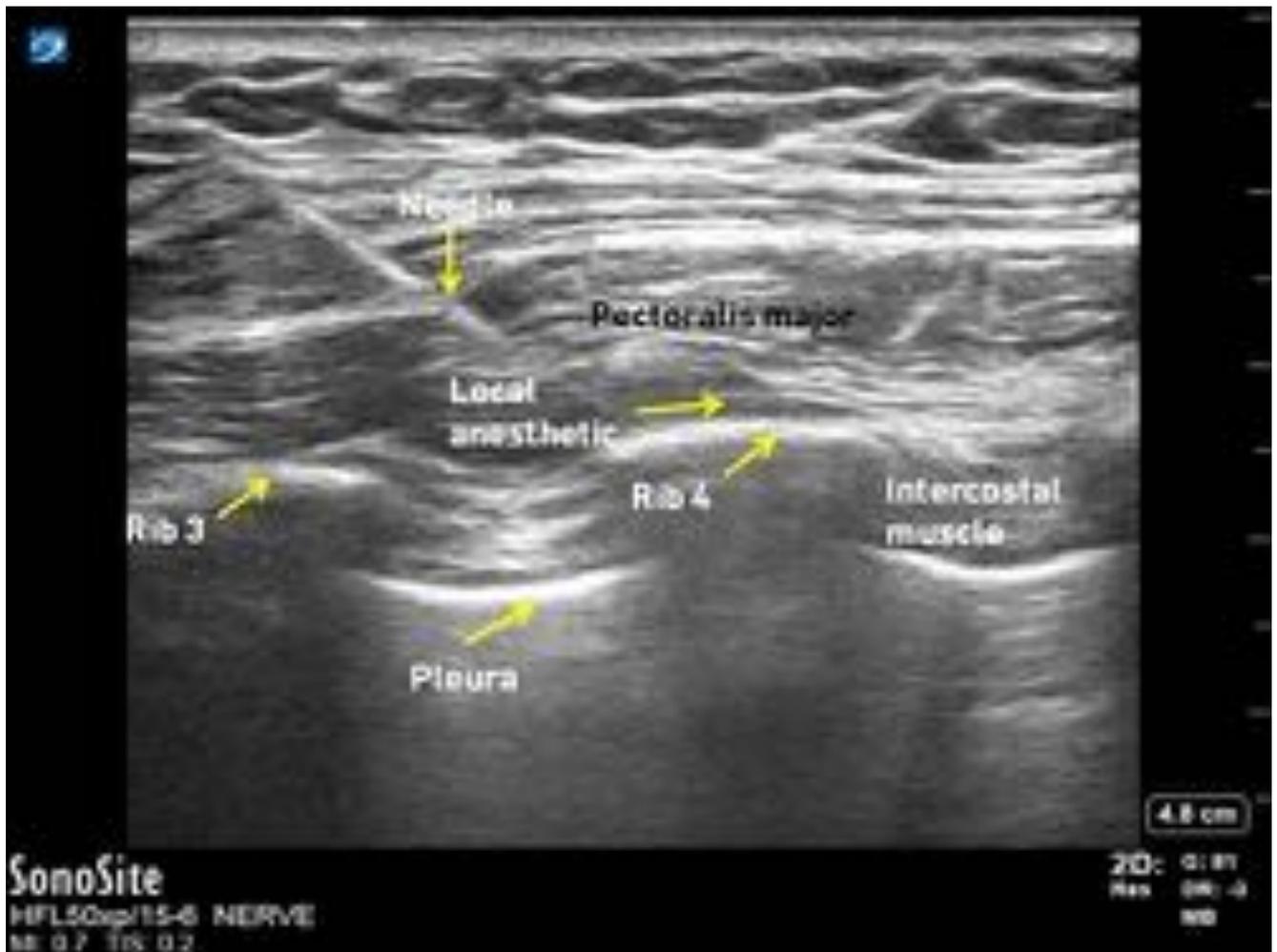
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## Sternal postfracture chronic pain: A case report

Fernando Murciano Garcia, Julio Talavan Serna, Luis Belmonte Bayo, Laura Sancho Iñigo, Elena Simon Polo

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### Abstract



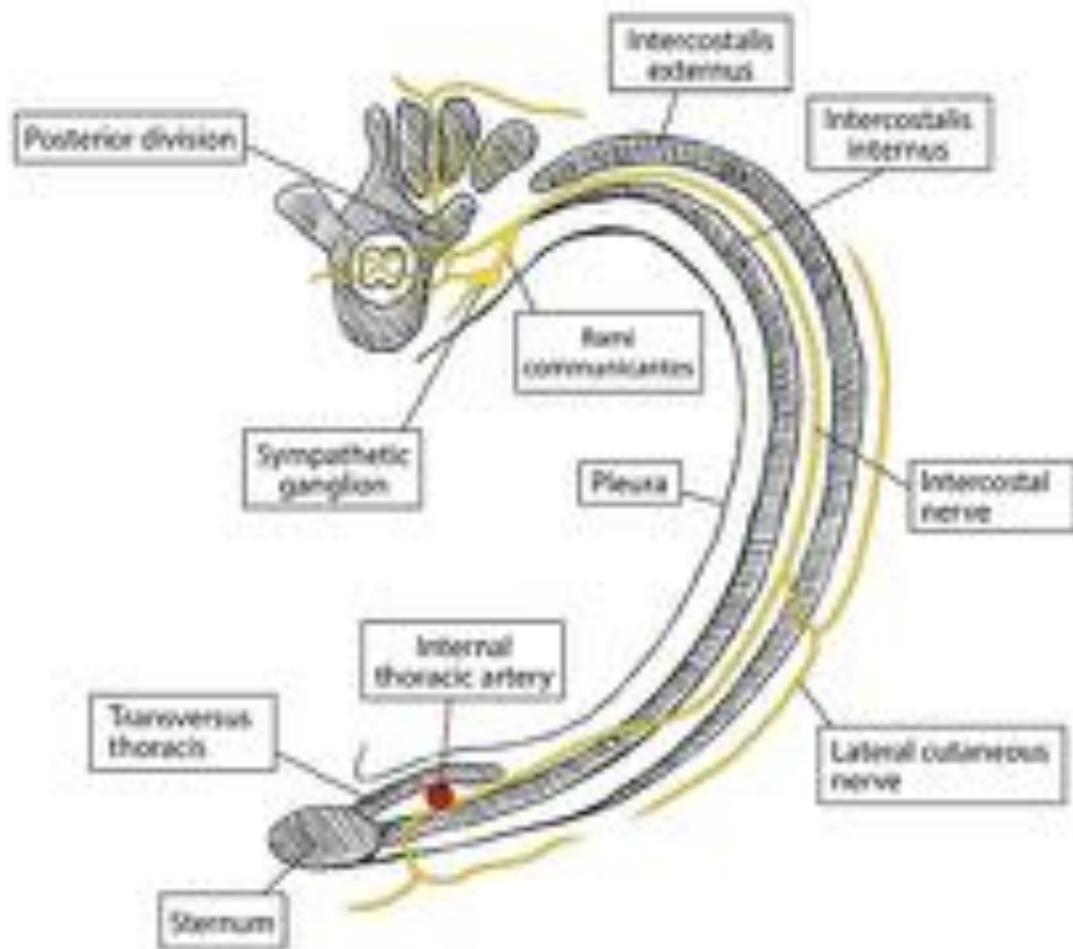
### Introduction:

A 41-year-old man with neuropathic pain in left central thoracic region. After a traffic accident in which the impact caused a fracture of the middle third (4th intercostal space) of the sternum. Great affectation, allodynia, poor analgesic control with drugs up to the 3rd level of the WHO.

The sternal body is innervated by cutaneous branches of the 2nd - 6th intercostal nerves and by the sympathetic plexus of the internal thoracic artery, that lays between internal intercostal muscle and transverse thoracic muscle. A collateral branch helps in the innervation and is directed towards the top costal edge.

A classic option is blocking transverse thoracic fascia but it has potentially serious risks.

Methods:



Pecto intercostal fascia block is an alternative. Local anesthetic is injected in the fascia between the pectoralis major and the intercostals. By anesthetizing the anterior branches of the intercostal nerves that traverse the intercostal muscles. It could achieve analgesia similar to transverse thoracic plane block.

To do it more safely, the internal thoracic artery must be located

#### Results:

Before the interventions, the patient presented a 10/10 VAS, Lattinen 16. After the application of 2 patches of capsaicin 8% in 3 months and the blockage of the pectointercostal fascia with 10 ml lidocaine 1% with 40 mg of triamcinolone passes EVA 3 Lattinen 5.

#### Discussion:

Pecto intercostal fascia block is an analgesic alternative in cardiac surgery for sternotomy. It could be useful in the management of chronic pain secondary to sternal fractures or even in acute pain.

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## Introducing 1% 2-chloroprocaine for day case spinals in a District General Hospital

Maria Rehnstrom, Kim Russon, Anil Hormis

Rotherham Hospital, Rotherham, United Kingdom

### Abstract

#### Introduction

Historically a general anaesthetic with short acting anaesthetic agents has been the preferred anaesthetic technique for day surgery due to concerns about time delays in performing spinal anaesthesia, prolonged motor block or other perceived complications. The introduction of short acting local anaesthetics such as 1% 2-chloroprocaine has transformed spinal anaesthesia for short (<60mins) day surgical procedures<sup>1,2</sup>. We evaluated the introduction of 1% 2-chloroprocaine to our hospital.

#### Methods

Data was collected using an evaluation form and included drug dose, motor and sensory block achieved, time of spinal, surgery start and finish times, time ready for discharge home and post op follow up phone call.

#### Results

Since the introduction of 1% 2-chloroprocaine in January 2019, 53 forms have been completed. It has been used to provide spinal anaesthesia for orthopaedic (72%), gynaecology (11%), urology (11%) and general surgery (6%) procedures, both elective and urgent. The average time from spinal injection to patient being ready for surgery was 7 minutes (range 2-24 minutes). The average time from spinal injection to patient being able to stand was 140 minutes (range 60-338 minutes). The average time to discharge was 199 minutes (range 90-364 minutes). Dose of local anaesthetic used was 4mls (85%) and 5mls (15%). No intrathecal opiates were used.

#### Conclusions

1% 2-chloroprocaine without intrathecal opiate is safe and reliable in providing spinal anaesthesia for many operations with no complications and good patient satisfaction. Patients can mobilise within 2-3 hours and be discharged within 3-4 hours making it very amenable for day case surgery.

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## Erector Spinae Plane Blocks for Rib Fracture Analgesia: A Service Evaluation

Aedín O'Kane, David Johnston, Ryan Sykes

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### Abstract

#### Introduction

Rib fractures are associated with significant morbidity and mortality<sup>1</sup>. Erector spinae plane blocks provide excellent analgesia<sup>2</sup>, which is known to prevent pulmonary complications and reduce mortality<sup>3</sup>. The Belfast Trust Rib Fracture Analgesia Service was implemented in 2019. This service evaluation analysed the timeliness and reliability of the electronic referral system and the effect of erector spinae plane block (ESPB) placement on pain indices.

#### Method

The clinical notes for all referrals between June 2019 and November 2020 were reviewed. Referral-to-block time, average pre- and post-block numerical rating scale pain scores and 24-hour opioid consumption were recorded.

#### Results

Of the 69 patients included, 64% had an ESPB sited. Mean (SD) time from referral to ESPB placement was 10.4 (8.1) hours. Fifty percent of referrals received an ESPB within 6 hours and 93% were placed within 24 hours of electronic referral (Figure 1). The median (95% CI) 24-hour pain score was observed to be 8 ( $\pm$  0.5) pre-block and 4 ( $\pm$  0.7) post-block (Figure 2). Following ESPB placement, 95% of patients reported a reduced 24-hour median pain score and 65% of patients had a reduced 24-hour opioid consumption.

#### Discussion

The use of ESPB seems to be effective for improving pain indices to positively impact the care of trauma patients with rib fractures. The electronic referral service is reliable and facilitates timely placement of regional anaesthesia. The data from this service evaluation will be used to support the service development for a dedicated trauma block room on the major trauma ward.

### Time from referral until ESP block sited

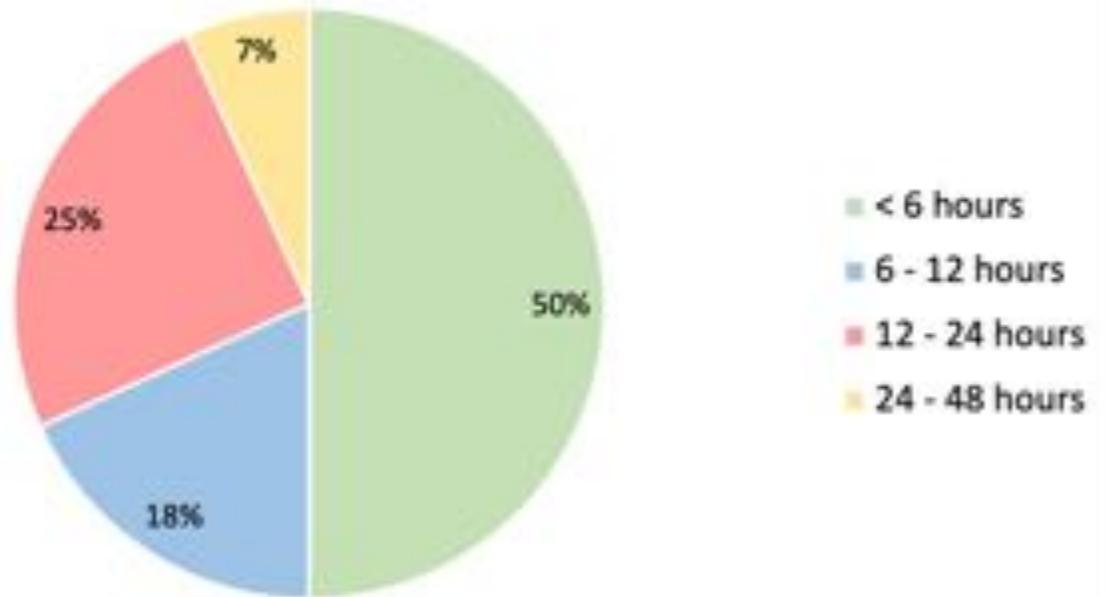


Figure 1

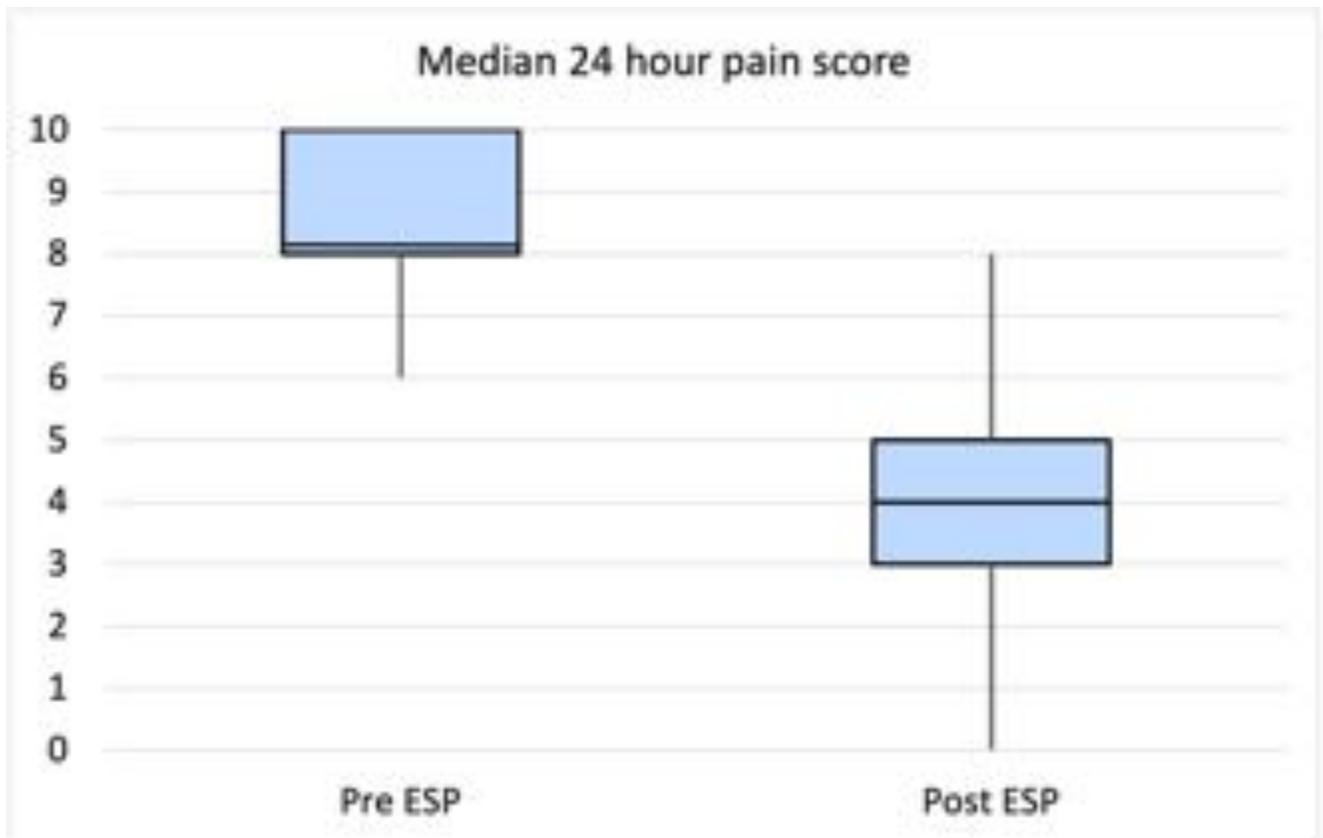


Figure 2

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## Pericapsular nerve group block- A novel approach to provide analgesia for positioning during spinal anaesthesia in hip fracture surgeries.

TRISHNA PRADEEP, SHILPA NAIK

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### Abstract



**Introduction:** Anaesthetic care for elderly patients is unique and challenging. Due to their poor physiological reserve, the perioperative period must be focused on managing the comorbidities and enhancing recovery. Although multimodal analgesia is the preferred mode for dynamic pain relief in orthopedic patients. Regional blocks not only provide excellent analgesia but also reduces the dose requirements of IV analgesics.<sup>1</sup> Pericapsular nerve group (PENG) block is a novel approach which provides excellent analgesia while positioning for spinal anaesthesia in hip fractures surgeries.<sup>2</sup>

**Cases:** We present a case series of 3 elderly patients with inter-trochanteric fracture scheduled for proximal femoral nailing. After thorough preoperative evaluation and informed consent, patients were shifted to the preoperative room. Standard monitors were connected. 18 G intravenous cannula was secured. Baseline Visual Analogue Score (VAS) was 8-10. With patients in supine position, pericapsular nerve group block was given using low-frequency curvilinear probe. Patients received 20ml of 0.25% Bupivacaine. 20 minutes later, patients were shifted to the operating theatre. They sat with ease for spinal anaesthesia. VAS was 0-2. Procedures were uneventful. Patients were monitored for 24 hours in post-operative ward and requirement of IV analgesia was noted.

**Discussion:** Pericapsular nerve group (PENG) block is an interfascial peripheral nerve block which blocks the femoral nerve, accessory obturator nerve and obturator nerve as well as the higher articular

branches of these nerves supplying hip joint.<sup>3</sup> Our patients receiving PENG block, were not only comfortable when positioned for spinal anaesthesia, but also required less IV analgesics in post-operative period.

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## The mobile block room service, a prospective quality improvement project to evaluate quantity, efficiency and time saved.

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Frimley Park Hospital, Surrey, United Kingdom

### Abstract

#### Introduction

It has been described that a dedicated block room to ensure parallel processing can improve efficiency, resource allocation and patient outcome (1). In our institution, we have developed a mobile block room (MBR) service. This utilises a fully stocked block room trolley, anaesthetist and ODP to provide regional anaesthesia for both surgical and acute pain patients. The aim of this service is to deliver effective regional anaesthesia (2) and to improve flow through theatres.

#### Methods

Data was collected prospectively over a 4 month period using an online shared database. We considered indication for block, type of block, physical location of block, time taken to perform block and calculation of time saved.

#### Results

A total number of 176 sessions (5 hours per session) were potentially available to the MBR. The overall utilisation of sessions was 96, equating to 53% of potential MBR utility during this time period. 367 nerve blocks were recorded during these 96 sessions with a mean number per session equating to 3.5 blocks performed. Details of the types of block are shown in (Fig.1).

**Fig. 1 Types of block performed**

Type of block	Number	% of total
Upper Limb	80	22
Lower limb	145	40
Trunk	101	28
Abdomen	59	16
Chest	40	11
Neck	2	0.5
Neuraxial	39	10
Single Shot	291	79
Catheter	74	21

Time saved was calculated using the formula in (Fig.2), utilising mean times from analysis of computerised nerve block records. According to these calculations we found time savings as per (Fig.2).

**Fig. 2: Cumulative 4 month calculated time savings for single shot and catheter insertion**

**Single shot block:**

- 1 block:  $201 \times 15 = 3015$  minutes
- 2 blocks:  $87 \times 20 = 1740$  minutes
- 3 block:  $3 \times 30 = 90$  minutes

**Catheters**

- Single catheter:  $30 \times 30$  mins = 900 minutes
- Single shot block + catheter:  $5 \times 35 = 175$  minutes
- Bilateral catheters:  $39 \times 40 = 1560$  minutes

## **Discussion**

This study suggests that a MBR can provide an effective regional anaesthesia service providing a mean 7 blocks per day. In total, over this 4 month period, the MBR is estimated to have saved 125 hours of anaesthetic and theatre time.

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## Has The Covid-19 Pandemic Changed The Perceptions and Delivery of Day Case Spinal Anaesthesia?

Victoria Lowden<sup>1</sup>, Abigail Forsyth<sup>2</sup>, Megan Whittaker<sup>3</sup>, Kim Russon<sup>1</sup>, Anil Hormis<sup>1</sup>

<sup>1</sup>Rotherham Hospital NHS Foundation Trust, Rotherham, United Kingdom. <sup>2</sup>Chesterfield Royal Hospital, Chesterfield, United Kingdom. <sup>3</sup>Barnsley Hospital NHS Foundation Trust, Barnsley, United Kingdom

### Abstract

#### Introduction

A multi-centre survey in 2020<sup>1</sup> explored the use of day case spinal anaesthesia (DCSA) and the concerns and barriers to not using it. We were interested to see if Covid-19 has resulted in a change in delivery of DCSA and perceptions of concerns.

#### Method

We repeated the survey in March 2021 in the same three hospitals Barnsley, Rotherham and Chesterfield with some additional questions relating to change in practice.

#### Results

35 anaesthetists responded. The number performing >10 DCSA per year increased from 52% to 72% . Use of 2% hyperbaric prilocaine and 1% 2-chloroprocaine increased from 64% to 94% with a reduction in intrathecal opiate use of 61% to 45%.

Reasons given for performing more DCSA: patients were more amenable; desire to avoid airway manipulation; reduce PPE burden and to avoid the risks of general anaesthesia. Examples of procedures where practice had changed from a general anaesthetic preference to a DCSA include but not limited to: incision and drainage of abscess, hysteroscopy, TURBT and knee arthroscopy. Reasons given for performing fewer DCSA were: the reduction in elective operating and an increased work load on the intensive care unit. This finding varied greatly between sites.

The main concern reported remained the same: unreliable prediction of operating duration. Other concerns regarding delayed discharges were still reported but were less prevalent.

#### Discussion

Covid19 has raised awareness of the benefits of regional anaesthesia to both anaesthetists and patients<sup>2</sup> and this may be reflected in greater acceptance and delivery of DCSA.

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## Using the WHO meeting to estimate surgical time to inform the plan for introduction of 2% chloroprocaine for hand surgery

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### Abstract

#### Introduction

Prolonged motor block after hand surgery is unpleasant(1). 2% chloroprocaine (2CPC) has a rapid onset of action and prompt return of function suitable for surgical procedures of 60-70 minutes, ideal for many hand surgical procedures using brachial plexus blockade(2). To aid planning the introduction of 2CPC we asked the surgeon to estimate the surgical time at the WHO meeting and measured the actual time for comparison.

#### Methods

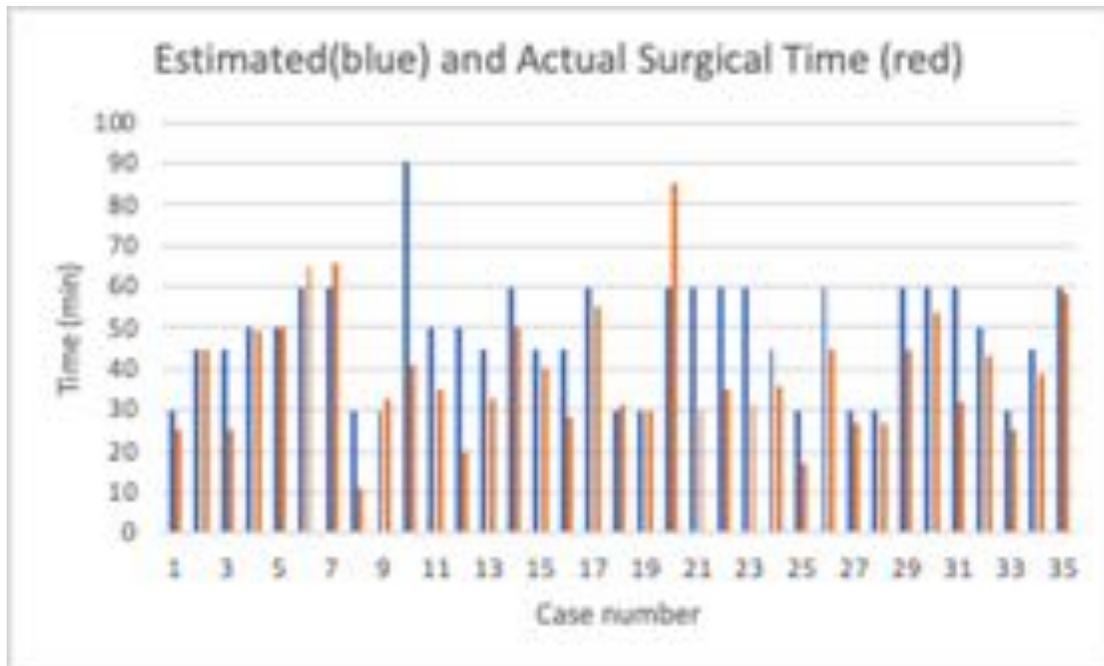
We recorded surgical estimate of the length of the surgery, plexus block start time and surgical incision to dressing time for of 35 consecutive hand trauma cases. We compared the surgical estimate against actual surgical time and calculated the percentage of procedures that would be amenable to anaesthesia with 2CPC. All patients received axillary or supraclavicular brachial plexus blocks using Lidocaine 1% or Prilocaine 20-25ml and forearm nerve blocks for postoperative analgesia with 0.5 or 0.75% Levobupivacaine

#### Results

In 16/35 (46%) of cases surgical estimate was correct to within 10% of the actual time. In 15/35 (43%) of cases the surgeon overestimated the surgical time by 16-63%. Only 3 cases took longer than their estimate of 60 minutes (65,66,85). Only 1 case took longer than its estimate such that it exceeded the expected length of action of 2CPC. Surgical estimates suggested all but 1 case (90 minutes) were amenable to use of 2CPC.

#### Discussion

The majority of hand trauma procedures were amenable to plexus block using 2CPC and surgeon time estimate could be relied upon when choosing brachial plexus anaesthesia



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## COVID Pandemic: Maintaining Regional Anaesthesia Teaching for Trainees

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### Abstract

#### Introduction

The COVID-19 pandemic has resulted in widespread disruption to anaesthetic training<sup>1</sup>, particularly within regional anaesthesia, despite recommendations that regional anaesthesia is preferable to general anaesthesia during the COVID pandemic<sup>2</sup>. Reduced theatre caseloads and elective lists have meant that opportunities to observe and perform supervised peripheral nerve blocks have diminished. In addition, educational activities have been moved to a virtual format which has significant limitations in cultivating the practical skills required for regional anaesthesia.

#### Methods

We identified that within our region, junior trainees had little confidence in their knowledge of regional anaesthesia. Following a focused group discussion, a one-day COVID-19 secure "Introduction to Regional Anaesthesia" course was designed. This involved a blended approach of lectures and hands-on ultrasound practice using agar pots, phantoms and students own anatomy<sup>3</sup>.

#### Results

All students felt COVID-19 had hindered their learning of regional anaesthesia (77% definitely, 23% probably). Confidence in knowledge of regional anaesthesia before the course was rated at 1.8/5 (range 1-3, n=13), following the course it had increased to 3.5/5 (range 2-4, n=13).

#### Discussion

All participants thought that COVID-19 had negatively impacted their knowledge of regional anaesthesia. We have demonstrated that effective face-to-face practical teaching in regional anaesthesia can be conducted while maintaining strict COVID-19 prevention precautions. We suggest that similar courses are needed across all regions to ensure the future generation are knowledgeable and well skilled in regional anaesthesia to enable progression throughout training.

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## Recovery of motor function in ambulatory hand trauma using 2% Chloroprocaine.

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### Abstract

#### Introduction:

2% Chloroprocaine is an ester local anaesthetic offering a shorter onset, duration of action, and offset than other commonly used agents, making it particularly suitable for ambulatory surgery. (1) Although established for short acting spinal anaesthesia it has only recently launched on the UK market for peripheral nerve block. We evaluated recovery of motor function in patients undergoing awake surgery using 2% Chloroprocaine for ambulatory hand trauma procedures.

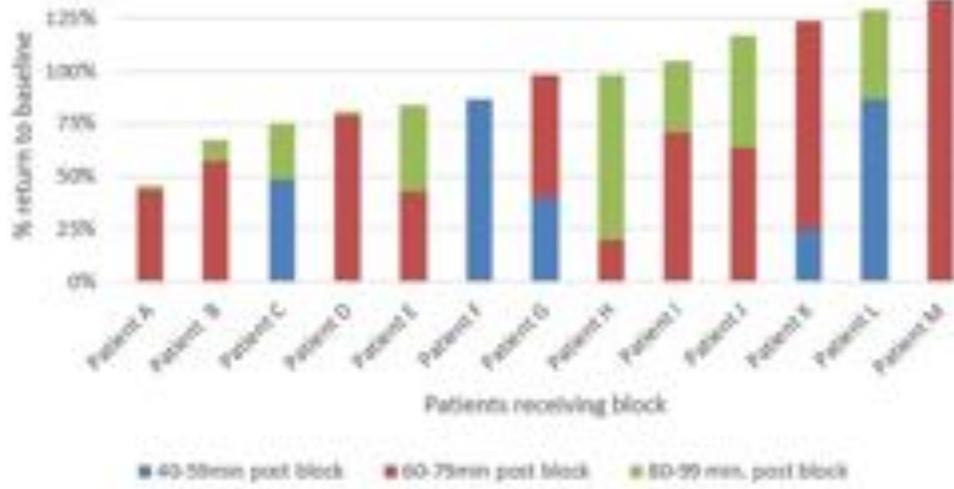
#### Methods:

13 patients received an ultrasound guided axillary brachial plexus block with 30mls 2% Chloroprocaine, of which 5mls (100 mg) were specifically deposited around the musculocutaneous nerve. All blocks were performed by the same operators (MO/RV). We established baseline biceps muscle strength (peak force over 3 second period) with a hand-held dynamometer (Lafayette). Patients also received supplemental distal blocks of the median, ulnar and superficial radial nerves as appropriate with Levobupivacaine for postoperative analgesia. Biceps strength was assessed post block until >75% return of baseline function.

#### Results:

Mean block performance time was 11 minutes (7-14 mins). Surgery started 5-22 minutes (mean 12 mins) thereafter with an operative time between 13-50 minutes (mean 34 minutes). Median peak force immediately post block was 0% (0-25%) of pre block strength. 6/13 patients had > 50% recovery of biceps strength by 70 minutes post block (Figure 1).

Figure 1: Return of biceps muscle strength post block



All 13 patients had  $\geq 75\%$  recovery by 120 minutes (Table 1). Surgical conditions were excellent for all patients, and none received supplemental analgesia or reported tourniquet discomfort.

Table 1: Biceps muscle strength post block

Duration since block finish	Median biceps muscle strength (% of baseline)
0 minutes	0%
70 minutes	57%
80 minutes	85%
120 minutes	98%

#### Discussion:

2% Chloroprocaine provided rapid onset block, good surgical conditions and rapid recovery of motor function. In terms of offset and readiness for discharge, 2% Chloroprocaine was a marked improvement on our previous awake surgery local anaesthetic mixture of 1.5% Lidocaine with Epinephrine. This has benefits for theatre efficiency, as well as patient safety and satisfaction. Of note patients were able to dress themselves in the PACU without aid. 5 patients recorded higher peak force postoperatively compared to baseline which may have been due to pain inhibition. We plan to recommend wider use of Chloroprocaine 2% for procedures where operative duration is anticipated to be  $\leq 1$ hr. Supplemental distal blocks can limit any concerns about postoperative analgesia.

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## Spinal 1% 2-chloroprocaine plus US-guided motor-sparing block for uni-compartmental knee arthroplasty, the perfect partnership?

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University Hospitals of derby and burton NHS Trust, Derby, United Kingdom

### Abstract

#### Introduction

Patients are increasingly requesting to return home on the day of surgery but delay in return of function can affect confidence even when using prilocaine spinals. We explored the use of spinal 1% 2-chloroprocaine (2CPC) (1,2), combined with US guided motor sparing pain blocks to facilitate day case surgery as part of an enhanced recovery regime for unicompartmental knee arthroplasty (UKA)

#### Method

Eighty patients underwent UKA before midday.

Premed: oral paracetamol 2g, ibuprofen MR 800mg, Oxycontin 10 or 20mg.

Anaesthesia: spinal 50mg 2-chloroprocaine 1%. US guided femoral triangle and iPACK blocks using 30ml 0.5% Levobupivacaine. IV dexamethasone 0.2mg/kg.

Postop pain: regular paracetamol, ibuprofen. Oxycontin for 2 more days with a cryoanalgesic knee cuff. Codeine or Tramadol from day 3.

Spinal to dressing, tourniquet and mobilisation time and rescue analgesia were recorded plus VAS scores for pain

#### Results

Spinal anaesthesia was adequate in all. Median spinal to dressing was 66 minutes, range (56-76). Tourniquet time 49.5 (43-56). Three patients required one dose s/c morphine, 14 patients had oral morphine rescue analgesia on the day of surgery. 98 minutes maximum time to mobilise. All able to achieve stair assessment by 4pm on day of surgery. No urinary retention.

#### Discussion

1% 2-chloroprocaine provides reliable spinal anaesthesia for UKA. Recovery characteristics/pain scores suggest it is suitable for day case UKR in combination with motor sparing nerve blocks.

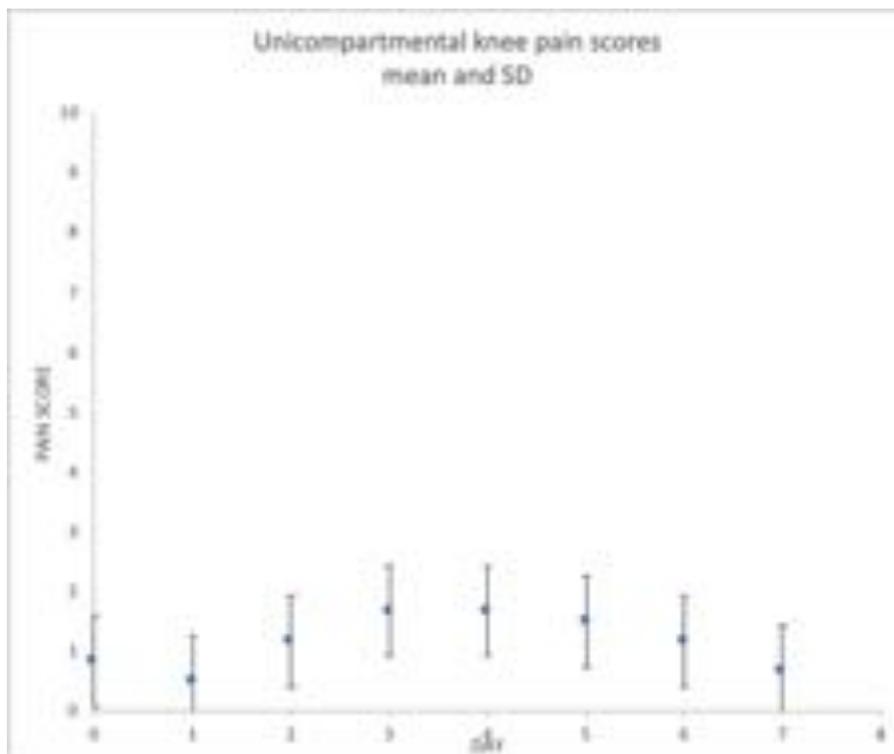
Table

Spinal to Dressing and Tourniquet Times (minutes)

Median and Range

Number	Surgical Time (Range)	Tourniquet Time (Range)
80	66 (56-76)	49.5 (43-56)

Fig



## References

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## **A low cost 3D-Printed Part Task-Trainer for teaching Erector Spinae Plane Blocks**

Gareth James, Simon Ford

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### **Abstract**

#### Introduction

3D-Printing has been described for a range of medical simulation devices(1). Interest has increased due to commercial training devices being expensive, or unavailable, e.g., Erector Spinae Plane (ESP) Block trainers

The novel ESP block is increasingly being incorporated into chest trauma pathways. They are now an integral part of rib fracture management in our hospital, reducing pain and morbidity; with the aim to reduce Critical Care requirements. Increasing clinician numbers able to provide this block is key to service development.

Many existing descriptions of task-trainers use gelatine-based phantoms which degrade quickly, grow mould, and require refrigeration(1). We describe a reusable cost-effective wax-based part-task trainer and its evaluation as an ESP block trainer.

#### Methods

A section of thoracic spine was produced using an open-source 3D-Printer Stereolithography (STL) file(2) in Polylactic Acid (PLA) plastic by a Flashforge Creator Pro 3D-Printer. A Gel-Wax based phantom(3) (Figure 1) encased the spine which could be repaired using a simple reheating process. 26 Anaesthetists of varying grades evaluated the trainer for usability

**Figure 1: *Photo of completed ESP Block Trainer with needle tracks visible over right transverse processes***



## Results

**Figure 2: Evaluation of ESP Task Trainer Usability**

		Grade			
		CT1-3	ST3-7 & SAS	Consultant	Total
	n=1	9	7	10	26
	Likert Score (1-5, 1 Poor, 5 Excellent)				
Resemblance to real anatomy	Median	4	4	4	5
	IQR (range)	0 (4-4)	0.5 (4-4.5)	1.75 (3-2.5)	1.0 (4-5)
Usefulness to Anaesthetists of same grade or below	Median	5	5	5	5
	IQR (range)	0 (5-5)	0.25 (4.75-5)	0.88 (4.11-5)	1 (5-5)
Has this phantom enhanced your confidence on how to perform an ESP Block?	Median	5	5	4.5	5
	IQR (range)	0 (5-5)	0.5 (4.5-5)	1 (4-5) (4.25-5)	

## Discussion

We describe a low cost (less than £15) reusable and repairable trainer that can be stored at room temperature without degradation. Usability testing showed an improvement in confidence across all grades of Anaesthetist as a part task-trainer to develop ESP insertion skills. The trainer was useful as an educational component to complement a wider QI project to provide quality analgesia for all rib fracture patients. This production technique may be adaptable to other regional blocks in future.

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## How sterile is your ultrasound probe? A survey of hospitals within the South East London anaesthesia training programme.

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### Abstract

#### Introduction

Ultrasound guided regional anaesthesia blocks (UGRAB) are conducted routinely in hospitals. Despite this, little universal guidance exists on good practice. UGRAB Infection rates between 0-3% have been quoted<sup>1,2</sup>.

Using non-sterile ultrasound gel has been associated with various infection outbreaks worldwide despite availability of sterile gel<sup>3,4,5,6</sup>. Ongoing debate exists relating to the invasiveness of an UGRAB and the need for an ultrasound probe cover. Public Health England have recently published guidance on using ultrasound gel and classify passing a device through tissue as invasive<sup>7</sup>.

#### Methods

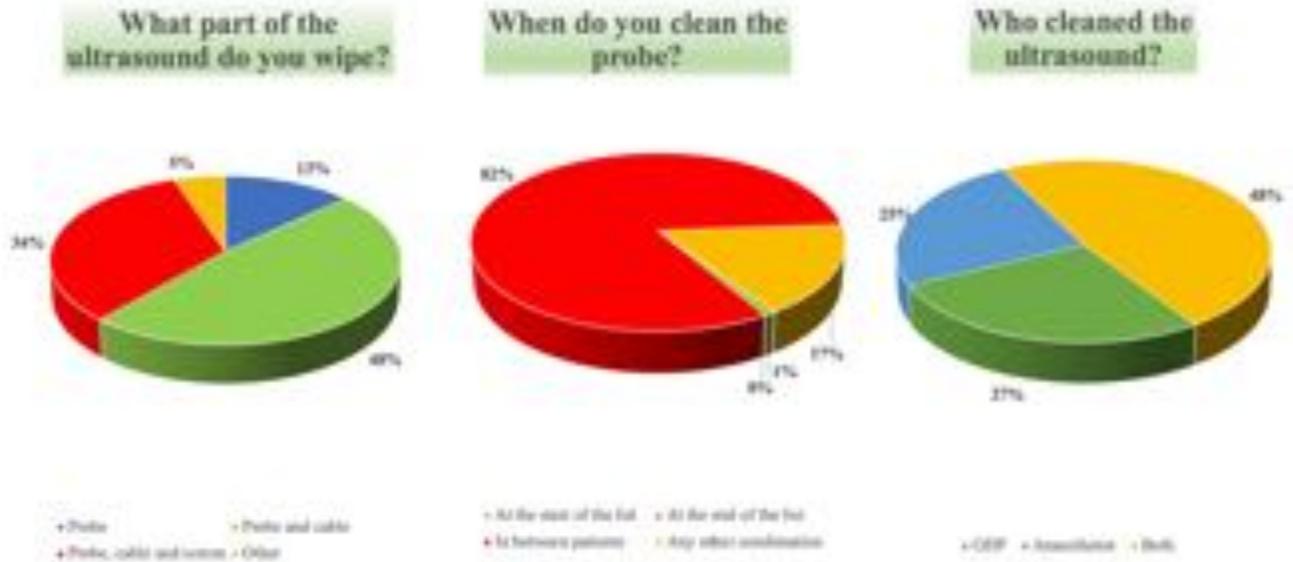
A 14-question sterility survey was sent to anaesthetists working within SE London and Kent.

#### Results

We received 117 responses. 94% clean the ultrasound machine before usage. 82%(n=96) used ultrasound gel sachets whilst 16%(n= 21) reported mixed usage (sterile/non-sterile gel). 96%(n=112) used an ultrasound cover [Tegaderm 50%(n=59), single-use sterile probe cover 23%(n=27) or a combination 23%(n=26)]. Anaesthetists reported they were more likely to use sterile probe covers if inserting nerve catheters. 92%(n=106) maintained some sort of sterile field [sterile dressing pack 38(n=44), sterile glove cover 44%(n=51) or combination 10%(n=11)].

Further results are displayed below.

## Ultrasound Cleaning Practices



## Agents Used To Clean The Patient's Skin And Ultrasound

Surface/ Cleaning Agent	2% chlorhexidine and 70% alcohol wipe	0.5% chlorhexidine and 70% alcohol spray	Chloraprep stick	Clenell universal sanitising wipes	Soap and water	Betadine	Hibiscrub	Iodine	A combination of either	Nothing
Skin	16.2% (n=19)	20.5% (n=24)	36.4% (n=66)	0	0	0	0	0	6% (n=7)	0.9% (n=1)
Ultrasound Machine	11.5% (n=13)	2.7% (n=3)	0.9% (n=1)	80.5% (n=91)	0.9% (n=1)	0	0	0	3.5% (n=4)	0

### Discussion

Results reassuringly show most anaesthetists maintain some sterility during UGRAB, reflecting the low UK infection rates.

Consequently, we would recommend at minimum, using sterile probe covers, sterile gloves, sterile gel and a sterile dressing pack (including drape).

Additionally, we feel as anaesthetists we should take responsibility for disinfecting ultrasound machines just as we have done with anaesthetic machine checks.

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## Horner's syndrome following a single shot paravertebral block

Jae Huh

RVI, Newcastle, United Kingdom

### Abstract

We describe a case of Horner's syndrome as a rare complication following a paravertebral block [1].

A 50-year-old, ASA II female patient with a background of previous right mastectomy and amaurosis fugax had an elective right mastopexy and abdominal liposuction under GA with a single shot thoracic paravertebral block.

The patient was induced with 50 microgram of Fentanyl and Propofol target controlled infusion (TCI) and a right sided T3/4 paravertebral block was performed in the lateral position asleep. A 50mm short bevelled needle was used under ultrasound guidance and 30ml of 0.25% Levobupivacaine was injected without any immediate complications. She underwent an uneventful procedure and was safely discharged from recovery back to the ward. Prior to discharge home, the nursing staff noted that her pupils were of different sizes. Her right pupil size was 2mm compared to 4mm on the left and the anaesthetic team were informed of this.

On examination, the patient had a miosis of her right pupil, on the same side of block with a mild ptosis. Although anhidrosis was difficult to assess, the patient did have a headache with difficulty closing her right eye. No other neurological signs and symptoms were noted.

Given her previous history of amaurosis fugax, a CT head was performed to rule out any intracranial pathology.

The patient was monitored overnight and her ptosis and miosis resolved completely the following day.

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## **Patient satisfaction following regional anaesthesia in plastics day case and trauma demonstrated using a novel Patient Reported Outcome Measure tool**

Jae Huh, Chitra Garg, Adnaan Qureshi

RVI, Newcastle, United Kingdom

### **Abstract**

The Royal Victoria Infirmary has provided ultrasound guided regional anaesthesia for day case plastics elective and trauma patients since 2008. Since its inception, this service has improved patient safety whilst minimising hospital stay with cost savings [1]. Our survey looked at patient satisfaction levels following regional anaesthesia (RA) for hand surgery, conversion rates to general anaesthesia (GA) and complication rates.

Follow up was performed using a novel digital service called 'Patient Reported Outcome Measures' (PROM). This involved sending a short message service (SMS) to all patients who underwent surgery in day case theatres and automated collecting of their replies.

Data of 1000 patients were collected between 26<sup>th</sup> of July 2018 to 11<sup>th</sup> of March 2021. Of those who replied, 57.8% (520) of admissions were elective and 42.2% (380) were trauma patients. 30.2% (264) had RA, 12.9% (113) GA and 56.9% (497) had local anaesthesia (LA) for their procedures. 82.4% (206) were very satisfied with their experience of RA whereas only 2.8% (7) stated they had a poor experience. 9.1% (84) patients stayed overnight whereas 90.9% (986) of cases were discharged the same day. Out of 130 patients who had RA, only 3 (2.3%) had to be converted to GA.

The PROM digital follow up system demonstrated that our RA practice was associated with high patient satisfaction levels and minimal conversion rates to GA. This novel system provides a robust data collection platform to enable ongoing assessment and improvement of our service.

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## Implementation of Automated Digital Patient Outcome Reporting in Regional Anaesthesia

Chitra Garg, Adnaan Qureshi

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### Abstract

#### Introduction

Follow-up and safety netting for patients undergoing day case surgery under regional anaesthesia is essential in detecting potential complications. Traditionally, this was done at our centre with nurse led phone calls. This system had poor follow-up rates and incomplete data, rendering it inefficient.<sup>1</sup>

We evolved an automated SMS based digital follow-up system, allowing us to improve follow-up, whilst offering opportunity to upscale, reduce costs, and provide data for real-time safety / outcome tracking, ongoing audit, research and QI projects.<sup>2</sup>

#### Methods

Dr Qureshi created a web based SaaS into which we consented and enrolled all patients undergoing day case hand surgery. This triggered 2 SMS text messages sent to patients. On POD1, the SMS provided safety information and requested voluntary completion of an online survey. On POD3 an SMS invite to complete a questionnaire on analgesic adequacy was delivered. This process is outlined in Figure1.

#### Results

From July 2018 to March 2021 we collected data for 874 patients. We have had no complaints regarding consent or data protection. Comparative financial and other resource costs have been negligible. The system has expanded to other directorates within our trust and has gained national interest.

#### Discussion

Patient outcome collection and safety netting are fundamental considerations in day case surgical pathways. Clinician-level instant access to live data, trends and KPIs is invaluable when embarking on audit, research or quality improvement. Innovative digital systems facilitate these initiatives. We recommend the use of automated follow-up systems as implemented in our Trust.

**Figure1 – Summary of process**



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## **Video Conferencing as a Tool for Improving Access to Regional Anesthesia in Remote Community Hospitals in British Columbia**

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<sup>1</sup>St Paul's Hospital, Vancouver, Canada. <sup>2</sup>Queen Victoria Hospital, Revelstoke, Canada

### **Abstract**

**Introduction:** The COVID-19 pandemic has increased the amount of video conferencing and telemedicine practiced worldwide. Previously, telemedicine has facilitated obstetric anesthesia and trauma care at remote centres<sup>1,2</sup>. We present a novel strategy for remote mentoring during the performance of regional anesthesia in community hospitals without in-house access to anesthesiologists with advanced training in regional anesthesia.

**Case Presentation:** Patient consent was obtained for publication of this case. There is no patient identifiable information, thus it is exempt from ethics review.

Family practice anesthesiologists (FPAs) approached our regional anesthesia group for support in performing adductor canal blocks. The FPA group already had some experience with the technique but felt that real-time feedback would be helpful to refine their approach. A webinar reviewing the block was given by the regional anesthesia fellow and a staff specialist in regional anesthesia prior to block performance.

Subsequently, a video conferencing session was arranged with the regional anesthesia specialists during performance of the block. The patient and the FPA performing the block were visualized with simultaneous, live video feed from the ultrasound machine in two different windows. As a result, advice could be provided to achieve appropriate local anesthetic spread.



Discussion: Through video conferencing, real-time mentoring facilitated regional anesthesia in a remote community. The use of video conferencing provides the opportunity not only for learning but also for feedback, improving skill acquisition<sup>3</sup>. Through this technology, our group can facilitate learning and maintenance of competency in regional anesthesia and improve care for patients in rural and remote locations.

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## The distribution of in-line fluid injection pressure measurements during 40MHz microultrasound targeted nerve injection in anaesthetised pigs.

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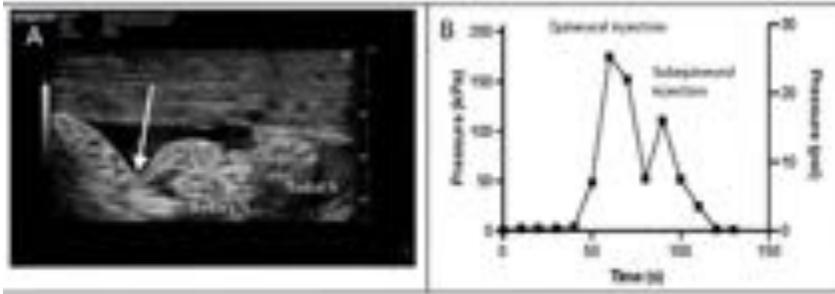
### Abstract

**Introduction:** Opening pressure > 138 kPa (20 psi) during intraneural injection is associated with nerve damage in dogs. The sensitivity of pressure for epineural contact lies between 90% and 97%. Our previous studies showed: (i) in Thiel cadavers, that opening pressure at perineural tissue, epineurium and subepineurium had a log-normal distribution <sup>1</sup>; and (ii) in pigs, the fine detail of needles and nerve anatomy were visible using microultrasound <sup>2</sup>. Our primary objective was to use 40MHz microultrasound in pigs to precisely identify the tip of the needle relative to perineural tissue, epineurium and subepineurium, and measure corresponding opening injection pressures.

**Methods:** We surgically exposed the axillae of four anaesthetised pigs and imaged nerves using 40MHz microultrasound. Two operators targeted axillary, median and radial nerves, using in-plane and out-of-plane needle trajectories and injected 0.5ml saline, in perineural tissue, on epineurium and in subepineurium using flow rates of 1, 6 and 12 mL.s<sup>-1</sup>.

**Results:** The mean (SD) number of fascicles per nerve was: axillary 16.6 (4.9); median 24.8 (4.6); and radial 22 (5.9). Fifteen percent of perineural, 66% of epineural and 50% of subepineural injections were greater than 103kPa (15 psi). Mean pressure (95%CI) was greater at epineurium and in subepineurium compared to perineural tissue, geometric ratios 2.48 (95%CI: 2.02 - 3.03), P < 0.001; 2.18 (95%CI: 1.69 - 2.82), P < 0.001, respectively. Epineural rupture was more common with peripheral subepineural injection, OR 5.33 (1.26 – 23.0), P < 0.001.

**Conclusion:** In-line opening injection pressure was not an accurate indicator of needle tip position in anaesthetised pigs.



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## Does cadaver simulation training offer best clinical performance behaviour during ultrasound guided regional anaesthesia? – a pilot study

Amy Sadler<sup>1</sup>, Graeme McLeod<sup>1</sup>, Mel McKendrick<sup>2</sup>, Jonathan Seeley<sup>1</sup>, Ayman Mustafa<sup>1</sup>, Alisdair Taylor<sup>1</sup>, Gary McKendrick<sup>3</sup>

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<sup>3</sup>Optimize Ltd, Glasgow, United Kingdom

### Abstract

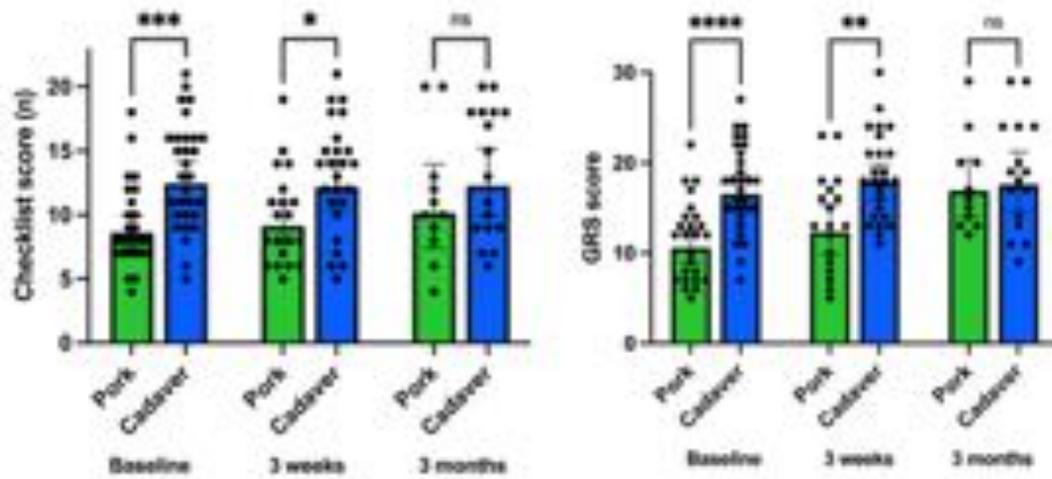
**Introduction:** UGRA skills are difficult to learn. The Department of Health stated that health professionals “should learn skills in a simulation environment”<sup>1</sup>. Simulators include plastic phantoms, pork with embedded tendon, and cadavers. Our primary objective was to investigate whether training on pork belly or Thiel cadaver translated better to clinical interscalene block performance.

**Methods:** Training consisted of: a lecture on interscalene block, volunteer scanning and needle practice on a Blue phantom. Thereafter, participants were randomised to training on: (i) pork belly phantom with embedded tendon; or (ii) interscalene block on the Thiel cadaver. Training used dedicated practice delivered by an expert.

After training, interscalene block performance was tested 3 times, first on a dedicated cadaver after training, and then on patients for shoulder surgery 3 weeks and 3 months later. Participants were videoed and wore eye tracking glasses. Our primary outcome was our validated 21-item checklist<sup>2</sup> scored by 6 raters. Secondary objectives were summative assessment using GRS scores, eye tracking metrics, and self-efficacy. Mixed effects modelling was used.

**Results** The study stopped early (COVID19). Seven completed, 2 tested twice and 2 were tested once. Cadaver trained participants scored better (95%CI) on baseline cadaver testing, difference 4.0 (1.5 - 6.5),  $P = 0.001$  and three weeks later on patients, difference 3.3 (0.3 - 6.2),  $P = 0.028$  (Fig 1), but not 3 months later, difference 2.1 (-3.0 - 7.1),  $P = 0.66$ . GRS at 3 weeks differed by 5 (-1 - 9) units,  $P = 0.01$ .

**Conclusion:** Thiel cadaver training showed better performance 3 weeks later



## References

1. Davies SC. A Framework for Technology Enhanced Learning, Department of Health. London, 2011
2. McLeod G, McKendrick M, Taylor A, et al. Validity and reliability of metrics for translation of regional anaesthesia performance from cadavers to patients. *Br J Anaesth* 2019; **123**: 368-77

## Pre-operative hip fracture analgesia, are we doing enough?

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### Abstract

#### Introduction

The care of patients with hip fractures has improved with 30-day mortality down to 6.1% from 10.9% in 2007 (1). However, this patient cohort remains frail and vulnerable to complications. Pre-operative fascia iliaca blocks (FIB) provide opioid-sparing analgesia, thus, minimising the significant side effects in this patient group, such as delirium.

We investigated the use of FIBs at Worthing Hospital, to evaluate effectiveness and to review whether a single shot block is adequate.

#### Methods

A sample of 100 patients admitted to Worthing from 2019-2020 were reviewed. Data was collected from hospital records and analysed in Excel.

#### Results

The mean age was 84 years. Mean time from admission to surgery was 31 hours, 3 minutes. Rate of fascia iliaca block on admission was 69% (66/95). Mean time from block to surgery was 24 hours, 45 minutes. In those who received a FIB, mean time from admission to first dose of opioid was 11 hours, 59 minutes compared to 6 hours, 55 minutes in those who did not. The total pre-operative oxycodone dose in the FIB group was 12.3mg compared with 29.4mg in the non-FIB group.

#### Discussion

The results suggest FIB is an effective, opioid sparing, analgesic technique. However, over 24 hours is elapsing between block and surgery and average time to opioids after FIB around 12 hours. Therefore, a repeat block or fascia iliaca catheter may be of benefit to these patients to improve their analgesia and further reduce opioid requirements.

## **References**

(1) Griffiths, R, et al. Guideline for the management of hip fractures 2020. *Anaesthesia*. 2021;76(2): 225-237

## Leadership in Regional Anaesthesia- A survey of RA-UK members.

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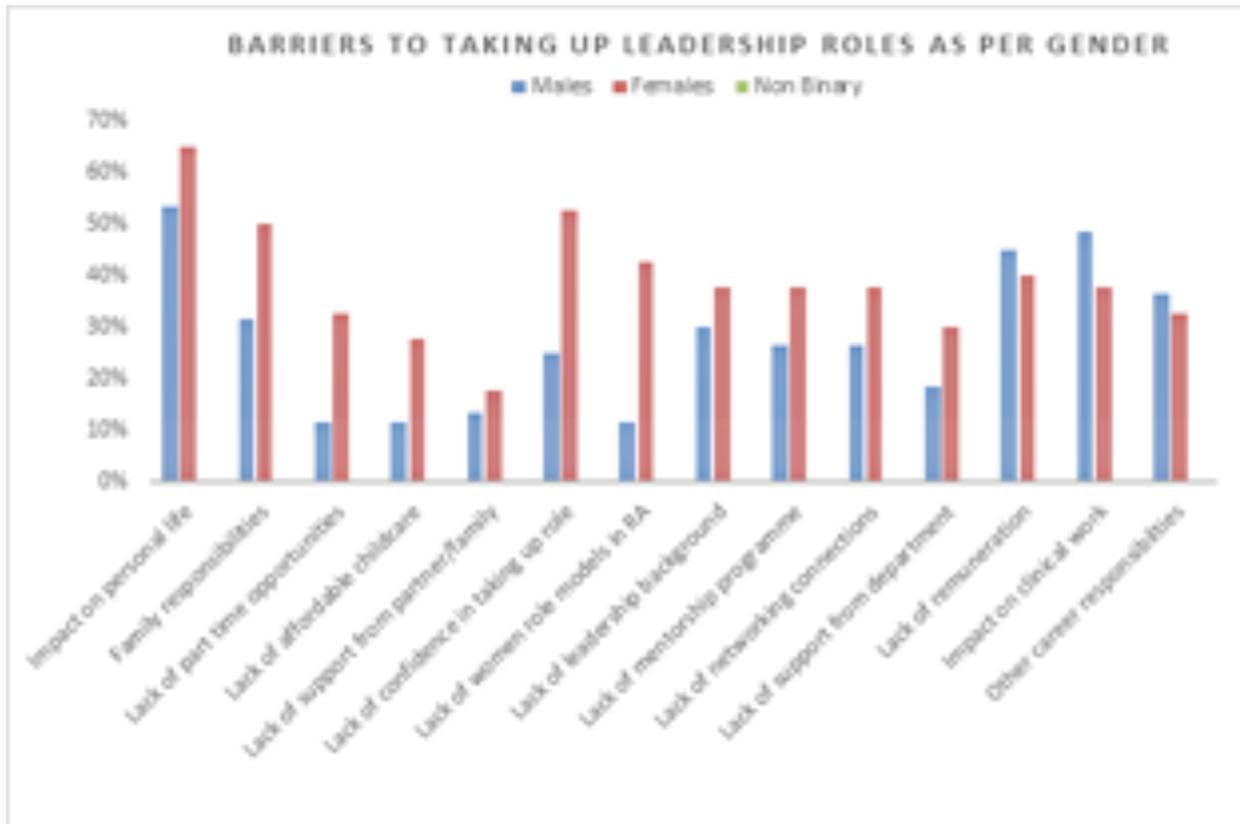
### Abstract

**Introduction:** Female anaesthetists are under-represented in leadership positions.<sup>[1]</sup> The causes of this gender imbalance in the field of Regional Anaesthesia (RA) are not completely understood.<sup>[2]</sup> We explored RA-UK members' motivation, and barriers, to advance into these roles.

**Methods:** 716 RA-UK members were invited to complete an online survey and their responses analysed.

**Results:** 101 members (40 women, 60 men and 1 non-binary) responded to the survey (14.1% response rate). The majority were over 45 years (50.5%), consultants (89.1%) and had children (85.1%). Among the respondents, a similar proportion of men and women had undertaken or were willing to undertake a RA fellowship (68.3% and 60%) and expressed an interest in assuming leadership roles (31.7% and 27.5%). RA departmental lead and speaker at RA meetings were the most desired options. The main barrier reported by both were the increase in workload and its impact on personal life (53.33% of men and 65% of women), followed by lack of confidence (52.5%) and family responsibilities (50%) by women and impact on clinical work (48.3%) and lack of remuneration (45%) by men. 11 of the 14 barriers were reported in a higher proportion of women than men. The biggest difference between the genders was the lack of women role models.

**Conclusion:** This survey shows that women are as eager as men in pursuing leadership roles and advanced training in RA. Women perceive more barriers in achieving these goals. Our results will help to develop more effective interventions to support women in RA.



## References

1. Zdravkovic M, Osinova D, Brull SJ, Prielipp RC, Simões CM, Berger-Estilita J et al. Perceptions of gender equity in departmental leadership, research opportunities, and clinical work attitudes: an international survey of 11 781 anaesthesiologists. *Br J Anaesth*. 2020 Mar;124(3):e160-e170.
2. Sidhu NS, Civil N. Gender effects in medical education: implications for training and gender equity in regional anesthesia. *Reg Anesth Pain Med* 2019;44:494–498.

## Erector Spinae block and catheter placement with Superficial cervical plexus block for multiple rib and clavicular fracture

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### Abstract

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Introduction: Erector Spinae plane block and catheter is novel technique to control pain relief for Rib fracture [1]. There are various other regional techniques like Thoracic Epidural, Paravertebral blocks, and Intercostal nerve blocks for multiple rib fracture. [2]

Case: We present a case where 76-year-old gentleman with background of Type 2 diabetes and high BMI, presented in our hospital with 2<sup>nd</sup> to 8<sup>th</sup> ribs got fracture when he fell from ladder and sustained Clavicular fracture as well. He had chest drain placed because he got haemopneumothorax. He was on PCA Morphine for more than 4 days, which was making him very drowsy, breathing laboriously and sick. Positioning in lateral could not be done because of his clavicular fracture, so Superficial cervical plexus block was performed. Once he was comfortable, he was sat up with help, Erector Spinae plane block with 10 ml of each 0.5% Bupivacaine, 2% Lidocaine, Normal saline. 16 G Tuohy needle inserted through the same tract and 20G Epidural catheter was inserted through needle. His NRS score went from 10/10 to 1/10 for Cough in immediate post-operative period.

Discussion: Safety of performing Erector Spinae Plane catheter is safer than other techniques. Superficial cervical plexus block helped not to over sedate that patient. Using Lidocaine in first bolus helps in relaxing tense muscle for catheter placement.

### References

[1] D. L. Hamilton, B. Manickam, Erector Spinae plane block for pain relief in rib fractures, *BJA: British Journal of Anaesthesia*, Volume 118, Issue 3, March 2017, Pages 474–475, <https://doi.org/10.1093/bja/aex013>

[2] Bulger EM, Edwards T, Klotz P, Jurkovich GJ. Epidural analgesia improves outcome after multiple rib fractures. *Surgery*. 2004;136(2):426–30. <https://doi.org/10.1016/j.surg.2004.05.019>.

## Regional anaesthesia in a national anaesthesiology training scheme: Current landscape and future directions

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<sup>1</sup>Past ISRA Trainee Representative, Auckland, New Zealand. <sup>2</sup>Past ISRA Trainee Representative, Dublin, Ireland. <sup>3</sup>President ISRA, Dublin, Ireland. <sup>4</sup>ISRA Treasurer, Dublin, Ireland. <sup>5</sup>ISRA Secretary, Dublin, Ireland

### Abstract

#### Introduction

The Irish Society of Regional Anaesthesia (ISRA) has been active in providing opportunities for trainees in the Irish Specialist Anaesthesiology Training (SAT) scheme; initiatives include the election of a trainee representative to the Council, annual training and update events, and the development of the ISRA Foundation Course - a one-day intense workshop providing training to perform three basic nerve blocks.

#### Methods

We carried out a nationwide survey of SAT trainees in 2019, with a 43% response rate.

#### Results

Responses were evenly distributed across the training years, with the highest response from year 4 trainees (20%). 70% of respondents had attended an ISRA training event, such as the ISRA Update Day or ISRA Foundation Course. 25% of respondents had obtained higher qualifications in regional anaesthesia, such as the European Diploma in Regional Anaesthesia. 51% of respondents performed an average of 1-3 nerve blocks per week; 39% performed none in an average week. Ranking impediments to performing regional anaesthesia in their current place of work, 73% ranked "Lack of experienced colleagues to train me" as first, second or third; 8% ranked "I am not interested in regional anaesthesia" as first, second or third. 97% of respondents stated they would support the inclusion of the ISRA Foundation Course in SAT training.

#### Discussion

There is a high level of enthusiasm for regional anaesthesia practice among trainees in Ireland, and the inclusion of the ISRA Foundation Course in mandatory training would be well received and improve the consistency of training in regional anaesthesia in Ireland.



## Remote learning to improve access to regional anaesthesia training in the COVID-19 era and beyond

Christopher James, Leon Cohen

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### Abstract

#### Background

Numerous barriers exist to achieving proficiency in the RCoA-backed 'Plan A' (1) blocks laid out by RA:UK. These include scarcity of training lists, long gaps between block performance and lack of ultrasound access to practice obtaining views. These problems have been severely compounded by the COVID-19 pandemic. We trial a novel method of remote learning to improve confidence and offset some of the acute, and more chronic, issues with regional training.

#### Methods

A portable Butterfly ultrasound probe was loaned to trainees with a copy of the RA:UK Pocket Guide (1). Participants were shown a video demonstrating how to obtain views for two Plan A blocks (axillary and interscalene) and instructed to save 5 self scans for review. Images were remotely reviewed together with an experienced regional anaesthetist to provide feedback, demonstrate anatomy & discuss needle trajectory. Trainees completed a questionnaire evaluating the effect of the training programme on their confidence.

#### Results

Trainees (n=6) reported increased confidence in obtaining images (+3/10), identifying relevant structures (+3/10) and how they would feel about performing the block (+4/10).

#### Discussion

This simple and COVID-secure novel method of teaching regional anaesthesia through deliberate practice can expand access to regional anaesthesia training and improve trainee confidence. The scheme could help meet trainees' curriculum requirements whilst opportunities are reduced, as well as into the longer term.

## References

1. Turbitt, L.R., Mariano, E.R. and El-Boghdadly, K. (2020), Future directions in regional anaesthesia: not just for the cognoscenti. *Anaesthesia*, 75: 293-297
2. Townsley P, Bedford N, (2019) *A Pocket Guide to Ultrasound Guided Regional Anaesthesia - Second Edition*

## **Adaptability in the face of adversity: how to deliver an international regional anaesthesia course virtually**

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### **Abstract**

#### *Introduction:*

COVID-19 has impacted not only the provision of healthcare, but the provision of education and skill-based teaching. With the inherent viral transmission risk associated with airway manoeuvres, there is an ever-increasing emphasis on providing regional anaesthesia wherever possible. Now, more than ever, it is essential that regional anaesthesia expertise is shared. However, the logistics of sharing this knowledge in the current climate present new challenges.

MYRAG run a popular regional anaesthesia course, which has an international audience. The flagship course is well-established in its usual face-to-face format, but COVID-19 prompted the development of a virtual course to meet this increased educational need.

#### *Methods:*

Development of a virtual regional anaesthesia course with the aim of providing equitable learning opportunities to those who wished to refresh or improve their knowledge.

Focus groups were held beforehand to ascertain which areas of the course would be adaptable to video conferencing and what components would be the most useful for learners.

The popular video conferencing service, Zoom, was utilised to provide a virtual learning platform.

The course comprised of four core topics followed by a question-and-answer session.

**Results:**

- Attendance: over 400 participants internationally
- Verbal and written feedback was overwhelmingly positive:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
As a result of this online seminar, I gained new knowledge applicable to my work.	24 (33.3%)	44 (61.1%)	3 (4.2%)	0	1 (1.4%)
The subject matter was presented effectively.	28 (38.9%)	41 (56.9%)	1 (1.4%)	1 (1.4%)	1 (1.4%)
The pace of the online seminar was satisfactory.	25 (34.7%)	42 (58.3%)	2 (2.8%)	1 (1.4%)	2 (2.8%)
The duration of the online seminar was sufficient for the material covered.	17 (23.6%)	45 (62.5%)	4 (5.5%)	3 (4.2%)	3 (4.2%)
The speakers were knowledgeable.	34 (47.2%)	35 (48.6%)	1 (1.4%)	0	2 (2.8%)
I plan to apply what I learned from this online seminar.	24 (33.3%)	46 (63.9)	0	0	2 (2.8%)

Table 1: post-course survey results

Additional written feedback:
Extremely well organized and informative sessions... Thanks!
please do more online seminars like this one, thank you very much.
Thanks a lot, we appreciate your effort
It was an interesting webinar ,thank you for increasing our knowledge!
That was very good. Thanks. Keep it up
Excellent seminar thank you
a more in-depth instructional video on us guided nerve blocks
It was wonderful
The topic is very helpful
Well organised, Congratulations, Keep it up.
Speaker were good and clear cut in answers
Demonstration session can be added
Enjoyed the webinar, Thanks for your efforts.
Thanks for the great event.

Table 2: additional comments

*Discussion:*

This course highlights the abundant potential given to educators in the form of virtual learning platforms. Whilst there is no substitute for hands-on experience, much of the underlying theory and trouble-shooting can be tackled using video conferencing.

This course will act as a springboard upon which to base further, more focussed courses.