

A novel ultrasound-guided regional anaesthesia (UGRA) course utilising an augmented reality system and artificial intelligence assistance

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Introduction

- The RCoA (Royal College of Anaesthetists) 2021 curriculum places greater emphasis on UGRA than previously, reflecting the recognition that UGRA is an important skill for all anaesthetists.
- Trainees must demonstrate competence in UGRA, rather than case numbers.
- Whilst these changes are positive, they generate challenges for both trainers and trainees.
- We wanted to provide high quality, consistent, accessible, and inclusive UGRA training to all anaesthetic trainees in Wales, helping them achieve the Stage 1 RA curriculum requirements and shortening the learning curve to competence.

Method

- We have created an evidence-based standardised course format, with faculty and candidate resources, allowing the course to be easily replicated.
- Content is guided by the curriculum, focusing on scanning and needling skills and emphasising deliberate practice with structured personalised feedback from faculty.
- Our course is unique in its objectives, format, and innovative teaching methods including the use of augmented reality and Artificial Intelligence (AI) assistance (NeedleTrainer, and ScanNav Anatomy Peripheral Nerve Block; Intelligent Ultrasound, Cardiff, UK).

Results

- We delivered 10 courses between July 2022 and July 2023 (56 candidates in total) and received extremely positive feedback. 100% of candidates found the course very useful.
- 100% strongly agreed or agreed that the course will help them to achieve Stage 1 Key Capability E (perform simple peripheral nerve blocks with ultrasound) and F (perform ultrasound-guided femoral nerve or fascia iliaca blocks independently).



Improved patient access to RA comes from ensuring high-quality, inclusive RA training.

Our novel, standardised, evidence-based course using AI could be used as a template for addressing RA training needs in competency-based curriculum programmes.



Discussion

- Our course addresses a clearly identified training need.
- By ensuring that all trainees in Wales receive an equitable level of RA training, this will translate into improved access to RA for patients, with its associated benefits.
- Furthermore, the use of innovative technology enhances, accelerates, and optimises learning in the non-clinical environment.
- We recognise that the challenges associated with the provision of UGRA training are not unique to Wales or the UK. As such, our course and approach could serve as a template for addressing training needs in other centres in the wider anaesthesia community.

