

“Plan A” for Ultrasound-Guided Regional Anaesthesia in the Emergency Department

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Emergency physicians are increasingly familiar with point-of-care-ultrasound (POCUS) as an adjunct to clinical examination. Although once the preserve of a small number of enthusiasts, POCUS is now a fundamental part of practicing emergency medicine. Unsurprisingly, this shift has been accompanied by advances in portable ultrasound devices and the emergence of formal governance structures, such as dedicated fellowship training in POCUS, curriculum sign offs, and ED ultrasound subspecialty leads.

The Sono Case Series has been a popular and recurrent feature of the EMJ for several years. In this issue, Graglia *et al* use a case-based approach to describe the superficial cervical plexus block¹. Their article helpfully illustrates some of the important principles and practical tips for delivering ultrasound-guided regional anaesthesia (UGRA) in the ED. It is also a timely reminder that ultrasound offers opportunities in the emergency setting beyond diagnosis, vascular access, and real-time haemodynamic monitoring.

With the possible exception of the fascia iliaca compartment block, UGRA is underutilised in the ED, even though these techniques can achieve effective analgesia and facilitate procedures that might otherwise require intravenous sedation². There are many blocks that could have utility in the acute setting, such as the erector spinae block (e.g. for rib fractures and chest drain insertion) and popliteal block (e.g. for closed reduction of ankle fracture dislocations). A number of surveys suggest that emergency physicians across multiple countries are interested in developing experience in these techniques^{3 4}.

However, there are important barriers to emergency physician training in UGRA. First, the ED is a time-pressured environment in which it can be challenging to learn new procedural skills³. The time to perform a fascia iliaca compartment block with ultrasound ranges from 10-20 minutes versus 5-10 minutes using a landmark technique⁵. Second, it is difficult for trainees to learn techniques that are not familiar to their training faculty. Only 49% of senior emergency physicians in Canada³ and 43% of ED ultrasound programme directors in the United States⁴ report feeling comfortable delivering nerve blocks. Finally, few clinical pathways anticipate administration of a nerve block in the ED, which may have implications for downstream monitoring and post-procedure care.

These challenges are real but surmountable. Emergency clinicians can engage with the courses, meetings, and governance structures provided by their national UGRA organisations, such as Regional Anaesthesia UK (RA-UK)⁶. This engagement is also important to ensure that guidelines, frameworks, and clinical pathways encompass the full range of settings in which UGRA techniques may be used. Training may also be sought from colleagues in anaesthesia as UGRA is a longstanding component of anaesthetic practice.

One means of sustainably embedding UGRA within EM practice is to focus our efforts as a community rather than each individual adopting their own suite of niche blocks. In 2020, Turbitt *et al* proposed that the rapid expansion in novel blocks within anaesthesia was having a detrimental effect on real-world practice by widening the gulf between general anaesthetists and the regional anaesthesia “cognoscenti”⁷. These authors suggested a three-stage approach to extending the provision of regional anaesthesia: (1) selection of high-value nerve blocks, (2) attaining and maintaining competence, and finally (3) implementation of regional anaesthesia within clinical pathways.

The first stage required the selection of a small number of effective, scalable, and versatile blocks. Turbitt *et al* proposed seven such “Plan A” blocks while acknowledging that this package was selected to *“provide the highest possible value to the greatest number of patients; therefore, in some cases a compromise must be reached between impact on patient outcomes and the potential for non-experts to successfully perform the block on a regular basis”*⁷. The focus on a core group of blocks should make it easier for practitioners to teach, learn, and improve their skills through repetition.

The concept of focussing on a small number of blocks is even more important for maximising the role of UGRA amongst emergency clinicians who are likely to practice these techniques less frequently than anaesthetists. A list of “Plan A” blocks for Emergency Medicine could be established through a multi-national consensus exercise incorporating a carefully conducted facilities audit, needs analysis, and systematic evidence review. Such an exercise would ensure that emergency clinicians adopt the blocks with the highest utility in the ED and perform these regularly enough to do so safely and effectively.

The capacity for incorporating UGRA techniques into ED practice seems likely to expand over time, particularly as portable ultrasound scanners and training are enhanced by emerging technologies. For example, training modalities such as NeedleTrainer™ (Intelligent Ultrasound, Cardiff, UK) create an immersive high-fidelity environment in which a retractable needle can be pressed harmlessly against the skin of a live model but project a holographic needle onto a real-time ultrasound image. Artificial intelligence technology can also now generate real-time coloured overlay on pertinent anatomical structures. These technical advances are likely to make UGRA more accessible to generalist practitioners. However, as UGRA techniques emerge in the ED, we should benefit from the lessons learned by our colleagues in the regional anaesthesia community. There are many blocks that have potential utility in the ED and we should strive to agree a defined evidence-based suite of procedures that we can then commit to perfecting as a community.

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