

## Editorial

# 'Prep, stop, block': refreshing 'stop before you block' with new national guidance

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This article explains some of the background to the new national standardised operating procedure to prevent wrong side block, developed by a working party of the Safe Anaesthesia Liaison Group (SALG). However, the document may seem a little unusual, since it is not presented as a barrier to wrong side block. Rather, its main aim is to standardise practice across hospitals so that any future events can be analysed against a common framework; hence the designation as a standardised operating procedure and not a guideline. We think as a result the incidence of wrong side blocks will diminish, but not be eliminated. 'Prep, stop, block' describes the process to be followed; enhancing the message of 'stop before you block' that the stop moment should occur just before needle insertion.

## Why 'stop before you block' needed refreshing

Conceived in 2011 [1], 'stop before you block' is a wonderfully catchy phrase emphasising the importance of stopping and checking the correct side before inserting the needle to prevent a wrong side block. Although intuitive, it does not seem to have worked. Data presented elsewhere confirm that the incidence of wrong side block (deemed a Never Event in the UK) has remained doggedly unchanged at between 1 in 6250 and 1 in 7812 [2, 3]. This is not a

deficiency with 'stop before you block' as a principle but rather, as we have since learned, with the manner in which it is practised.

The original guidance encouraged local flexibility in its application. This was understandable, as being a new initiative with no supportive evidence, local variation might have enhanced experiences helping to shape guideline evolution. The original initiative was disseminated via websites of the main national anaesthetic organisations [1] but did not reach the academic literature until several years later [4] and then appears to have been the focus of only about a dozen papers in total (several being correspondence items). However, this very flexibility has, we believe, become the main problem. As part of an analysis by SALG, hospital Trusts were invited to share their local policies to prevent wrong side block and 24 did so (see also online Supporting Information, Table S1). The heterogeneity that has evolved is striking. Several Trusts have no specific policy at all, or at most a 'policy' consisting only of the original 'stop before you block' poster [1]. In many Trusts, the policy is merged with those designed to prevent other errors, such as retention of guide wires. A few Trusts require the use of an additional mark, such as a sticker, to the surgical site mark. These additional marks have themselves led to wrong side block [5], especially as some literature recommends placing such marks or stickers

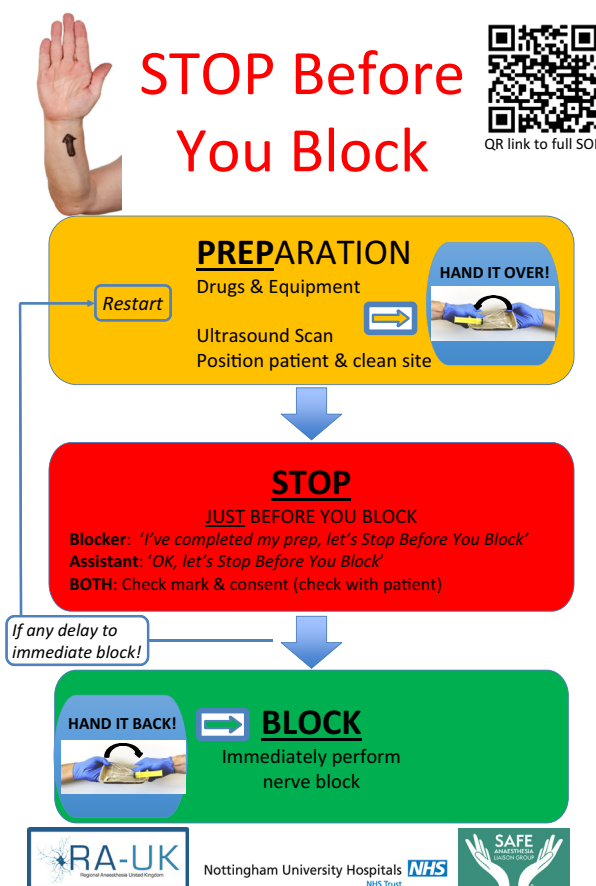
on the side not to be blocked, leading to further confusion [6]. The colour, shape and type of stickers, where used, were inconsistent across Trusts (see also online Supporting Information, Table S1). In summary, the original hope that the practice of 'stop before you block' would converge to a common process through practice and research has been replaced by a wide divergence of rules and recommendations, the majority of which have been associated with wrong side block (see also online Supporting Information, Table S1).

Further evidence has emerged that, even when anaesthetists performed a 'stop' moment, they often did so at the wrong time, often only at the World Health Organization (WHO) sign-in when the patient arrives in the anaesthetic room [7]. A survey found that after a wrong side block, anaesthetists felt genuine surprise, as they recalled having duly 'stopped' [7]. Some Trust policies explicitly align the 'stop' moment with the WHO sign-in, or before skin cleaning, both of which can occur sometime before needle insertion (see also online Supporting Information, Table S1). Equally for blocks of multiple nerves at different sites, some anaesthetists appeared to assume that only one stop moment was necessary for the first, even when the subsequent injections required re-prepping the skin or turning the patient [7]. Regrettably, there remains a minority of anaesthetists who admitted to not complying with 'stop before you block' in any form, and this includes several who themselves have performed a wrong side block [7].

Many of these issues were underlined in the very first investigation by the then newly created Healthcare Safety Investigation Branch in 2018, which focused on wrong side block. The report described a single case and, while not making any specific practice recommendations, formally invited SALG to formulate a new standard with less, if any, room for local variation [8]. The new standardised operating procedure (available in Fig. 1 and see also online Supporting Information, Appendix S1) has been through various drafts in a modified Delphi process, and the acknowledgements lists the organisations that have reviewed, modified and approved it. Further supportive evidence including results of a 3-month adoption trial and a formative observational study are available in the online Supporting Information (Appendix S2).

## Explaining the key elements of the new guidance

The main principle of the new standardised operating procedure is to deconstruct the act of performing a block into three distinct phases: preparation; the stop moment; and finally the local anaesthetic injection. These may



**Figure 1** The new standard operating procedure for 'Stop before you block' presented as a poster. The three phases of 'prep', 'stop' and 'block' are underlined and in different colours. The time-points at which to hand over and hand back the tray are shown, as well as emphasis that if there is a delay to immediate insertion of block after stop moment, the process should begin from the start. See <https://www.salg.ac.uk> for the full document.

commonly be practised seamlessly but now the stop moment is a clear interruption, punctuating the end of preparation. Preparation may begin before or after the WHO sign-in, and also before, after or in absence of general anaesthesia. It may include: drawing up all drugs and equipment (needles, syringes, nerve stimulator, ultrasound pre-scan etc.); positioning the patient and oneself; gloving (and gowning where needed); and cleaning the skin over the block site area. The standardised operating procedure enhances the role of the assistant, to whom the prepared drug tray is handed over at the end of preparation phase, out of reach of the person performing the injection (termed the 'blocker' to acknowledge that non-anaesthetists may be performing blocks).

To obtain the needle/syringe/tray to perform the block, the blocker should verbalise the completion of preparation

and in turn, the assistant should acknowledge this. User feedback obtained by SALG (see also online Supporting Information, Appendix S2) indicated that some practitioners found this uncomfortable initially, but it should cause no more embarrassment or difficulty than saying 'cricoid off' in a rapid sequence induction, '3-2-1, turn' when positioning a patient or verbal confirmation of end-tidal carbon dioxide after tracheal intubation. At this point, both assistant and blocker should confirm that the site prepared coincides with the surgical site mark and again (having once done this at sign-in), with what is noted on the consent form. Only after confirmation of this process does the assistant hand the drug tray back to the blocker, who then immediately performs the block. We cannot specify what 'immediately' means in strict chronological terms, but we can stress that the longer the interval between the receipt of the drug tray and insertion of needle, the greater will be the risk of wrong side block. Delays might be caused by: patient instability and need for corrective intervention (e.g. hypotension, hypoxia); patient movement; ultrasound or nerve stimulator failure; noticing drug errors; or distractive interruptions from people entering the room or telephone calls. Passage of time is in the minds of individuals, and if the blocker or assistant feel that the immediacy of needle insertion is impaired, they should stop and begin the process again at the preparation phase. This may require the assistant speaking up to provide challenge, so there will need to be human factors training to strengthen application of the standardised operating procedure over time [9].

### Challenges to implementation

The evidence supporting the new standardised operating procedure is not conclusive, but it is far greater than that which accompanied the original 'stop before you block' guidance or any of the existing policies (see also online Supporting Information, Table S1). We anticipate further research might focus on questions such as: how to help people remember to follow the procedure?; how robust is the process for unusual blocks or scenarios (e.g. where there is no assistant)?; how can interruptions to the process be best managed?; or will assistants feel able to speak up if the blocker is not complying or misses a step [9]?

To some individuals, this new process will not present much, if any, change to practice. Others who pride themselves on speed may be more challenged. Some Trusts will need to change their policies radically, especially those that have invested heavily in special site-marking stickers. There should be no site mark in addition to the surgical site mark (but anaesthetic-only blocks will need a site mark and, of course, dedicated consent). The new policy should be

stand-alone and not merged with other safety initiatives. Previous aids such as flaps obscuring the ultrasound screen or 'stop before you block' syringe stickers may not directly interfere with the 'prep, stop, block' process (although some individuals may find these a helpful reminder, these do not form part of the standardised operating procedure).

### Unusual scenarios

Feedback revealed that colleagues perform blocks in the most surprising ways or in the most unusual circumstances. No guidance can comprehensively encompass all the clinical practice that exists. The standardised operating procedure described is for what we regard as the most common situation of a peripheral nerve block in an anaesthetic or block room before surgery. Hence, the full document includes an extensive 'frequently asked questions' section (available in the online Supporting Information, Appendix S1). This addresses situations such as where: there is no surgical site mark at all because it is an 'anaesthetic-only' procedure; the block is performed after surgery and the site mark has disappeared; there are multiple surgical site marks; the surgical site mark is placed on the correct side but at some distance from the site of injection; and there is no assistant. A guiding principle is the recognition that these are all situations of increased risk where extra vigilance is needed. One interesting question concerned blocks near the midline (e.g. erector spinae block). Here, a surgical mark may be clearly on one side of the body and visible, but the anatomical side of injection may only be confirmed using ultrasound. Since the assistant cannot be expected to interpret ultrasound images, they cannot verify the block is being placed on the correct side. Our suggestion is to delineate the surface anatomy by marking, but this is distinct from an extra site mark. Rather, it serves to help the assistant verify the side.

### Conclusions

By boiling down the act of performing a block injection into three component parts, the new standardised operating procedure is simple. We did not recommend a more complex technical solution, although we are aware of several possibilities in principle. Nerve stimulators or ultrasound machines might be constructed with alarms to trigger a stop moment or they may fail to activate unless a stop moment is undertaken [10]. Drug trays or boxes that can be locked and a voice-activated unlocking system has been suggested, opening only when a stop moment is verbalised [11]. Difficulties with technical solutions include the lack of any evidence and the need for product development, investment, CE marking and adoption [12].

Where more than one product or solution exists, organisations like SALG are constrained in recommending one over the other. Regardless, the new standardised operating procedure should not be viewed as a restrictive straitjacket that puts an end to critical enquiry, innovation or research. Rather, offering a common framework going forward, it can serve as a stable reference against which further developments can be mapped.

The main aim of the new standardised operating procedure is to replace the existing patchwork of failed policies. Never Events are known to occur randomly [13], so it is likely that wrong side blocks will arise despite adherence to the new procedure. However, the common framework should enable us to identify exactly where future improvements in the guidance need to be made.

## Acknowledgements

Further detailed information including a video is available at the SALG website (<https://www.salg.ac.uk>) and the RA-UK website (<https://ra-uk.org>). The authors thank Dr H. Young for assistance in obtaining the data for Table S1 and Dr D. Luff for assistance with creating the training video on the SALG website. They thank Dr M. Richardson and Dr S. Traill for assistance with the formative observational study in Appendix S2. They thank the Working Party members: Dr C. McCartney, Mid Essex Hospital Services NHS Trust, Chelmsford (representing the Faculty of Pain Medicine); Dr L. Wee, Manchester University NHS Foundation Trust and Dr T. Brunning, Worcestershire Acute Hospitals Foundation Trust (both representing the Royal College of Anaesthetists' Simulation Working Party); Dr C. Frerk, Northampton University Hospital; Mr B. Patel, Royal College of Anaesthetists Lay Committee; Ms J. Russell and Ms F. Watts (representing NHS Improvement). They also thank all those who participated in the feedback contributing to Table S1 and to the data in Appendix S2. In addition to the individuals and organisations mentioned above, the following have contributed to the new standardised operating procedure: RA-UK; Council of the Royal College of Anaesthetists; Association of Anaesthetists Safety Committee; and the Board of the Association of Anaesthetists. There has also been supportive input from NHS Improvement, Medicines and Healthcare products Regulatory Agency and Healthcare Safety Investigations Branch. JP is co-Chair, Safe Anaesthesia Liaison Group, Royal

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## Supporting Information

Additional supporting information may be found online via the journal website.

**Table S1.** Summary of individual hospital Trust policies to prevent wrong side block.

**Appendix S1.** 'Prep, stop, block' standardised operating procedure in full.

**Appendix S2.** Summary of evidence underpinning the new 'prep, stop, block' guidelines.