only be considered an investigational method and is definitely not suitable for deployment.

The encouragement in the NAP5 report of IFT training and its apparent elevation to equal status with pEEG, may lead to well-meaning but potentially harmful clinical experimentation, with unknown consequences for patients.

Although a tourniquet may be safely inflated for a limited period during arm surgery, failure to deflate an IFT cuff might eventually lead to serious patient injury or ironically interrupt ipsilateral i.v. anaesthesia and cause the very event it is intended to prevent. Before proponents of IFT can justify its general use it requires comprehensive evaluation, dedicated equipment with a CE mark and built in safety features (for example automatic cuff deflation after a fixed period) and a proper understanding of the dose-response relationship between anaesthetic agent concentration and IFT responsiveness.

It would be appropriate for the NAP5 team to clarify their intentions around IFT and hopefully be explicit that it not be widely used until the necessary pre-conditions outlined above have been achieved. In the meantime, please leave it out of the anaesthesia curriculum, except as a thought provoking clinical phenomenon and an area for further research.

## Declaration of interest
None declared.

## References

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## NAP5 and isolated forearm technique: reply

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Editor—We thank Professor Sneyd for his description of the NAP5 Report as an important landmark study of accidental awareness during general anaesthesia (AAGA).1–3 He is concerned that the Report has given ‘extensive coverage’ to the isolated forearm technique (IFT), equating it to processed EEG (pEEG) methods and goes on to describe the potential harm if the IFT is misapplied.

The NAP5 Report contrasts the IFT with pEEG in the chapter on depth of anaesthesia monitoring (http://www.nationalauditprojects.org.uk/NAP5report), raising issues such as the lack of large scale research on the IFT that also concerned Professor Sneyd. The Report provides only one reference to IFT in its recommendations, namely:

**Recommendation 6** Anaesthetists should be familiar with the principles, use and interpretation of specific depth of anaesthesia monitoring techniques (i.e. the available EEG-based monitors and the isolated forearm technique). Relevant anaesthetic organisations should include this monitoring in their core training programs.

This recommendation is in response to clear shortcomings in current training. Our wording does not imply that all of these methods should become part of anyone’s routine practice. Rather, we argue that these programs should discuss the relative merits of all available methods of depth of anaesthesia monitoring - with training in their proper conduct - so that individual anaesthetists can make informed choices about which monitor, if any, to use in which circumstance, and can use them safely.

We do not consider the issue of CE marking to be a significant issue. The relevant equipment (a tourniquet and nerve stimulator) is already CE marked, readily available and its use in IFT is not a deviation from intended purposes (respectively, temporarily to isolate the limb from the circulation and to assess neuromuscular function). We share concerns that harm might result if IFT is misapplied but we are not aware of any reports of such harm in the ~35 years since its first description.4 Nevertheless, it is because of our concerns that we believe proper practical training is essential.

The IFT is the only current means by which a patient, otherwise deprived of motor capacity by neuromuscular block, can communicate any residual awareness. Because IFT is so rarely used, it did not feature strongly in the panel’s discussions or recommendations. A far more prominent issue was the need for better communication between the anaesthetist and patient, before, during and after procedures where AAGA is a risk. Because talking to the patient is an integral component of IFT, it may help towards this wider aim.

We made very specific recommendations for research using IFT and the interesting questions it raises,5 6 which echo Professor Sneyd’s desire for more data on dose-response relationships and interpretation of IFT responses (Research Implications 20.1 and 23.3). We also made research recommendations on its use in children (Research Implication 15.4).

Professor Sneyd notes that none of the large trials investigating the efficacy of pEEGs has used the IFT. The inconsistent results from those trials underline the need for research that combines both technologies.7–9 Given the rarity of accidental awareness (~1:600 even using Brice questionnaire) very large sample sizes are required to show benefit of pEEGs and equivocal

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results are likely. If IFT-positive responses are indeed as high as ∼1:3, then clinical trials with much smaller sample sizes may be sufficient to determine the optimum EEG strategy, if IFT is used in parallel. So the two technologies are not at all in competition, but rather complementary.

In summary NAP5 does not endorse or promote the use of IFT (or of any other specific depth of anaesthesia technology). NAP5 does recommend that more should be done to ensure IFT is taught and used correctly by those who choose to use it, and suggests that further well-designed studies incorporating IFT may prove to be of scientific and practical value to the specialty.

Declaration of interest
None declared.

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Response to NAP5 from the society for obesity and bariatric anaesthesia SOBA

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Editor—We congratulate the authors of the fifth National Audit Project of the Royal College of Anaesthetists (NAP5) on their study into accidental awareness under general anaesthesia (AAGA).1–3

However, as members of a group with an extensive experience of anaesthetising obese patients we are concerned by a suggestion made in comment 8.51.

‘The results of NAP5, indicate that induction is a high-risk phase of anaesthesia for AAGA, and that AAGA may be more common in the obese. This raises the possibility that dosing of induction drugs based on total body weight might be a better strategy to reduce the risk of AAGA. Further research is required’.

Whilst the statement above is undoubtedly true, we are concerned that the suggestion of dosing induction agents to total body weight in the morbidly obese could result in profound cardiovascular instability in some patients. One of SOBA’s stated aims is education of the anaesthetic community in safe anaesthesia for the obese patient. Our standard teaching is that induction agent administration should initially be dosed to lean body weight and subsequently titrated to effect. However, as with much of anaesthesia, timing and technique are as important as the choice of drug and its dose. Bariatric anaesthetists tend to adopt one or more of several techniques in order to avoid ‘the gap’ referred to in NAP 5.

The first is that the patient should ideally be anaesthetised in the operating theatre and not in the anaesthetic room. Transfer of the anaesthetised obese patient from anaesthetic room to theatre is not only fraught with manual handling problems and increases the risk of significant atelectasis and desaturation during the enforced cessation in ventilation, but also runs the risk of a delay in establishing adequate inhalation agent concentrations.

The second is that the time taken between the administration of the induction agent and the establishment of a secure airway should be kept to an absolute minimum. Bag-mask ventilation is well recognized as difficult in the obese, and difficulty with establishing adequate ventilation, and hence absorption of volatile agents, combined with a more rapid redistribution of induction agents into the larger fat mass, almost certainly contribute towards patients with awareness at induction. Rapid securing of the airway with an tracheal tube has two benefits: it minimizes the desaturation commonly seen in the obese, but second, and crucially in the context of this discussion, it allows the rapid instigation of reliable inhalation agent administration.