



THE NEWSLETTER  
OF THE  
ASSOCIATION  
OF ANAESTHETISTS  
OF GREAT BRITAIN  
AND IRELAND

# ANAESTHESIA NEWS

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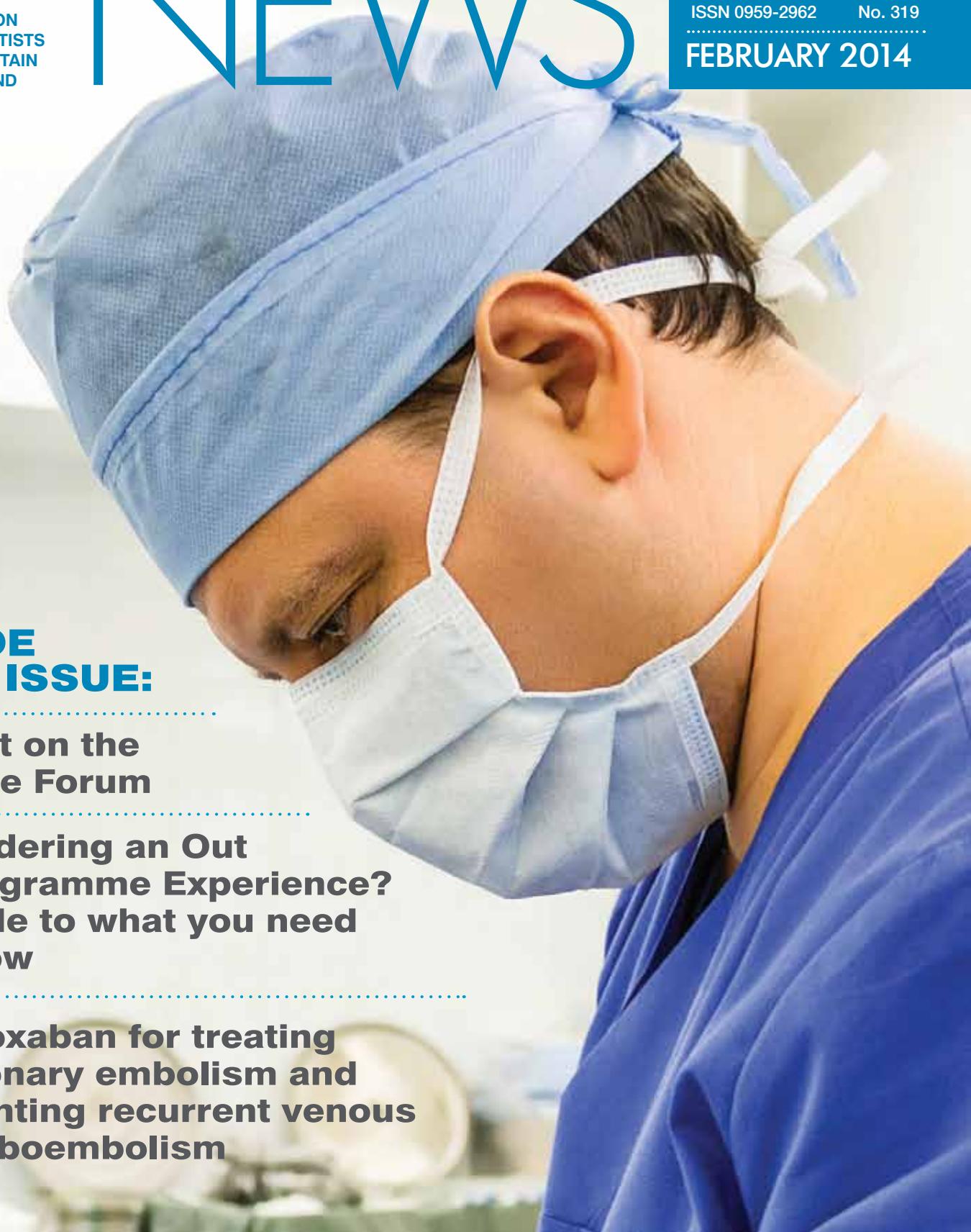
FEBRUARY 2014

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thromboembolism**





## ULTRASOUND TRAINING COURSES



### 2014 COURSE DATES:

**Introductory Ultrasound Guided Regional Anaesthesia**

29-30 April  
6-7 October

**Ultrasound Guided Venous Access**

5 June  
23 October

**Ultrasound Guided Paediatric Venous Access**

17 February  
28 July

**Ultrasound Guided Chronic Pain Management**

23 May

All courses qualify for CPD Accreditation.

**Venue:** SonoSite Education Centre,  
240 The Village, Butterfield, Great Marlings,  
Luton, Bedfordshire LU2 8DL

**Contact:** Louise Smith  
Tel: +44 (0) 7593 614034  
Email: education@sonosite.com

For the full listing of SonoSite training and education courses, dates and to register go to:  
[www.sonositeeducation.co.uk](http://www.sonositeeducation.co.uk)

SonoSite, the world leader and specialist in hand-carried ultrasound, has teamed up with some of the leading specialists in the medical industry to design a series of courses, for both novice and experienced users, focusing on point-of-care ultrasound.

### Introductory Ultrasound Guided Regional Anaesthesia

The two-day introductory course is designed to teach those who have little or no experience in the use of ultrasound in their normal daily practice. The course comprises didactic lectures on the physics of ultrasound, ultrasound anatomy and regional anaesthesia techniques. The lectures and hands-on sessions will concentrate on the brachial plexus, upper and lower limb blocks.

### Ultrasound Guided Venous Access

This one-day course is aimed at physicians and nurses involved with line placement and comprises didactic lectures, ultrasound of the neck, hands-on training with live models, in-vitro training in ultrasound guided puncture and demonstration of ultrasound guided central venous access. The emphasis is on jugular venous access, but femoral, subclavian and arm vein access will also be discussed.

### Ultrasound Guided Paediatric Venous Access

This one-day course is designed to teach delegates the technique of ultrasound-guided venous access in children. The course is aimed at physicians, nurses and healthcare professionals and comprises didactic lectures, hands-on ultrasound of the neck, in-vitro training in ultrasound guided puncture and demonstration of ultrasound guided central venous access. Areas covered will include jugular, femoral, subclavian venous access and arm vein access will also be discussed.

### Ultrasound Guided Chronic Pain Management

This one-day course is aimed at chronic pain specialists, or other interested parties practising in chronic pain medicine who have little or no experience of musculoskeletal ultrasound and who wish to obtain an introduction to ultrasound in chronic pain medicine skills.

**Fees:** £375 (two-day courses) includes VAT, lunch, refreshments and course materials.  
£260 (one-day courses) includes VAT, lunch, refreshments and course materials.

# Editorial



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There is a fascinating article this month on the difference between scientists and doctors. This explains, using a mountaineering analogy, what most of us do day-to-day in assessing risk and benefit, perhaps without even realising it. We consider the often inconclusive and limited evidence base, add a dash of bias from experience, and then apply both to the individual patient. I have always been critical of those who claim an anaesthetic technique should be applied to most patients in a particular group. I know anaesthetists who use total intravenous anaesthesia (TIVA) for almost everyone, spinals for nearly all knee arthroscopies, interscalene blocks (ISBs) for all shoulder surgery, or awake fibreoptic intubation (FOI) for all dental abscesses. I can use TIVA, put in a spinal, do an awake ISB and perform FOI. However, I apply each skill as the patient and I decide is best. I believe that all consultant anaesthetists should have a full range of skills that they can apply according to the needs and wishes of individual patients, who are assisted in making an informed choice. Each of these techniques is fairly straightforward to teach and learn, but the wisdom needed to apply them appropriately takes many years, and is the real art of medicine.

However, it seems that it will not be long before we appoint the consultants of the future after only 4-6 years of training, some 6-8 years after graduation. It seems that the GMC's Shape of Training Review (SOTR)<sup>1</sup> is to be implemented with almost immediate effect, and suggests that we all train as generalists. Further specialist training will take place as required by local services. In anaesthesia, we already train generalists and are therefore relatively protected, but training is likely to be further reduced in duration. I cannot see how the intensity of training can be increased further if the Working Time Regulations remain in their current form, so we will inevitably appoint more inexperienced consultant anaesthetists to jobs that bear very little resemblance to the terms and conditions we have at present. Will these new consultants have the clinical judgement, range of skills and the motivation required, or will they become protocol-directed automatons? Will these be the consultants treating me when I fall and fracture my neck or femur in my 80s?

The Association of Anaesthetists of Great Britain and Ireland  
21 Portland Place, London W1B 1PY  
Telephone: 020 7631 1650  
Fax: 020 7631 4352  
Email: anaews@aagbi.org  
Website: www.aagbi.org

Anaesthesia News  
Chair Editorial Board: Nancy Redfern  
Editors: Kate O'Connor, Nicholas Love and Caroline Wilson (GAT),  
Nancy Redfern, Richard Griffiths, Sean Tighe, Tom Woodcock,  
Mike Nathanson, Rachel Collis and Upma Misra  
Address for all correspondence, advertising or submissions:  
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## ULTRASOUND GUIDED REGIONAL ANAESTHESIA – BEYOND INTRODUCTORY



These courses are organised by Regional Anaesthesia UK (RA-UK) in conjunction with SonoSite Ltd for training in ultrasound guided regional anaesthetic techniques. Previous experience in regional anaesthesia is essential.

### 2014 Course Dates

Location	Organisers
Bristol (A)	Dr Barry Nicholls/Dr Tony Allan
Brighton(A)	Dr Susanne Krone
Liverpool	Dr Steve Roberts
Nottingham (A)	Dr Nigel Bedford

Faculty will vary depending on location

10% Discount for ESRA members – 15% Discount for RA-UK (FULL) members. **Cost: £400 / £500 (A)** including a CD with presentations and course notes. Pre-course material can be downloaded once registered on the course – including US physics, anatomy of the brachial / lumbar plexus, current articles of interest and MCQ's. A pre course questionnaire will be sent 30 days before each course.

### PROGRAMME

#### Day 1

- Ultrasound appearance of the nerves
- Machine characteristics and set-up
- Imaging and needling techniques
- Common approaches to the brachial plexus / upper / lower limb
- Workshops – using phantoms / models / cadaveric prosections (A)

#### Day 2

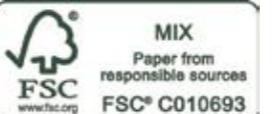
- Consent / training and image storage
- Upper / lower limb techniques
- Abdominal / thoracic techniques
- Cervical plexus / spinal / epidural / pain procedures
- Workshops – using phantoms / models / cadaveric prosections (A)
- (A) – Anatomy based courses / with cadaveric prosections



For further information and to register logon to  
[www.sonositeeducation.co.uk](http://www.sonositeeducation.co.uk)

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# Editorial continued

In one respect, the SOTR should be welcomed. It will provide more trained acute physicians, who may actually be in the hospital and available when acutely ill patients need treatment. With the correct approach, it is even remotely possible that they might have the skill to put in central venous access, arterial lines, start ionotropes and supervise non-invasive ventilation, instead of saying "call the ICU team"! It is even possible that there might actually be someone around who is sufficiently experienced and skilful to be able to discuss difficult issues with relatives about the wisdom of escalating care in the face of near or actual futility, rather than making us do it. At the moment, acute medicine is not sexy and physicians all seem to want to be "ologists". The SOTR might change this, so I welcome it, as it can only create an improvement in the current situation!

The SOTR appears to fit in nicely with the Health Education England (HEE) workforce planning issues, i.e. political pressure to provide 24/7 resident consultant care for an exponentially increasing elderly population, whilst increasing GP training and community care investment. If training is more generalised and shorter, we will produce more career-grade trained doctors for the same money. However, it is very difficult to understand how quality of care will be maintained by an increasingly inexperienced and less specialised workforce. It is therefore alarming that the GMC has published this document at this time, without considering these quality issues more carefully.

In this respect, it is very concerning that Local Education and Training Boards are already diverting ST training numbers from anaesthesia to general practice, undermining the authority of HEE, who have directed otherwise, pending the outcome of workforce planning consultations. A Deanery in the North of England will lose nearly 12% of ST3 numbers from now, February 2014, and a further 14% over the following two years. The theory is that expansion of GPs and community care will reduce the requirement for hospital admissions, and therefore anaesthetists. It beggars belief! Rest assured, we are robustly addressing this issue directly with the HEE and via the RCoA joint workforce planning group but it seems that the world really is going mad!

Since my last editorial, the Competition Commission has published its "Provisional Findings"<sup>2</sup>. Although further consultation will take place, these findings are likely to be ratified in the final report, to be published in March or April 2014. Our extensive arguments in defence of Anaesthetic Groups, which we now refer to as "Independent Departments of Anaesthesia", seem to have been accepted. Sadly, however, the insurers have escaped any significant criticism. The AAGBI has made a further submission<sup>3</sup> and I still have some confidence that the Competition Commission may make some favourable adjustments as a result.

**Sean Tighe**  
Council Member AAGBI  
Chairman Independent Practice Committee

## References:

1. [http://www.shapeoftraining.co.uk/static/documents/content/Shape\\_of\\_training\\_FINAL\\_Report.pdf\\_53977887.pdf](http://www.shapeoftraining.co.uk/static/documents/content/Shape_of_training_FINAL_Report.pdf_53977887.pdf)
2. <http://www.competition-commission.org.uk/our-work/directory-of-all-inquiries/private-healthcare-market-investigation/provisional-final-report>
3. [http://www.competition-commission.org.uk/assets/competitioncommission/docs/2012/private-healthcare-market-investigation/aagbi\\_response\\_to\\_provisional\\_findings\\_and\\_possible\\_remedies.pdf](http://www.competition-commission.org.uk/assets/competitioncommission/docs/2012/private-healthcare-market-investigation/aagbi_response_to_provisional_findings_and_possible_remedies.pdf)



## GAT PRIZES AT NEWCASTLE 2014

### GAT Oral and Poster Prizes

Trainee anaesthetists are invited to submit an abstract for oral or poster presentation at the GAT ASM. The authors of the six highest-scoring abstracts in the preliminary review will be invited to present their work orally and will be eligible for the **Oral Presentation Prize**. A cash prize will be awarded to the winner.

#### Case Presentation Prize

Trainees are asked to submit an abstract of an interesting case that they have been involved in, and which has learning points that may aid other anaesthetists in their management of similar cases. The three best submissions as judged in the preliminary review will be invited to present their work orally at the ASM and the audience asked to vote for their favourite. A cash prize will be awarded to the winner.

#### Poster Competition

The remaining successful authors will be invited to present a poster. Entries will be allocated into one of the following three categories depending on the grade of the presenting author: Foundation Year Trainees; ACCS/Core Trainees; ST3+ Doctors. A cash prize and a certificate will be awarded to the winner in each category. The judges also reserve the right to award discretionary certificates.

#### Medical Students Poster Prize

Medical students are invited to submit an abstract for poster presentation on a theme related to Anaesthesia/Pain/ITU. A cash prize will be awarded to the winner.

### The Anaesthesia History Prize

The Association of Anaesthetists and the History of Anaesthesia Society will award a cash prize for an original essay on a topic related to the history of anaesthesia, intensive care or pain management written by a trainee member of the Association.



A £500 cash prize and an engraved medal will be awarded for the best entry, and the winner will be invited to present their paper at the ASM.

CLOSING DATE FOR ALL PRIZES: MONDAY 17th MARCH 2014

Full details can be found on the GAT website  
[www.gatasm.org/content/oral-poster-prizes](http://www.gatasm.org/content/oral-poster-prizes)

If you have any additional queries, please contact the AAGBI Secretariat on 020 7631 8807/8812 or [secretariat@aagbi.org](mailto:secretariat@aagbi.org)



# PRESIDENT'S REPORT

**Now we are agreed about where we are going, could we have a bit of a think about how we are going to get there?**

I was chewing the fat with a senior BMA person recently, and when I say "senior", I mean "well senior", as in: neatly trimmed grey beard, hair on top a little sparse, and just a hint of a Coventry accent – that sort of senior. We were talking about the recent decision of a Local Education and Training Board (LETB) in the north of England to increase the number of GPs it is producing by diverting training posts from anaesthesia to general practice. I had done a little research on the matter, and had been told that this change was going to have significant consequences for the delivery of anaesthetic services locally: there would be too few trainees to staff the on-call rotas; consultants would have to become resident on call to cover the rotas; this would create a shortage of consultants available during weekdays; this would, in turn, lead to the cancellation of about 100 elective operations per week in one of the major teaching hospitals.

"This is silly", I ranted, "I can see the point of increasing the number of GPs to match the needs of an increasingly elderly population, but it is downright daft to draw the training numbers from anaesthesia simply because it is the largest hospital subspecialty and therefore an apparently soft target. The need for consultant anaesthetists is likely to increase as well and for the same reason, and the knock-on effects of a decrease in the number of anaesthetic trainees will not work in local patients' interests. Is this really what Health Education England and the Department of Health want? Who is in charge here? Who is coordinating the whole workforce issue?"

The man with the neatly trimmed grey beard looked at me closely as a wry smile played around the sides of his mouth.

"You are making the assumption", he said, "that there is a coordinated and structured plan, and that all the constituent parts of the system are joined up and working together".

It was then that the few scales that remained on my eyes after 30 years of work in the NHS fell to the ground. I had indeed assumed that there must be some form of Grand Unified Plan for the NHS, or at the very least a coherent conspiracy driven from some dark office in Whitehall. I was of course wrong. All the many, varied and disparate parts of the NHS may now agree that their ultimate aim is the health of the nation. They may agree that we need to extend hospital services towards seven-day care. They may come together to shout out loud that more general physicians are needed to deliver high-quality acute care to an ageing population. They may even sing a song in perfect harmony that has the recurrent and heartfelt refrain of "Patient Safety First". However, they are not joined up in any meaningful way.

The more I thought about this, the more I realised the truth of my prompted revelation. Look around you and you will see it everywhere. We used to have one National Health Service that served the needs of all those living in the United Kingdom. This made sense. Then we had devolution, which also made sense of a

sort. However, it broke the one NHS into four increasingly different National Health Services, which made a lot less sense. Cardiff is only 43 miles by road from Bristol, and the people of these two great cities are remarkably similar in terms of healthcare needs, and yet they are served by two different health services. Doctors who work in Bristol are beholden to the edicts of the Care Quality Commission (CQC), the National Institute of Health and Care Excellence (NICE) and the Medicines and Healthcare Products Regulatory Authority (MHRA). Their colleagues, who practise on the other side of the Severn Bridge, are not. Currently, the BMA is negotiating a new Consultant Contract for England and Northern Ireland, but not for Wales. National Clinical Excellence Awards for England and Wales are managed by the same system, but Scotland has a separate system. Don't get me started about Scotland. NHS Scotland doesn't seem to want to have anything to do with NHS England, even though much of what it does is remarkably similar to that done in the English NHS, only it is usually done a bit better and has a tartan border around it and a thistle in the middle. The doctors who work in the Scottish NHS and the English NHS (and the Welsh NHS and the Northern Irish NHS) are trained to similar standards in a similar way, practise medicine in a similar manner using similar drugs, and all speak an identical language, albeit with different accents. Indeed, it is common for many of the doctors working in one country to have trained in one of the other countries, and yet we have four national health services doing things differently. In what dystopian nightmare of a world does all this make sense?

This disjointed approach to healthcare in the UK starts with the national divisions of the NHS, but permeates the system all the way down to individual patients. As described above, it seems as if the English Department of Health, NHS England (NHSE), Health Education England (HEE) and the LETBs are sorting out their pressing workforce issues as might a group of circus clowns, stepping in each other's water-filled buckets and hitting others with the planks they have across their shoulders as they turn round to kick one of their colleagues in the backside, managing to make much noise and start loads of arguments without actually achieving anything apart from visible chaos.

The problems faced by those of us who work at the clinical coalface that is the operating theatre are no fewer and every bit as serious. If you are scheduled to undergo surgery, your anaesthetic care should in theory be subject to checklists and guidance published by (at the very least) the World Health Organization (WHO), the National Patient Safety Agency (the now defunct NPSA), the Association of Anaesthetists of Great Britain & Ireland (AAGBI), the Royal College of Anaesthetists (RCoA), NICE, the Safe Anaesthesia Liaison Group (SALG) and the European Union (EU). God forbid you should be diabetic as well, for this will usher in the wise guidance of Diabetes UK, the Association of British Clinical Diabetologists (ABCD), and the Primary Care Diabetes Society (PCDS). The production of guidelines in clinical care is a growth industry and, all too often,

Trusts (or hospitals or Boards depending on which version of the NHS you work in) are only too happy to add new guidelines to their burgeoning and largely unread online repository. One London acute care NHS Trust has >450 guidelines on its hospital intranet. The former NHS Library recognised 152 publishers of guidelines and contained many guidelines published by these, 17 of which were guidelines on how to write guidelines.

My February message to you is therefore this: let's do what we can to get the whole thing joined up. I am not saying that we should have a single, monolithic NHS and a number of global NHS guidelines that should be imposed from on high on hospitals throughout the four corners of the NHS – far from it. However, I do think it would be a good idea to agree the key safety elements of care that we wish to feature in, for instance, a patient's journey through the peri-operative period. These would be things like: having a team briefing before the day's operating, checking you have the right patient in the right place at the right time having the right operation, making sure that all the necessary equipment is available and works well, making sure that everyone knows what to do if certain life-threatening problems occur, checking that the nerve block or operation is being done on the correct side of the patient, not leaving swabs inside, handing over patients' care in a methodical way, and so on. Other elements of the structured process would cut in if the patient was old or young or fat or diabetic or a Jehovah's Witness. Good practice in terms of guidance documents and checklists that have been used successfully could be made available on a national basis, but it would be left to individual hospitals – or groups of hospitals – to translate these into care that makes sense for the patients they are

treating. Increasing computerisation might make such a vision more readily realisable, but it could be achieved with a single multipage sequential booklet that tracks a patient from admission to discharge and integrates all the elements of best practice in a way that does not involve 25 different scraps of paper created by 25 different organisations. It will not be easy to achieve this, but if we are agreed that it is a reasonable destination, let us at least begin the journey towards it.

In summary, I think we all share the same goal (patient safety) and the same vision (working together as functional teams to achieve this goal). The next step is to get all the national health services, all the parts of each NHS, and all the many groups and organisations keen on promoting safe patient care to come together to get it all joined up.

I will leave you with words echoed by two visionary proponents of change for the better: Barack Obama and Bob the Builder:

The NHS is broken. Can we fix it? Yes we can!

#### **William Harrop-Griffiths**

President, AAGBI

The author acknowledges that he has borrowed good ideas from Isabeau Walker, Richard Marks and others in the preparation of this article.

The Association of Anaesthetists of Great Britain & Ireland

## CORE TOPICS

**Dublin**  
06 February 2014

**London (2 Day)**  
10 & 11 October 2014

**Newcastle**  
28 March 2014

**Birmingham**  
17 October 2014

**Exeter**  
25 April 2014

**Edinburgh**  
07 November 2014

**Manchester (2 Day)**  
20 & 21 June 2014

**Wessex**  
21 November 2014

**Leeds**  
11 July 2014

**Nottingham**  
04 December 2014

**For further information and prices please visit: [www.aagbi.org/education](http://www.aagbi.org/education)**

# Considering an Out of Programme Experience?



## A guide to what you need to know

Thinking of going out of programme to gain further experience in a specific area? This guide will hopefully explain what you need to do, the procedures and paperwork involved and key people you may need to contact, or issues you may want to think about.

### Finding a post

Firstly, you will need to decide what you want to do. Consider what is available locally or whether you would prefer to go further afield. Senior trainees in your department can provide details of what they did and where, and supply you with more information and a personal view of their experiences. Consultants working within the anaesthesia sub-specialty may be aware of posts or have contacts that could help. Your regional advisor or training programme director can often provide information on who has done what and where, and help you with this. Alternatively, posts are often advertised in the BMJ employment opportunities section, or on individual NHS trust or University websites.

### The Process

The process can be complex and will require approval by:

1. The Anaesthetic Department (Training Programme Director and Educational Supervisor)
2. The Postgraduate Deanery
3. The Royal College of Anaesthetists
4. The GMC

This will take time, so plan in advance and allow sufficient time before starting the post.

It is important to speak to your educational supervisor, college tutor, regional advisor and training programme director about your interests, any ideas you may have, or if you wish to apply for a specific post. You will need their approval to go out of programme and you may be asked whether you have this in interview, and you will also need references for your application.

Once you have secured a placement, there are a number of things you will need to do next:

Complete the necessary paperwork for Deanery approval. You can obtain this paperwork by contacting the Deanery personnel responsible for your training specialty (this is usually the same person who organises your ARCP), or by contacting the Deanery directly who will put you through to the relevant person. The standard form can also be found on the BMA website and usually on the relevant NHS Education website.

You will need to provide details of the post, including dates/length of post/whether you wish to count the post towards training, and obtain signatures from your Educational Supervisor and Training Programme Director. Once you have completed the form, return it for approval by the Postgraduate Dean. Ideally a minimum of 3 months notice should be given prior to commencement of the post.

Next you will need to complete a form for The Royal College of Anaesthetists. This is available on the RCoA website document store. For college approval you will also need to provide:

1. The objectives of the training, mapped against the appropriate units of the 'The CCT in Anaesthetics'
2. A job description on hospital or university headed paper or details of the research project
3. A personal statement of the specific objectives to be achieved
4. A statement from the hospital/university department confirming that the post will be covered by the same arrangements for study leave and supervision that apply to trainees in GMC approved posts
5. For training outside of the UK - a statement from the competent authority in the country concerned e.g. Training Board, College or Faculty, confirming that the hospital is approved for training and detailing supervision arrangements; if no clear competent authority, or applicant planning to work with a non-governmental organisation/operational deployment with the Defence Medical Services, please seek advice from the RCoA Training Department before making any commitments.

If you are seeking approval for part or all of your post to count towards training you will need to have completed Intermediate Training, and the RCoA will need to have a copy of your Intermediate Level Training Certificate (ILTC) on file. If this is not the case, the post can only be approved for OOPE, not OOPT.

You will receive notification of RCoA approval by email or post, and a copy of the letter should then be passed to the Deanery who will apply for GMC approval. This should be done prospectively (retrospective application will not usually be considered unless there is a very good reason).

## Starting the Post

If you are remaining within your current NHS Trust, then it is unlikely that much will change. If you are moving to another Trust or your employer will be out with the NHS e.g. University, then it is possible that your NHS Trust will terminate your contract of employment. The Deanery should retain your National Training Number for a period of up to 2 years but it is worth clarifying this if your NHS contract is terminated.

If you move to another NHS Trust or another institution, you will be sent forms for completion. If you are employed outwith the NHS, you will most likely be put on an honorary NHS contract to enable you to work clinical days within the NHS.

## Employment Rights

The problem with termination of contract is that it may affect your employment rights e.g. sick pay/maternity pay entitlements, both during OOP and on return to your clinical post. This is less of an issue for posts within the NHS as most entitlements are based on length of NHS service rather than service within an individual Trust, but it may be worth checking. However, if you are moving to an alternative employer then this will constitute a break in NHS employment. An honorary contract should protect your employment rights, but this is a complex area, and if you feel you may be affected by this, you should seek individual advice from the BMA.

## Pay/On-call

Most posts will come with on-call commitments and will have a banding supplement attached to them. For posts without an on-call commitment, you may be able to choose to partake in on-call activities. This can be on a locum basis, or you can negotiate a fixed on-call commitment with the department.

How you are paid for this is variable – you may need to complete a locum form each month and be paid for hours worked, or you may be able to opt to retain a banding supplement. The banding supplement will depend on the frequency and timing of on-call, and if you can opt to follow a similar pattern/frequency as other fellows with a fixed on-call commitment, it will be clearer what you should be paid. However, if you opt for more or less on-call, then, if you are working in the UK, your exact pattern of working may need approval to ensure that you remain EWTD compliant and to determine what your supplement should be. If you are employed outwith the NHS, the way you are paid for your on-call can vary. You may need to complete additional forms from HR/payroll to enable on-call pay through the NHS Trust. Some institutions, e.g. a university, may pay your on-call along with your basic salary then claim back from the NHS Trust, but this will require a bit of organisation.

## Pensions

If you are moving outwith the NHS, then it is likely you will be moved to a different pension scheme. In some institutions (e.g. a university), you can choose to opt out of the new scheme and continue to pay contributions into the NHS scheme, but you will only have 3 months in which to decide this and complete the relevant paperwork. If you choose to remain in the scheme with your new employer, you can return to your current NHS scheme with the same pension conditions, as long as you do so within 2 years. After this period, you would be moved into whichever is the new NHS pension scheme.

## Key Contacts

- Your Educational supervisor and Training Programme Director
- The Postgraduate Deanery
- The Royal College of Anaesthetists
- Human Resources
- Payroll
- Other useful contacts
- NHS pensions website – [www.sppa.gov.uk](http://www.sppa.gov.uk)
- BMA Advice – email [support@bma.org.uk](mailto:support@bma.org.uk)

## Jolene Moore

STR5 Anaesthesia,  
Aberdeen Royal Infirmary

## Disclaimer

This information was up to date at the time of writing, and is based on one trainee's experiences and information gathered at the time of OOP application. Bear in mind that things can, and do, change.

# SKYDIVING AND ANAESTHESIA

## A vehicle for reflection on human factors?

**Much is made of the lessons available to anaesthetists from aviation. Three trainees who enjoy skydiving have been struck by the similar attitudes and non-technical skills required to undertake both parachuting and anaesthesia safely.**

## The similarities

Anaesthesia and skydiving both require the management of risk. Both have potential for poor outcome due to equipment failure, but, in both, the majority of untoward incidents result from human error. Both activities have representative bodies that promote a culture of safety and we believe that the attitudes encouraged by skydiving are relevant to anaesthesia.

## Situational awareness

The Accelerated Freefall Course is a popular way of learning to skydive. It involves a series of jumps during which competencies must be demonstrated in order to progress. Initial jumps are in formation with two instructors providing direct supervision. Later jumps are with a single instructor and the final jumps are undertaken solo with an instructor providing distant supervision from the 'coffee room' of the aircraft. Experienced skydivers reflecting on these early jumps will recognise sensory overload, task fixation and an inability to perform learned drills with the resultant reduction in situational awareness familiar to anyone who has had a tricky session in the clinical simulator. It is clear that performance improves with practice and experience. Parachuting provides a controlled exposure to anxiety and panic that allows participants to better understand, and therefore manage, their own reaction to stressful situations.

Parachutists are drilled in the importance of retaining 'altitude awareness'. Formation skydiving involves multiple skydivers falling in close proximity and performing set manoeuvres. Task fixation is a real possibility and jumpers must remain aware of the information on their altimeter in order to move apart in good time and deploy their canopies at a safe distance from one another. Vigilance remains important once freefall has ended, as most parachuting deaths are due to collisions under canopy.

## Checklists and rehearsal

Before each jump, a plan is agreed and walked through. Every skydiver is responsible for checking their own equipment, but before boarding the aircraft each individual has their equipment re-checked. This standardised check involves challenge-response questions and physical inspection of the parachute and ancillary equipment, such as altimeter and goggles. This checking is embedded into the routine of a jump and is taken seriously.



## The importance of drills

Anaesthetists are familiar with failed ventilation drills. These are time-critical, require rapid problem recognition and then the completion of a series of steps during a period of extreme emotional arousal in order to avert a potentially catastrophic outcome. A comparable scenario exists in parachuting: canopy malfunction. Management of a 'mal' involves the execution of a drill that cuts away the malfunctioning canopy and deploys a reserve in its place. This requires acknowledgement of a critical incident and a certain amount of thinking clearly under pressure. Canopies are deployed at around 3,000ft while falling at 120mph, and so the pressure of time is real! Malfunction drills are learnt at the start of a skydiver's career and practised on the ground before jumping. Skydivers continue to rehearse them regularly and it is common to see jumpers in the aircraft perform a confirmatory touch of the necessary handles. Parachutes are also equipped with an automated device that deploys a parachute close to the ground – an engineering solution to reduce the impact (literally) of human error.

## In summary

Skydiving develops a culture of safety, risk management, situational awareness and the ability to perform time-critical drills under pressure. We tentatively suggest that it be included in the curriculum, and that at the very least it should be considered an acceptable use of study leave.

### Maj Matt Campbell

ST4 Anaesthesia, Queen Alexandra Hospital, Portsmouth. (90 jumps)

### Maj Kate Blethyn

ACCS, Queen Alexandra Hospital, Portsmouth. (650 jumps)

### Maj Nick Dennison

ST3 Anaesthesia, St George's Hospital, Tooting. (100 jumps)

# Anaesthesia in South Africa

## My tale

I'd said goodbye to my family and I tried to distract myself by shopping at the airport, but I was still thinking 'What have I gone and done this time?'. Well, what I'd done was move to South Africa for a year to work in one of their government hospitals as an anaesthetist. I'd spoken to several other doctors who had worked there previously whose stories and advice was invaluable, not only in encouraging me to go, but also in how to go about organising it. I'd like this article to do the same for you, mainly to inspire you, but also to give you an idea of what you would be letting yourself in for if you did choose to seek adventure and experience in South Africa.



Everyone who's worked in South Africa will have a different story; there are a variety of types of hospital to work in and, as a result, a wide range of experiences are open to you. The rules are that you have to work in a place of need, which usually means working in a rural government run hospital. Having just finished my CT2 in anaesthetics, I had managed my own surgical lists, done plenty of obstetrics, some paediatrics and felt well-trained, ready for my venture. I chose to work at a relatively large rural hospital where I could work solely as an anaesthetist, instead of being the surgeon and the casualty officer and the anaesthetist and the paediatrician or whatever combination of specialties they were in desperate need of. Wherever you go, the common experience is the long and frustrating process of completing the relevant paperwork required. The main delay is acquiring membership to the HPCSA, the South African version of the GMC. A company called African Health Placements is able to guide you through this process, although you need to be very proactive and hassle people, or you will find it takes longer than the 9 months they suggest you allow.

### The worried well

I worked in Stanger Hospital, a busy 450-bed district hospital that is referred to by several smaller rural hospitals in the region, mainly providing a service to the Zulu population. On my arrival the busy casualty department was staffed by only three doctors. Chaos! So I was asked to complete a month in casualty. Although this was not what I had intended, it certainly opened my eyes to what massive problems were being faced by the South African health care system. Patients rarely come to hospital with a minor problem. The phrase 'worried well' does not apply here. A very high proportion of the medical patients had HIV with complications and/or TB. The majority of the remainder required surgery and/or had traumatic conditions. Again, this was a little more extreme than I was used to; the appendices had ruptured, ectopics had haemorrhaged and the

traumas were regular and dramatic. As an anaesthetist, this is what I had come to South Africa for; the major cases that were acutely unwell arriving in theatre for me to manage. I had to take a deep breath and deal with them the way that South African doctors do on the day they step into their first placement as an intern. Now there wasn't a consultant holding my hand every step of the way.

In Stanger Hospital there are 4 operating theatres, serving obstetrics, trauma, general surgery, ENT, ophthalmology and gynaecology, one consultant anaesthetist and a fluctuating number of medical officers. They run an on-call system of day shifts, then 24 hour on-calls. The consultant is very knowledgeable and is available to discuss any problems, but, as one of my previous UK consultants said, you can't be in the hospital all the time if you're on-call 24/7, so you have to rely on your team to perform. This autonomy results in plenty of high adrenaline moments, but also the gaining of valuable experience. Probably my biggest drama was a twenty-year-old patient who had been stabbed through the heart over the Christmas period. The trip from casualty to theatres had dropped his systolic from 60mmHg to zero and they came flying into theatre doing CPR. My initial thought was: whatever I do, I couldn't make him worse. So we got on with the job, transfusions, lines, tubes, cracking the chest, some direct cardiac massage and we got him back. Sadly, it was only temporary as the sutures leaked and any further stitches just tore away. We could no longer keep blood inside his heart. After several other MVAs and gynaecological haemorrhages had ensued and I was able to think, yeah, I can do this; I can give these patients the best anaesthetics available to them. There are some limits to what you can provide. Often there were insufficient blood products; we used FDP (fresh dry plasma) instead of FFP. There were no rapid infusers and no cardiac output monitors, but we had most of the usual drugs. I had used most of the anaesthetic machines before and all the expected airway equipment was available. We even trialled a glide scope while I was there!

anaesthesia training before they become community service officers, who are expected to perform anaesthesia for minor surgery and obstetrics. This is a massive responsibility and the consequences of inexperience were highlighted in The Saving Mothers Report<sup>1</sup>, which details the 121 deaths related to anaesthesia between 2008 and 2010. Two-thirds of the deaths secondary to spinal anaesthesia related to well recognised complications such as hypotension and high motor block. Seventeen deaths resulted from general anaesthesia, of which half were the result of difficult or failed intubation. This does emphasise the importance and responsibility of giving these interns adequate tools, knowledge and training in order for them to become competent.

South Africa is a beautiful place with lots to do, lovely people and very good wine! You will probably also work with other foreign doctors, mostly British and Dutch, who are a self-selected group of people; kind enough to want to help by working in the South African government hospitals, motivated enough to organise it and adventurous enough to do it! Overall, working in South Africa is a great experience and I can't recommend it highly enough. If you want to get off the training treadmill and gain a valuable experience while having an amazing time, South Africa is for you. Finally, in answer to my initial thought 'What have I gone and done this time?'. Well - I think I made one of the best decisions of my life!

**Dr Catherine Harris**  
ST3, Imperial Deanery London

### References:

1. Rout CC, Farina Z. Anaesthesia-related maternal deaths in South Africa, Chapter Seven of the 5<sup>th</sup> Saving Mothers Report 2008-2010. *South African Journal of Anaesthesia and Analgesia* 2012; 18: (6) 281-301



Dr Rob Jansen, consultant orthopaedic surgeon, and myself in theatre



Finding the x-ray department in English, Afrikaans and Zulu



Drugs were kept cool for the day on ice blocks in theatre



Photography © Dr Catherine Harris

Camping in the beautiful Drakensberg mountains, KwaZulu-Natal



# Report on the Trainee Forum held at AAGBI Annual Congress, Dublin, 19 Sept 2013

At the recent AAGBI Annual Congress, Irish trainees were given the opportunity to participate in a forum aimed at identifying particular issues facing those participating in anaesthesia training in Ireland. The forum was jointly chaired by members of the GAT committee and the Committee of Anaesthetic Trainees (CAT) of the College of Anaesthetists of Ireland (CAI), and followed on from an article written by Dr Roseita Carroll, outgoing Chairperson of the CAT, and published in *Anaesthesia News* earlier this year.

Discussions took place among the attendees in relation to their experiences of training in Ireland, and both positive and negative opinions on aspects of our training programme were aired. Particular attention was paid to the nature of training delivery (currently in the form of modular training), and suggestions were made as to how an ideal training programme might deliver appropriate training.

An initial analysis of the discussions has identified a number of themes that arose in the course of the forum. Some of these themes will come as no surprise to those of us who have spent time rotating through training posts in Ireland, while other themes were perhaps less self-evident.

## Positive aspects of training in Ireland

The recent introduction of a run-through training programme in Ireland has been interpreted as a beneficial change to training in this country. There is no longer a bottleneck at entry to Higher Specialist Training, and the provision of a rotation schedule allows trainees to plan their domestic and social lives to a certain extent. Trainees appreciated the opportunity to spend the final year of specialist training developing a subspecialty interest – either via a Special Interest training post in Ireland, or undertaking a fellowship at home or abroad.

The regular mandatory simulation training sessions run by the CAI are recognised as providing high quality training with detailed personal feedback. Trainees enjoy participating in these courses and

commended the efforts of the faculty members and course organisers. Trainees had praise for their consultant trainers around the country, who are generally approachable, supportive and provide excellent training. Study leave is usually flexible and easy to arrange, and the CAI staff are friendly and helpful.

## Issues to be addressed:

### Access to Training Opportunities

In spite of the positive comments made about the Irish training programme, a number of issues were identified that cause concern among the attendees at the forum. The challenge to strike a balance between commitments to service provision and access to training opportunities was one of the most frequent issues mentioned by trainees.

This conflict has been exacerbated by recent difficulties experienced by many Irish hospitals in recruiting sufficient numbers of Non-Consultant Hospital Doctors (NCHDs) - particularly to non-training posts - and the result has been increased pressure on trainees to cover on-call rosters and theatre rotas. Training modules are not always being prioritised ahead of service provision in this climate, and trainees are worried that full implementation of the provisions of the European Working Time Directive (EWTD) will place further strain on their ability to gain access to appropriate training opportunities in future.

## Career Progression

Trainees have been dismayed by the recent unilateral changes to the Consultant Contract announced by the Minister for Health, which have left them faced with the prospect of spending their working lives as consultants working alongside colleagues earning much higher salaries. This prospect is likely to lead to a "Brain Drain" in Irish medicine, and drive doctors to seek better opportunities overseas, both at trainee and post-CCST level.

For those trainees who feel committed to living and working in Ireland in the longer term, there is concern that low morale and ill-feeling among consultants within departments will become features of their future working lives. This is seen as the inevitable consequence of a two-tier consultant workforce.

## Nature of Training

Trainees would like to see greater accountability for the provision of training, both at local and national level. The model of Training Program Directors, Educational Supervisors and College Tutors used in the UK was mentioned as an alternative to the Irish system of College Tutors in each hospital with centralised allocation of rotations. Irish trainees feel that there is considerable variability in the quality of mentoring and supervision at different hospitals, including in relation to the training of novice anaesthetists, exam preparation, and assessment of, and feedback to, trainees.

The delivery of training modules causes some issues for trainees. While modules are generally planned at the start of a rotation, service considerations often interfere with adequate exposure to the planned modules. Assessment at the end of modules was felt to be cursory and of little educational benefit.

Trainees have noted that the criteria for eligibility for the Final Fellowship (FCAI) exam has changed with the introduction of the run-through training programme. Trainees must now have entered SAT4 prior to sitting the exam. Differing opinions were expressed as to whether this change in the regulations was positive or negative.

## Work/Life Balance

Training in anaesthesia continues to be associated with a cost to the quality of life of trainees. There is a recognition that training activities are not limited to the hours spent at work, and there is – as one trainee put it – "the inevitability of coming home to work". Recent media publicity in Ireland has shone the light on the stressful nature of the work of an NCHD, and anaesthesia trainees experience the effects of stress due to long working hours. Uncertainty in relation to exams, fellowship opportunities, career progression and future financial stability may also contribute to work-related anxiety.

Other contributory factors mentioned by anaesthesia trainees in the forum included the financial and social cost of moving house and family on a sometimes six-monthly basis, as well as the inconvenience associated with completing paperwork in relation to Garda clearance, occupational health, mandatory training, payroll, etc.

## Possible Solutions

With the able assistance of Dr Nancy Redfern, Chair of the AAGBI Welfare and Support Committee, the trainees in attendance sought to identify how an ideal training programme might look. We specifically focussed on Training Modules, as many of the comments made in the earlier discussions had made reference to this aspect of training. Ideal features of training modules were felt to include the following:

- a) Access  
Trainees would be guaranteed access to modules, which would be protected and prioritised over service delivery considerations. Modules would be assigned appropriate to the experience and requirements of the trainee, and training opportunities would take place in a decentralised, local environment. Trainees could avail themselves of sub-specialist training opportunities abroad in the course of their training. Sub-specialist training could also be provided regionally.

- b) Supervision  
Consultants should provide one-to-one cover on module training lists.

- c) Assessment  
Modules would be assessed regularly, in a meaningful and formative way. The efficacy of training would be reviewed on a regular basis.

- d) Competency-Based Training  
A module-based proxy might be replaced by a competency based approach to training. Training should be structured to 'fill the-gaps', i.e. to ensure proficiency in all aspects of sub-specialty practice in the course of training. The end product of this training programme should be a competent, confident, consultant-level anaesthetist.

- e) Planned Training  
Clear, agreed, planned and guaranteed learning outcomes should be identified at the beginning of any period of training by the trainee and their supervisor. Educational activities should be individualised to meet the needs of the trainee, and should be designed to meet specific end-points rather than be fixed to a particular time limit.

- f) Training Delivery  
A modern training programme should make full use of technology to deliver modular requirements. Remote learning technology and online educational resources should be used to complement traditional training techniques. Trainees should be encouraged to take "ownership" of their training, however there must be a dual responsibility on the part of trainers as well as trainees to ensure that training is adequate. Training should expose trainees to the practice of anaesthesia in a variety of settings.

- g) Patient Safety  
Patient safety should not be compromised by training activities.

The Trainee Forum provided an opportunity for trainees to inform their representatives on the CAT, CAI, on the GAT committee and in the AAGBI as to how they regard the state of anaesthesia training in Ireland. Having identified a range of measures that could be implemented to improve the CAI Anaesthesia Specialist Training Programme, the CAT is determined to ensure that these views are taken into account in the future delivery of training in Ireland. In particular, we hope that the recommendations of the Trainee Forum will be incorporated into the impending update of the Training Regulations of the CAI, in which it is proposed that training will change from a module-based system to a competency-based system.

**Mort Kelleher & Colm Keane**  
*Committee of Anaesthetic Trainees,  
College of Anaesthetists of Ireland*





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Guideline Update: NICE guideline No. TA287 (issued June 2013)

# Rivaroxaban for treating pulmonary embolism and preventing recurrent venous thromboembolism

**Since its introduction in the 1950s, warfarin has been the mainstay of oral management of venous thromboembolism (VTE). Almost 60 years later in 2008, oral rivaroxaban was licensed for VTE prophylaxis for elective hip and knee replacement surgery.<sup>1</sup>**

In June, NICE released new guidance recommending rivaroxaban as an option for treating pulmonary embolism (PE) and also for the prevention of deep vein thrombosis and PE recurrence in adults. The guidelines state that the drug should be available for prescribing in hospitals and community.<sup>2</sup>

For the initial treatment of acute PE, the recommended dose is 15mg twice daily for the first 3 weeks followed by 20mg once daily for continued treatment and prevention of VTE.<sup>2</sup>

The guideline recommends at least 3 months treatment for people with transient risk factors such as recent surgery and longer for those with permanent risk factors or unprovoked VTE.

Rivaroxaban is a direct reversible competitive antagonist of activated factor X (Xa). Factor Xa is the active component of the prothrombinase complex that converts prothrombin to thrombin.<sup>1</sup> (See diagram below)

RIVAROXABAN → Factor Xa

The pharmacological profile of rivaroxaban has a number of advantages over warfarin; foremost its predictable pharmacokinetics means that it does not require regular monitoring and dose adjustment. Unlike warfarin it has a low potential for interactions with other drugs and diet. Additionally rivaroxaban has a rapid onset within 30 minutes and therefore avoids the requirement for injections of heparin until warfarin takes effect. NICE have based their decision on the results of the EINSTEIN-PE trial which involved 4832 patients. The evidence review group concluded that rivaroxaban is as effective as warfarin in preventing VTE recurrence. The group also concluded that the drugs have a similar rate of clinically relevant bleeding and a similar rate of discontinuation due to adverse events.

Currently no specific antidote to rivaroxaban exists and neither vitamin K nor plasma infusion will reverse its effects. It is unclear as to the best management of clinically relevant bleeding but NICE describes prothrombin complex concentrates and recombinant Factor VIIa as options. The review group went on to highlight that treating a 70kg adult with recombinant factor VIIa cost £19,000 and its effects last just 2 hours.<sup>2</sup>

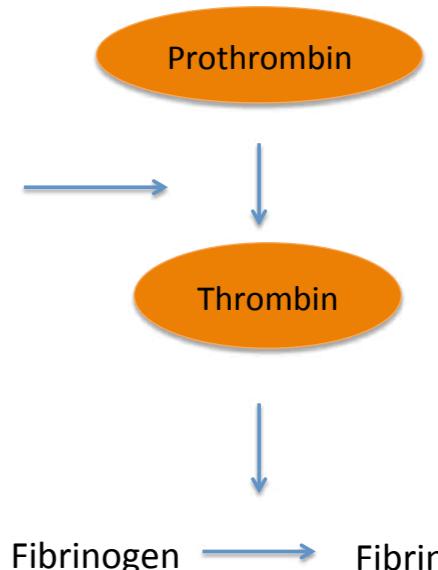
Finally, and importantly, the committee concluded that using rivaroxaban appears to be less costly than warfarin (when taking into account the price of INR monitoring).

In summary, rivaroxaban is now licensed for treatment of PE and for VTE prophylaxis. It appears to be cheaper and just as effective as warfarin and has a number of important advantages, particularly the absence of a need for monitoring.

**Dr William J Packer**  
ST3 Anaesthesia, Raigmore Hospital, Inverness

#### References

1. <http://www.australianprescriber.com/magazine/33/2/38/41>
2. <http://guidance.nice.org.uk/TA287/Guidance/pdf/English>



# "Dr Ben...what do you want me to do?"

**"Er...I don't know.  
I'll come and have a look"**

This conversation must occur about 120 times a month. I am on Cardiac ICU about 2 days a week and it happens about 15 times a day. What I struggle to express, is the look of incredulity which appears on the face of whichever ICU nurse asks me what to do. A number of them (still, after 3 years of me working there) seem genuinely surprised that I might not know what to do...or what the answer is. This is not the behaviour of an intelligent, well read doctor in the final years of his training. Surely I must know what do...or else what has been the point of the 6 years of medical school and 11 years of postgraduate training?



It occurred to me as I finish three years of part-time research (the other part being clinical work in cardiac anaesthesia and ICU), that this is the difference between doctors and scientists. Doctors are not scientists (regardless of what they might think) and scientists are not doctors. The bottom line is that people expect doctors to know what the answer is. Scientists do not live with this burden. Scientists live with uncertainty, but do not have to use that uncertainty. Doctors do.

The difference between doctors and scientists is the difference between mathematicians and mountain guides. I know several brilliant mathematicians who create mathematical models based on biological data and then test those models in biological systems. This is 'real world' mathematics. I also know several mountain guides, none of whom have a degree in mathematics and most of whom don't have an A-level in mathematics. The mathematicians could work out fairly simply and quickly the forces on three ice screws being used as a belay in a snow gully. But I'd be pretty unkeen to strap myself to any of the mathematicians on an alpine north face in winter. Precise forces are not important in this situation, but an integration of risks and probabilities about the quality of the ice, the equipment and the general conditions is. The mountain guides would be able to tell you whether your belay is 'safe' or 'unsafe', although the line between 'safe' and 'unsafe' is a grey one. Take my ice screw belay. In solid, thick, ice these ice screws represent pretty good protection against you and your mate falling to your deaths. But you wouldn't be using ice screws if there happened to be two steel rings cemented into the rock to clip yourself to (as there often are on well travelled alpine routes). No, you'd make the extra couple of moves to the side of the gully and breathe a sigh of relief whilst you clipped the much safer 'bolts'. Your approach to solving the problem of a safe belay depends on the conditions, what equipment is available, who you are with, their capabilities, and integrating all of

these risks to come up with a solution. So it is in medicine - You have to integrate all of the knowledge provided to you by scientists, with all its uncertainty, to work out what is the best thing to do for that individual in front of you.

There is a big difference between gathering and analysing data and using those data to answer a problem. It's something I think that clinicians frequently forget. The premises that are in your head that allow you to answer clinical problems are scientific models often based on populations and presented as central tendencies, with spread and error and outliers. We perform a statistical test on the data to see if there is any difference, generating a 'p-value', and compare it to our agreed (but based on nothing in particular) standard that we think a probability of the result being due to chance is less than 1 in 20 makes this significant (NB. This does not mean that you are 95% sure of the result). Patients, nurses and other doctors ask us questions about individual patients and we use these population-based statistics to answer these.

And this why I have to go and see patients to get the 'right' answer and this is why I don't really know what the 'right' thing to do is. Should I give them more fluid, should I give them more blood, more clotting products or should I start noradrenaline...or dobutamine...or enoximone. What I have to do is integrate the knowledge I have from population based studies, with their associated errors to come up with an answer of what is probably the right thing to do.

This is not a plea to abandon evidence based medicine. Not at all. Without robust, clinical, randomised controlled trials, we would have nothing to base our decisions on. Particularly in anaesthesia and intensive care medicine, we lack large, adequately powered randomised controlled trials to guide us. But this is the nub of it.

Studies guide us to answer the clinical questions in front of us, based on probabilities. Recently, there has been a trend of using statistical probabilities to give yes/no and black/white outcomes. An example of this is aprotinin. Aprotinin is a serine protease inhibitor that reduces bleeding after cardiac surgery. Several years ago it was withdrawn due to an excess late mortality and increased chances of renal failure in those in whom it was used. People fell into the aprotinin is "good" group or the aprotinin is "bad" group. Now aprotinin is back on the formulary. The data that its withdrawal was based on was not quite as good as first thought and actually the risk of death was not that much higher and this may represent a reasonable trade off in some groups of patients. Our department often uses aprotinin for Jehovah's Witnesses having heart surgery. We feel that the higher morbidity and mortality risk with aprotinin is offset in patients who, for some reason, do not wish to receive autologous blood. But this is made on an individual patient basis.

## An anathema to an economist

Patients are becoming more demanding about risk and uncertainty. Emily Oster is a Professor of Economics at the University of Chicago. While pregnant, she wanted a glass of wine on a hen weekend. The advice from all health professionals she saw was that no level of alcohol consumption has been proven to be safe during pregnancy, therefore you should consume none. She was told the same about soft cheeses and cured meats. This was an anathema to an economist who is used to making mathematical trade offs and offsets. Surely this could not be an all or nothing phenomenon? It wasn't, and Emily Oster set about reading all of the evidence relating to risks and pregnancy...and she wrote a book about it: "Expecting Better". It turned out that she could have a glass of wine on hen weekends and friends birthdays with minimal risk to her unborn baby. However, avoiding the ripe, unpasteurised cheeses from the deli counter was probably a sensible idea. She said in a recent interview "the training in medical school is not as suited to interpreting this kind of evidence or doing this kind of decision making...as the training I had as an economist". Medical school doesn't train you to integrate evidence and offset one thing against another. We do this on a day-to-day basis in our own lives, but don't do this with evidence for our patients. I'm a big fan of a really good burger and chips, with a lot of cheese on it. I know that fatty burgers with a good dose of cheese does not statistically improve my health. However, I offset this against my misery of never eating a burger again and the relatively small injurious risk to my health of eating a burger about once a month.

... and so back to uncertainty and integrating risks. The scientific method, randomised controlled trials and evidence-based medicine are absolutely key to providing the best treatments to our patients. Without them we would still be using leeches to treat a variety of clinical conditions. However, we must remember that science provides us with experiments under controlled conditions and with data as central tendencies and spread. It doesn't include outliers or individuals. The problem is that I anaesthetise individuals for heart operations. So I still don't know what the right answer is.

### Ben Gibbison

Research Fellow in Cardiac Anaesthesia,  
Bristol Heart Institute

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# Translaryngeal tracheostomy

– A summary of recent NICE guidance (IPG 462)

Patients on intensive care commonly require tracheostomy insertion to allow weaning from mechanical ventilation and to aid removal of excess secretions. The most common methods of insertion in the UK are via a percutaneous dilatational or surgical technique, both of which involve insertion from outside the neck.

In August 2013, NICE published interventional procedure guidance on translaryngeal tracheostomy<sup>1</sup>, a procedure initially introduced in 1997<sup>2</sup>. Translaryngeal tracheostomy differs from other methods of tracheostomy insertion as it predominantly involves insertion from inside the airway.

## Procedure

Translaryngeal tracheostomy (TLT) is usually carried out under general anaesthesia with the patient supine and the head extended. An introducer needle is inserted between the second and third tracheal rings under endoscopic guidance. A guide wire is passed through the needle in a retrograde direction through the mouth and the existing endotracheal tube is replaced with a smaller diameter tube until the procedure is complete, to aid insertion of the TLT tube.

A device consisting of a flexible plastic cone attached to an armoured TLT tube is passed over the guide wire and drawn through the mouth, oropharynx, larynx and trachea until it is brought out onto the surface of the neck via the small incision made by the introducer needle.

Traction is applied to the neck and the guide wire and cone are removed before the TLT tube is rotated 180° so that the distal end faces the carina. Correct placement can then be confirmed by endoscopy, capnography and auscultation.

## Efficacy

A review of current literature showed TLT insertion to be highly successful with no significant difference in quality of life at one year between patients receiving TLT or surgical tracheostomy.

Key outcomes included reduced trauma, bleeding, infection and good cosmetic result. This potentially makes TLT a more appropriate technique in patients with coagulopathy and was also noted to be of use in patients with neck masses or altered tracheal anatomy as the airway is easier to find 'from within'.

## Safety

Complications	Details
Haemorrhage	Can occur during insertion or due to erosion through vessel wall.
Loss of airway causing hypoxia	Generally occurs due to difficulty during re-intubation with smaller diameter endotracheal tube.
Damage to tracheal wall	Associated with 180° rotation of TLT tube towards carina.
Infection	Cases of stomal infection were reported.
Problems with tube placement	Include: pulling the TLT tube completely out of the neck during insertion, breakage of the guide wire, difficulty in retrograde passage of the guide wire.
Narrowing of tube lumen	The TLT tube has no inner lumen and subsequently needs to be completely replaced in the case of blockage.
Embedding of tube in stoma	In patients requiring long term tracheostomy the TLT tube can become embedded in the stoma, requiring surgical replacement or removal.
Blood gas exchange	Patients undergoing TLT have been found to have a significant decrease in post-procedural PaO <sub>2</sub> compared to the forceps dilatational technique.

## Summary

TLT may lead to reduced incidence of trauma, bleeding, infection and may be a more appropriate technique in certain patient groups. TLT is still associated with significant complications however, especially in those patients requiring long term airway support due to potential difficulties with tube replacement. There is a lack of familiarity with TLT compared with traditional techniques. NICE advocates that clinicians should receive sufficient specialised training before attempting the technique due to this lack of familiarity and the different skills required compared to the more common percutaneous methods.

Dr Mark Callaghan  
ST4 Anaesthetics, Northern Deanery

Anaesthesia News February 2014 • Issue 319

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1. <http://guidance.nice.org.uk/IPG462/Guidance/pdf/English>
2. Fantoni A, Ripamonti D. A non-derivative, non-surgical tracheostomy: the translaryngeal method. Intensive Care Medicine 1997; 23:386-392

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## Inaccurate Pulse Oximeter Sensors can put Patients At Risk from inappropriate interventions and inappropriate oxygen therapy

Milner QJW, Mathews GR. An assessment of the accuracy of pulse oximeters. *Anaesthesia* 2012; 67: 396-401

Dugani S, Hodzovic I, Sindhar S, et al. Evaluation of a pulse oximeter sensor tester. *Journal of Clinical Monitoring and Computing* 2011; 25: 163-70

ISO 80601-2-61:2011 Medical electrical equipment – Part 2-61: Particular requirements for basic safety and essential performance of pulse oximeter equipment.



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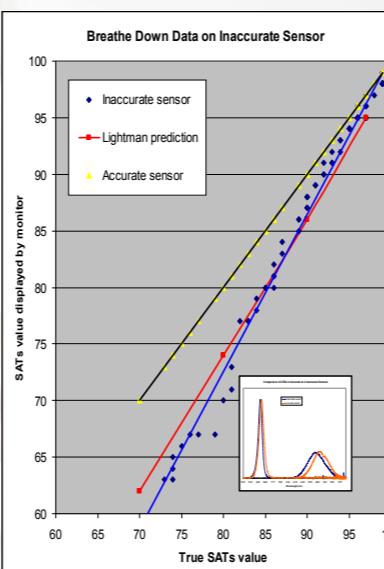
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# First Jail Opened at NHS Hospital

By Scoop O'Lamine

Following the recent government announcement that NHS healthcare staff who neglect or mistreat their patients may face up to 5 years in jail, health commentators were surprised to learn that a jail has been constructed at the Royal Birching NHS Exemplar\* Trust.

Our correspondent visited the Trust and was shown the new development by the new Director of Punishment, Mr Baz Tardy, – a high security facility with 4 cells and a small courtroom, which has replaced Sublime Ward - one of 4 Care of the Elderly wards. Mr Tardy is new to the NHS, coming to this senior posts from a background in private security.

"This development is the first of its type in the NHS and we are excited by the concept of shaping behaviours to become more caring. Discipline always has to fit the crime and at the Royal Birching we have developed a range of sanctions for doctors or nurses who fall below our high caring standards. Community service, such as cleaning, for minor misdemeanours, followed by incarceration for a period of time in our own jail for more serious offences."

The CEO, Mr Seenut, explained further "So, say someone is late for a ward round or is rude to our senior infection control nurse, and senior arresting officer, Sister Prittlestick, then a two night stay in our facility with extra duties soon reforms their behaviour. With our strong training ethic, the only entertainment allowed in jail is access to the Trust online e-Learning and completion of all essential training is required before release."

After discussion with senior consultant and chair of the LNC, Dr Jilly Simper, it emerged that the consultants were initially pleased to cooperate with the new development thinking it would be used for drunks in A&E, but were shocked to find themselves incarcerated. However, as all had signed the Trust Discipline policy, there appeared little that could be done. "It's pretty tough – if you do not care enough, we are arrested by Sister Prittlestick and then have to attend morning court with the CEO or DoP. Immediate sentencing and the only route of appeal is to our Trust Chairman, retired Judge Isle Hangem".

In more sinister developments, following the Grangemouth protocol, it appears that Union membership is now discouraged by the Trust and that several seniority payments have been withheld, for agitation in this direction.

Scoop was introduced to senior orthopaedic surgeon Mr Roger Thumpitt, who had recently spent four nights in jail. "I have now gained insight into bovine remarks towards theatre sisters, and think I must be reformed somehow".

\* Exemplar Trust is a title awarded to any Foundation Trust by the Prime Minister for demonstrating true innovation in healthcare.



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## VACANCY

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The appointment will be made for two years or until achievement of CCT in the first instance, with the potential for re-appointment for a second two year term.

The successful applicant will be expected to attend Board meetings and participate in activities to promote and enhance the work of the NIAA and academic anaesthesia in the UK. The trainee representative will also be invited to attend meetings of the Health Services Research Centre's Executive Management Board.

If you wish to apply, please provide a covering letter explaining why you are interested in the role, a one page CV, and the names of two referees (one academic and one clinical) to the NIAA Administrator, Clare Bunnell.

The closing date for applications is **Friday 28 March 2014**. Those called for interview will be notified by **Wednesday 9 April 2014** and interviews are provisionally scheduled for **Wednesday 16 April 2014**. The successful candidate will be invited to attend the Board meeting on 25 April 2014.

### Further information:

NIAA Terms of Reference

[www.niaa.org.uk/article.php?newsid=374](http://www.niaa.org.uk/article.php?newsid=374)

NIAA Meeting Dates 2014

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If you require any further information please contact

Miss Clare Bunnell, NIAA Administrator,  
[cbunnell@rcoa.org.uk](mailto:cbunnell@rcoa.org.uk).

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## Dear Editor,

### Medical students and obtaining consent: An anaesthetic take on GMC guidance

An incident has recently been investigated at our hospital, which brought to light a few interesting points regarding GMC guidance and good medical practice. I wanted to make all anaesthetists aware of the possible repercussions of a situation which many of us may face fairly regularly as part of our practice.

The incident occurred when a supervised medical student performed a procedure on an anaesthetised patient. A recognised complication arose, was dealt with appropriately, and ultimately the patient came to no harm. However, the issue of consent was subsequently raised, as neither the clinician nor the medical student had specifically obtained informed consent for the student to perform the procedure under supervision, while the patient was under anaesthesia.

After consulting specific guidance from the medical school involved, and referring to the GMC's guidance 'Tomorrow's Doctors'<sup>1,2</sup>, it became clear that guidelines had been breached. It is stated very clearly that the responsibility of consent lies with the supervising clinician, that the patient should be asked if they object or agree to the presence of a student doctor while they are under our care, and if they agree to allowing the student to perform a procedure on them under supervision. The medical student should then introduce him- or herself to the patient before performing any procedure, and may contribute to the consent process, for example by providing information.

While students learn to cannulate veins on awake patients on the wards, it seems less likely that guidelines could be breached. However, the anaesthetic room is a completely different environment. Patients are anxious about their imminent surgery, and anaesthetists and surgeons are under time pressures to keep the list running smoothly. Is it really the best place to be asking patients if students can insert large bore intravenous cannulas, hold face masks, learn to bag-valve-mask ventilate, and potentially insert oral or supraglottic airway devices, not to mention perform possible intubations and arterial lines? All too often we ask patients' permission to allow medical students to assist or be present in the anaesthetic room, but we do not ask their specific consent for all the above procedures. A warning: this practice, which has seemed perfectly acceptable until now, is in fact in breach of the GMC's guidance on good medical practice for both today's and tomorrow's doctors, and could potentially result in referrals to the GMC and fitness to practice procedures, as well as a suspension from medical school for the student involved. Consent at pre-assessment seems more appropriate, but often we only find out that medical students have been allocated to our lists shortly before sending for the first patient. Furthermore, should the same principles of consent apply to trainee paramedics and operating department practitioners?

Our department is now in the process of seeking guidance from the medical school and will shortly be coming up with a policy and hopefully a solution. Whilst patients' safety and dignity remain of paramount importance to us, it would be a great shame for students to miss out on the opportunity to learn basic life-saving skills such as bag-mask-ventilation on real patients, not solely on mannequins.

#### Dr Barbara Lattuca

ST7 Anaesthesia, St George's Healthcare Trust, London

#### References

1. Tomorrow's Doctors: Outcomes and standards for undergraduate medical education (GMC, 2009)
2. Clinical placements for medical students: Advice supplementary to Tomorrow's Doctors (GMC, 2009)

## Dear Editor,

We read with interest Dr Allen's letter entitled 'A Simple Homemade Model for Training in Sub-Tenon's Anaesthesia', published in the November issue. As an anaesthetist married to an ophthalmologist I couldn't help but share this simple but innovative idea with my husband over dinner one evening. The following day at work, my husband assembled the model and was pleasantly surprised at how simple, yet effective, it really was. Furthermore, his consultant, who frequently visits Indonesia for the purpose of training other ophthalmologists, was so impressed with it that he plans to use it as a teaching aid on his next trip, as they only practice peribulbar anaesthesia. If they can master the sub-Tenons technique this will obviously have profound benefits with less associated risk.

We thank the authors for taking the time to share their training model and encourage trainees from both anaesthetic and ophthalmologic disciplines to try it for themselves!

#### Dr L T Foulds

ST5, Department of Anaesthesia, Ninewells Hospital, Dundee

#### Dr J S Foulds

ST6, Department of Ophthalmology, Ninewells Hospital, Dundee

## Dear Editor,

### Anaesthetic circuit malfunction: a case we'll never forget.

A recent night shift started slowly with a couple of straightforward epidurals but then came the call we all dread - a crash GA caesarean section in the middle of the night. The indication - 'foetal distress' - required urgent general anaesthesia.

I began pre-oxygenation, thiopentone in hand and cricoid pressure on, the surgeons scrubbed and ready. Thank goodness, a grade one laryngoscopy, expired carbon dioxide, chest rising and surgeons already through the skin. On attaching the catheter mount to the endotracheal tube I noticed that the angle piece remained attached to the face mask, but the patient was ventilating with no problems so the tube was secured.

The weight of the circuit was pulling down awkwardly so I placed the angle piece on the end of the catheter mount. Almost immediately the capnogram dwindled away, yet the patient's chest was still rising up and down and the endotracheal tube was fogging. The ODP checked the common causes of air leak from the point of the anaesthetic machine whilst I checked the endotracheal tube.

Deciding that there must be a cuff leak I extubated and re-intubated with a new endotracheal tube, a risk every anaesthetist prefers to avoid. On reattaching the catheter mount and bagging the patient I could feel a rush of air coming from above on to my hand but I couldn't see the source. I asked for the theatre anaesthetist to be called to lend fresh eyes as to the cause of the problem.

We soon found that the angle piece on the catheter mount had a manufacturing defect. There was a hole (as shown in pictures ...) on the underside which led to a large gas leak; an unusual and unexpected finding!

The patient was not properly ventilated until the fault was discovered and the piece of equipment changed. Fortunately the patient was cardiovascularly stable and did not desaturate during this period. A 'no harm to patient' incident form was submitted and the catheter mount was investigated by the manufacturer.

An anaesthetic machine check including a two-bag test had been carried out earlier in the day and passed. But as this case highlights, the importance of performing a two-bag test before each case with the new catheter mount is of paramount importance; as one cannot assume consumables such as catheter mounts to be uniform in quality.

#### Dr Katie Turley

Trust Grade Anaesthetist, Kingston Hospital

#### Mr Martin Daniel

Anaesthetic ODP, Kingston Hospital

#### Dr Jane Denman

ST5 Anaesthetist, Kingston Hospital



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# your Letters

## SEND YOUR LETTERS TO:

The Editor, *Anaesthesia News* at [anaenews.editor@aagbi.org](mailto:anaenews.editor@aagbi.org)

Please see instructions for authors on the AAGBI website

## Dear Editor,

We would like to highlight the importance of thoroughly checking airway devices before their use.

A patient presented for minor maxillo-facial surgery under general anaesthesia, for which we planned to manage the airway with a flexible laryngeal mask airway. A Size 3 reusable flexible laryngeal mask (LMA Flexible™) was selected, removed from its package and checked for cuff patency. No abnormality was observed (Fig 1) and induction of anaesthesia was performed.

As the LMA was inserted, a foreign body was seen within the proximal lumen (Fig 2). The LMA was immediately removed and general anaesthesia maintained with sevoflurane by facemask ventilation. Another LMA was checked and inserted without incident, after which surgery proceeded uneventfully.



Fig. 1



Fig. 2

Closer inspection of the laryngeal mask revealed a strip of friable, white paper-like material adherent to the internal surface of the 15mm connector. This finding raises several safety concerns. Firstly, dislodgement of the foreign body could have led to partial or complete obstruction of the airway, including the effective formation of a flap-valve. Migration into the lower respiratory tract could have led to an unrecognised foreign body, causing chronic symptoms. Its presence also raised doubts about the sterility of this reusable piece of equipment. As specified in the Health and Social Care Act 2008:

'Effective decontamination of reusable medical devices is an essential part of infection risk control'.<sup>1</sup>

Our hospital CSSD procedure makes it likely that the foreign body was introduced before the sterilisation process. Reusable LMAs are decontaminated in a washroom, checked for cuff patency and then put in a labelled bag, prior to steam sterilisation at 134-137oc. However we cannot be confident that the sterilisation process was adequate to eliminate pathogens from the paper-like material in question, raising a further potential risk of infective transmission between patients.

Harm to the patient was avoided in this instance, however we are reminded to remain vigilant in examining airway equipment before use. A local critical incident report has been filed and anaesthetic staff alerted.

#### Dr Eleanor Roderick

CT2 Anaesthetics, Northwick Park Hospital London

#### Dr Laurie Cohen

Consultant Anaesthetics, Northwick Park Hospital London

1. The Health and Social Care Act 2008: Code of Practice on the prevention and control of infections and related guidance, Department of Health December 2010

## Dear Editor,

I read Drs Phillips' and Lamb's, Cardiac arrest in the prone position: What would you do?<sup>1</sup> with great interest as I asked the same question to my senior colleagues during my neuroanaesthesia module.

There are several case reports suggesting that prone position should be considered as the optimal choice for CPR in certain limited circumstances, even if the supine position is achievable<sup>2</sup>. One such case was described in *Case Studies of Near Misses in Clinical Anaesthesia*<sup>3</sup> in which the surgeon placed both palms below the lower border of the patient's scapula with the frame providing counter-pressure and performed effective chest compression saving his patient's life in the process. And when counter-pressure is not available, a clenched left fist must be placed under the sternum while the right hand compresses the mid-thoracic spine. CPR would be more effective if performed by two people – one doing counter-pressure and one doing compression. As stated by the authors, Mazer et al<sup>4</sup> concluded that prone CPR generated sufficient mean blood pressures and the presence of an arterial line would be a useful tool to show its effectiveness.

There are many risk factors associated with cardiac arrest in a prone patient, and these include cardiac abnormalities, hypovolaemia, air embolism, wound irrigation with hydrogen peroxide, poor position and occluded venous return<sup>5</sup>.

Fortunately, cardiac arrest in a prone patient is extremely rare, but we should be confident that CPR in a prone position is just as efficient as in a supine position and that should not delay immediate chest compression.

#### Dr J Lie

ST6 Anaesthesia, North Western Deanery

#### References

1. Phillips S & Lamb FJ. Cardiac arrest in the prone position: What would you do? *Anaesthesia News* November 2013; 316: 16-17
2. Beltran SL & Mashour GA. Unsuccessful cardiopulmonary resuscitation during neurosurgery: is the supine position always optimal? *Anesthesiology* 2008; 108: 163-4
3. Brock-Utne JG. *Case Studies of Near Misses in Clinical Anaesthesia*. Springer 2011
4. Mazer SP, Weisfeldt M, Bai D et al. *Resuscitation* 2003; 57: 279-285
5. Brown J, Rogers J & Soar J. Cardiac arrest during surgery and ventilation in the prone position: a case report and systematic review. *Resuscitation* 2001; 50: 233-8

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# Anaesthesia Digested

Anaesthesia February 2014

A prospective multicentre observational study of adverse iatrogenic events and substandard care preceding intensive care unit admission (PREVENT).

Garry DA, McKechnie SR, Culliford DJ et al.

Human error is an inevitable part of medical intervention, and can have severe consequences resulting in intensive care treatment, as this prospective analysis of 280 unplanned admissions in 5 hospitals over 6 weeks shows only too well. Using NCEPOD-style consensus agreement methodology, four consultant intensivists considered retrospectively whether any adverse event (through omission or commission) in the 7 days before ICU admission fell below and acceptable standard of care, defined as acceptable 'for (the intensivist's) relative', and graded the severity of each event. In 95/280 patients, 149 potential adverse events were examined, consensus eventually identifying 104 events in 76/280 patients, 28 (27%) events directly causing (and 55 [53%]) contributing to ICU admission. Medical events were the most common type of adverse event (39/104 [38%]), most commonly, failure to manage care appropriately (15/39 [38%]). Permanent harm (22/104 [21%]) and death (11/104 [11%]) were relatively common outcomes. The authors acknowledge some of the weaknesses of studies

such as these, including selection bias and observer bias (would physicians have classified 'medical' errors differently to anaesthetists?), but did not comment on the limitations of retrospective consensus analysis at the end of the prospective data gathering period or how 77% of cases were potentially preventable. There is a tendency with studies of iatrogenesis to adopt an 'isn't this terrible, something must be done' tone in the discussion, which the authors have done well to avoid, given that one could interpret their results as indicating that clinical care was apparently faultless in 66-73% of unplanned admissions to intensive care in their study. Nevertheless, that a chain of causation from iatrogenic error to adverse event to unplanned ICU admission to permanent harm/death was apparent for 11-21% of patients in this study gives cause for concern, and reminds readers of their obligation to ensure that the care they provide should always be first and foremost to the standard of *primum non nocere*.

The properties of an improvised piston pump for the rapid delivery of intravenous fluids.

Smart CM, Primrose CW, Peters AL, Speirits EJ.

Now here's a clever idea that reduces the problems of quickly and accurately infusing intravenous fluids, emergency drugs and drugs via port-free cannulae. By introducing two one-way valves correctly either side of a three-way tap interposed into an intravenous giving set, the authors of this paper have invented a piston pump: when a syringe is connected to the side-port of the three-way tap, withdrawing the plunger fills the syringe from the fluid bag only; when the plunger is depressed flow occurs into the patient only; when the syringe remains untouched the syringe fills automatically by hydrostatic pressure. Using this pump *in vitro*, the authors were able to infuse 2000mls (4 x 500ml bags of 0.9% saline) via a fluid warmer and 16G cannula

significantly faster than using a pressure bag infuser inflated to 300mmHg (352 v 495 seconds). In a secondary experiment, use of the piston pump was not found to cause turbulence-related haemolysis when blood was rapidly infused. The safety of the pump was further assessed by measuring peak pressures (as high as 635mmHg), which, by reference to other pressure conduction studies, the authors assert would be attenuated downstream, through fluid, tubing and vascular compliance. I tried the piston pump during complex revision arthroplasty soon after reading this paper, and found it to be most effective: like all the best inventions – ingenious, simple, cheap and effective.

N.B. the articles referred to can be found either in a print issue or on Early View (ePub ahead of print)

S. White  
Editor, *Anaesthesia*



Pandharipande PP, Girard TD, Jackson JC et al for the BRAIN-ICU Study Investigators

## Long-term cognitive impairment after critical illness

NEJM 2013; **369**: 1306-1316

### Introduction

It is well recognised that survivors of critical illness often develop cognitive dysfunction.<sup>1</sup> However this dysfunction is not fully characterised, as most studies are small and limited to single disease processes.<sup>1,2</sup> This study tested the hypothesis that a longer duration of delirium in hospital and higher doses of sedative and analgesic agents are independently associated with more severe cognitive impairment up to 1 year after discharge.

### Methods

This multi-centre prospective cohort study enrolled adult patients admitted to ICU with respiratory failure or shock (cardiogenic or septic). The patients were tested for delirium in hospital with the use of the Confusion Assessment Method for the ICU (CAM-ICU). At 3 and 12 months after discharge, global cognition and executive function were tested using the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) and the Trail Making Test, Part B. Linear regression was employed to assess associations between delirium and the sedative or analgesic agents (adjustments were made for potential confounders).

### Results

Of the 821 patients enrolled, 6% had cognitive impairment at baseline testing and 74% developed delirium, with a median duration of 4 days. Follow-up of 448 patients at 3 months and 382 patients at 12 months revealed median (interquartile range) RBANS global cognition scores of 79 (70-86) and 80 (71-87) respectively. At 3 and 12 months, 40% and 34% of patients had global cognition scores equivalent to those seen in moderate traumatic brain injury. Furthermore, at 3 and 12 months, 26% and 24% had scores equivalent to those seen in mild Alzheimer's disease (2 SD below the population means). A longer duration of delirium was an independent risk factor for poorer RBANS global cognition scores at 3 and 12 months ( $P=0.001$  and  $P=0.04$ ) and lower executive function at 3 and 12 months ( $P=0.004$  and  $P=0.007$ ). Administration of sedative and analgesic agents did not correlate with cognitive deficit.

### Discussion

The authors showed that delirium in ICU is associated with long-term cognitive deficits, and that the longer the duration of delirium, the poorer the global cognition and executive function at 3 and 12 months. However the discussion was limited. There was no breakdown of delirium with respect to different medical conditions and pathophysiologies and the choice of sedative or analgesic agent may have been influenced by this.<sup>3</sup> Furthermore, in surgical patients, there was no mention of the confounding effect of anaesthesia on delirium.<sup>4,5</sup>

**Cara Lewis**  
FY1 Intensive Care, Chelsea and Westminster Hospital

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Schmidt PC, Ruchelli G, Mackey SC et al.

## Perioperative Gabapentinoids: Choice of Agent, Dose, Timing and Effects on Postsurgical Pain

Anesthesiology 2013; **119**: 1215-21

This article reviews clinical trials investigating the efficacy of peri-operative gabapentin and pregabalin to reduce acute and chronic post-operative pain. Gabapentinoids exert their neuro-modulatory effects by binding to pre-synaptic voltage-gated calcium channels, reducing the release of excitatory neurotransmitters such as glutamate, or via the activation of noradrenergic pain-inhibiting pathways. The principle difference between the two drugs appears to be bioavailability: gabapentin has a saturable absorption capacity in the duodenum, whereas pregabalin is absorbed throughout the small bowel. Both are renally excreted without significant metabolism. They are generally well tolerated, with the most common side effects being sedation, dizziness, headache and visual disturbances.

Current evidence supports the use of gabapentinoids (particularly gabapentin) peri-operatively to reduce immediate surgical pain. This has been demonstrated in several meta-analyses of clinical trials through reduced pain scores, an opiate sparing effect and increased mobility. Previous assumptions that pre-operative dosing was necessary appear to be unfounded, since research demonstrates efficacy of gabapentinoids in established post-operative pain<sup>1</sup>.

There have been just two studies directly comparing gabapentin and pregabalin. Both studies found improved pain scores and analgesic sparing effects in comparison with placebo, but neither showed a significant difference between the two<sup>2,3</sup>.

Few clinical trials have attempted to identify the optimum dosing, but there does appear to be more significant efficacy with higher doses of post-operative gabapentin (600-1200mg) and pregabalin (150-300mg)<sup>4,5</sup>.

The evidence for the reduction of chronic post-operative pain is slightly contradictory, and has only been investigated up to six months post-operatively. However, following meta-analysis, it appears that it is considerably likely that gabapentinoids do have a preventative effect on chronic post-operative pain if used in the immediate post-operative period<sup>6</sup>. Overall the authors conclude that gabapentinoids are effective in reducing immediate post-operative pain and opioid consumption. Gabapentinoids appear also to be effective in reducing chronic post-operative pain. However, higher-powered longer follow-up clinical trials are required to definitively test this. In addition, further work to define optimum pre-operative and post-operative doses and dosing schedules, investigate side effects, and compare the two gabapentinoids are required.

The authors state that current evidence is sufficient to recommend the use of 1,200mg of gabapentin or 300mg of pregabalin at least 2 hours pre-operatively for patients at risk of developing severe acute pain or prolonged pain, and continued at doses of 600mg TDS for gabapentin or 150mg BD for pregabalin.

**Dr Olivia Clancy**  
Clinical Research Fellow in Intensive Care, Chelsea and Westminster Hospital

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## Effect of intravenous haloperidol on the duration of delirium and coma in critically ill patients (Hope-ICU): a randomised, double blind, placebo-controlled trial

The Lancet Respiratory Medicine 2013; **1**: 151-523

Delirium is a neuropsychiatric disorder defined by acute confusion and alteration in consciousness that fluctuates through the day<sup>1</sup>. In the intensive care (ICU), delirium is a common disease affecting 30% of patients<sup>2</sup>. It has significant implications for patient outcomes with those affected are three times more likely to die at six months, than those unaffected<sup>3</sup>. The most commonly used drug to treat delirium is haloperidol<sup>4</sup> but little evidence exists of its effectiveness. The study was designed to assess whether early treatment with haloperidol would decrease the time that survivors of critical illness spent in delirium or coma.

### Methods

This single centre prospective double blinded randomised placebo controlled trial at Watford General Hospital included 142 patients after agreed exclusion criteria. Critically ill patients within 48 hours of requiring mechanical ventilation, irrespective of whether or not they exhibited delirium or coma, were randomised to haloperidol 2.5mg 8 hourly or 0.9% saline 8 hourly. Dosing was determined from a National Survey<sup>5</sup> evaluating common dosing regimes of haloperidol for delirium in ICU. Presence of delirium was assessed using the CAM-ICU<sup>6</sup> questionnaire<sup>6</sup>. The intervention was discontinued after two delirium free days, 14 days of treatment or ICU discharge. Primary outcome was delirium or coma free days 14 days post randomisation. Secondary outcomes measured included agitation assessed with Richmond Agitation Score<sup>7</sup>.

### Results

Using a Wilcoxon rank coefficient for non-parametric data and the intention to treat principle, no significant difference in days without delirium or coma (5 [0-10] vs. 6 [0-11]  $p=0.53$ ) were found between the intervention and placebo group. Of the secondary outcomes, patients in the intervention group had a significantly lower Richmond Agitation Score than the placebo group (13% [8.75-17] vs. 20% [17.5-26.75]  $p=0.0075$ ). Despite this, during the trial, 18 patients in the placebo group and eight in the intervention arm required open label antipsychotic drugs for agitation.

### Discussion

The study's authors suggest the results show haloperidol has no effect on coma or delirium. However it demonstrated a significant reduction in agitation, one of the study's secondary outcomes. In the study haloperidol was used as both prophylaxis and treatment of delirium not making it possible to determine any treatment benefit in these patient subsets. It would appear that with 18 of the placebo group receiving antipsychotics, the study was contaminated and might not be sufficiently powered to detect a difference between the two groups.

**Thomas Carter**  
ST3 Anaesthesia, Chelsea and Westminster Hospital

### Dr Marcella Vizcaychipi

Consultant Anaesthetist and Intensive Care, Chelsea and Westminster Hospital

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