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The Royal College of Anaesthetists is grateful for the contribution to the production of this publication by Laerdal Medical Ltd and Dräger Medical UK Ltd.
From the Editor

Around the same time as this edition of the Bulletin drops through your letterbox (it wouldn’t be the same if we went to an electronic version would it – views of course welcome), Professor Greenaway’s eagerly anticipated report ‘The Shape of Training’ will be released. I fully expect this to provide much work for Council, the Training Committee which I now chair, the medical schools, CoPMED and HEE among others for 2014, so no more about it for now, but expect pages next year.

One aim of ‘From the Editor’ is to direct readers to contents that I feel are particularly interesting but I’m pleased it has been a challenge with this edition to keep this to a few paragraphs. A glance at the contents page will inform you that we have a distinct ‘paediatric’ theme to this edition. I am grateful to Tony Moriarty and the past and current Presidents of the Association of Paediatric Anaesthetists for putting together a series of four articles on areas that they feel of prime importance to anaesthetists. Read Professor Wolf’s editorial to wet your appetite. From my perspective, as a DGH anaesthetist dealing with emergency and occasional elective paediatrics, they are most informative and challenging.

Of course we have our regular features and I welcome Kate Grady’s first piece as the new Dean of the Faculty of Pain Medicine. The Bulletin wishes her well in her new role following such illustrious predecessors as David Rowbotham and Doug Justins who did so much to put pain on the map. Sadly, however, we bid farewell to Julian Bion as the departing Dean of the Faculty of Intensive Care Medicine and would like to acknowledge the tremendous work he has done in promoting the specialty of intensive care. The FICM article outlines the serious achievements of the last three years, but Julian acting as a midwife... now I’m an experienced obstetric anaesthetist and thought I’d seen everything, but that really would be a sight!

You cannot surely by now have not heard of ACASA; just go onto the College website. In Sir Bruce Keogh’s words ‘accreditation has now come of age’ and Peter Venn and Odette Lester summarise the project to date and inform us of the areas where the pilot sites at times struggled to meet the standards expected. This is useful information since departments are already starting to engage with ACASA.

From a completely different perspective we have two articles from the top of the world and beyond. Investigating human physiology at altitude may well lead to improvements in patient care particularly in critical care and I was delighted to receive a report from Xtreme Everest 2. I suspect we will hear much more from them. However, the College Environmental Adviser tops that in a fascinating article on volatile anaesthetic agents and the greenhouse gases. This will make you really consider your actions when you next turn that vapouriser dial.

Education is fundamental to the College and features in two articles. The RCoA and RCS joint project group informs us of their work develop teamwork in clinical teams working the operating theatre with the intention to expand into other related clinical environments. In addition attendance at courses such as the Anaesthetists as Educators’ programme is essential for a good trainee CV, and indeed is very useful CPD for consultants. Drs Boss and Edgar make a compelling case for this to be a rewarding way to spend your study leave budget. Our National Audit Lead, Tim Cook, introduces the next major audit project, namely NAP6, on the subject of anaphylaxis, and the process involved in selection and developing the project. Like the ‘NAPs’, e-LA is a major innovation that attracts much positive feedback worldwide. Our regular e-LA update highlights a relatively new addition, namely a revised feedback process. It is important to keep this educational resource updated and I would encourage users to engage with ‘Wiki e LA’.

Finally our PLG lead Irene Dalton tries to make some sense of the plethora of media reported NHS scandals and has some warnings for us from her experience of Ofsted visiting and has some sounds advise for politicians. Enjoy this edition.
The President’s Statement

Move on up…
‘If we don’t change, we don’t grow’
[Gail Sheehy, American political biographer]

Dr J-P van Besouw
President

The summer months have been ‘open season’ for doctor bashing both for those in primary and secondary care. I, like many of you, will have been greatly agitated by the rhetoric of The Sunday Times campaign for 24/7 consultant-delivered care. The inference within the campaign is that the woes of the health service – including patient outcomes – would be addressed by the constant presence of senior doctors. There is little appreciation of the fact that consultants do not work in isolation but require the support of all other hospital services to deliver that care. Anaesthetists have, for many years, been providing consultant-delivered care – often working single handed – throughout the working week; most hospitals are delivering extended working days, weekend lists and consultant covered CEPOD lists. Many departments struggle to cover consultant absence during peak holiday periods and there is increased reticence to release consultants for wider NHS work. One can only speculate how this initiative will be resourced, other than through the ongoing downward renegotiation of doctors’ terms and conditions of employment.

No quick fix
2013 has seen a plethora of inquiry reports highlighting deficiencies in the provision of service that have resulted in harm to patients. The road to redemption has been highlighted in the Berwick Report (www.gov.uk/government/uploads/system/uploads/attachment_data/file/226703/Berwick_Report.pdf)

■ Recognise with clarity and courage the need for wide systemic change.
■ Abandon blame as a tool and trust the goodwill and good intentions of the staff.
■ Reassert the primacy of working with patients and carers to achieve healthcare goals.
■ Use quantitative targets with caution. Such goals do have an important role en route to progress, but should never displace the primary goal of better care.
■ Recognise that transparency is essential and expect and insist on it.
■ Ensure that responsibility for functions related to safety and improvement is vested clearly and simply.
■ Give the people of the NHS career-long help to learn, master and apply modern methods for quality control, quality improvement and quality planning.

■ Make sure pride and joy in work, not fear, infuse the NHS.
As always turning the vision into action remains the challenge?

A problem shared
An area of concern to the College has been the management of the poorly performing anaesthetist particularly where patient safety might be compromised. There has been a lack of uniformity of approach across the UK to the management of this issue. Anna-Maria Rollin, our Professional Standards Adviser, has produced some excellent guidance – available via the website at: www.rcoa.ac.uk/node/14136 – on how to identify, investigate and address this issue both at a local trust level and where deemed appropriate through the involvement of external agencies.

It ain’t what you do, it’s the way that you do it
One of the strategic aims of the College for 2013–2014 is to explore the role anaesthetists might play in the delivery of perioperative medicine and how we might develop a more formal approach to meeting this agenda. Perioperative medicine has been defined as ‘consultation, care, or co-management of a patient undergoing surgery that is provided by an anaesthetist, intensivist and general (acute) physician and surgeon’. A major driver in the development of best practice in perioperative medicine has been the increasing body of evidence to support the notion that perioperative complications result in long-term sequelae both in terms of mortality and morbidity, and that
these can be mitigated through the application of a multidisciplinary approach to the perioperative care of the patient. The past decade has seen a progressive expansion in interest in this area as evidenced by the emergence of conferences, journals and peer-reviewed publications in the field. The College has tasked a Council member, Professor Monty Mythen, to explore ways by which we can facilitate the delivery of this agenda through curriculum alignment, guideline production and consensus statements, developing translational research programmes and quality improvement initiatives to reflect the contribution of perioperative medicine to patient outcomes.

**In need of refurbishment**

The College’s multi-award winning e-LA project is now five years old and in that time has garnered over a million learning episodes, equivalent to approximately 350,000 hours of learning completed. It is incumbent upon us to ensure that the content remains fit for purpose and accurately reflects current practice and the requirements of the curriculum, but also that it keeps pace with advances in technology. Some tablet devices do not support the playing of the video and animation format embedded in the e-LA modules. It is our intention to review and revise, where appropriate, the current content including upgrading e-learning sessions to meet the requirements of the iPad and other such devices. It is also our intention to review and update where necessary our patient information leaflets, again to reflect contemporary practice. My thanks go to Ed Hammond and Andrew McIndoe, and Lucy White respectively for their dedication and commitment to these two initiatives.

**平等和多样性**

The College’s Coat of Arms has two supporters, both of whom are men (John Snow and Joseph Clover). A male Fellow has recently written to me, suggesting that we should replace one with a woman; his argument being that, as a forward-looking College, we should set an example to others. Having discussed this – and putting aside the decision as to which of the two eminent men would have to stand down – we consider the rationale to be sound and the matter worthy of wider consideration. Of the 16,526 Fellows, Members and Trainees the male/female ratio is 63 to 37 but for Trainees alone it stands at 49 to 51 respectively. The College of Arms advises that it is perfectly acceptable to update the supporters; Lord Nelson changed his three times. In discussions over the supporters of the Coat of Arms to reflect the constituency of our membership, some have expressed a desire to change the College strapline or even the name of the College to reflect our wider remit beyond the provision of anaesthetics! I would be pleased to hear from Fellows with their views on these topics.

**Stand and deliver**

Michaelmas is the time of the year when the College seeks applications from those wishing to stand for Council and to become examiners. Prospective Council nominees should apprise their clinical directors of their intention to stand and be open and transparent regarding the time commitment required of the post. I have over the past year reduced the number of College committees and the frequency and length of meetings with a greater reliance on short life working parties, task and finish groups and video conferencing. I note that the Chairman of the Board of Examiners, in encouraging applications to be examiners, likened the examiners to the successful British Lions Rugby Team, ‘A group of professionals who don’t normally work together enjoying the camaraderie that comes from striving towards a common goal!’

The College will also be seeking applications to enhance the membership of the Patient Liaison Group. Members of the Group provide invaluable support and scrutiny to the College in all our areas of activity. The College makes increasing demands upon their time and benefits greatly from their expertise and knowledge. If you know of anyone who may be interested in joining this group, please direct them to Charlie McLaughlan, Director of Professional Standards, for further information (standards@rcoa.a.uk).
Paediatric anaesthesia: a specialty of challenge and variety!

The practice of paediatric anaesthesia has changed radically over the last 30 years providing new horizons of treatment but also challenges in providing effective, safe and high quality treatment wherever children are cared for. As moves to concentrate expertise in specialist centres accelerate, the older models of care with experienced surgeons and anaesthetists undertaking paediatric cases with varying degrees of complexity in local hospitals have needed to be reconsidered. Nevertheless, it is important that local expertise is maintained, not only to facilitate the delivery of suitable care as close to home as possible but also to underpin good quality emergency treatment. Dr Kathy Wilkinson from the Norfolk and Norwich Hospital, the immediate Past President of the Association of Paediatric Anaesthetists, has been at the forefront of national initiatives to understand the problems and to find solutions that can develop and maintain competencies in paediatric anaesthesia throughout the UK. As one of four articles devoted to paediatric anaesthesia, Dr Wilkinson describes the current situation and the regional structures that address these issues.

How should we train anaesthetists in paediatric anaesthesia now and in the future? Developments in paediatric surgery have resulted in increasing survival of children, adolescents and adults who have specialised requirements and require careful management for other treatments that involve sedation or anaesthesia. Ignorance of the conditions can lead to disaster and yet they may live far away from the centre that carried out the original treatments. While the article by Dr Wilkinson discusses the systems that need to be put in place for paediatric surgery, the article by Dr Calder and Professor Carr discusses anaesthetic training needs in different environments including those who may be thinking of working overseas. There is advice on how to approach training for every level of commitment including the specialised areas that may need to be developed post CCT. There are also numerous links to further information, making this a valuable resource tool.

Paediatric anaesthesia presents specific age related consequences from the technical issues associated with the neonate through to the complexities of interaction with children, adolescents and the parents of children in hospital. The developmental nature of paediatrics ensures that no two children are the same and no two days are the same, and this is what led many paediatric anaesthetists into the discipline. The final two articles address two contemporary issues that are ‘work in progress’: post-surgical pain management at home and anaesthesia of the anxious child. Drs Moriarty and Treadgold report on the recently commissioned study by the APAGBI on pain at home, which indicates that there is much work to do. The situation has become more complex this year with the concerns over the use of codeine leading to recent statements by the MHRA and EMA on the use of this drug. The article addresses what is available and what remains to be done to take this problem forward. Drs Marshall and Courtman discuss management of the anxious and agitated child. There are few of us who have not experienced the distress in child and parent when things do not go well in the anaesthetic room even when every effort has been taken. This article provides a very balanced account on how to identify and deal with these issues in a very practical way.

The Association of Anaesthetists of Great Britain and Ireland work closely with the Royal College of Anaesthetists to help provide support to those in training or practising paediatric anaesthesia in all its forms. Useful specific information on education, training and the practice of paediatric anaesthesia can be found on both the RCoA and APAGBI websites. Direct contact through the Linkman scheme or through the APAGBI is always welcome.
The revalidation helpdesk: frequently asked questions (and answers)

Mr D Liu1 and Mr C Kennedy2
Revalidation Manager1 and Revalidation Administrator2

In the January 2013 issue of the Bulletin we announced the setting up of a revalidation helpdesk for anaesthetists and their appraisers and responsible officers. A team of clinical advisors was also appointed to provide guidance on specialty standard issues and revalidation. We have since received a number of enquiries and we thought it would be useful to highlight some of these and the responses from the helpdesk and specialty advisors.

‘Maintaining clinical skills and competency levels in anaesthesia is important in order to revalidate – am I correct?’
Yes, and this requirement is the same for those doctors undertaking only a few anaesthetic sessions per week (the majority of their work may be in management, research and so on). Maintaining clinical skills and competence in anaesthesia is multifactorial, so that an anaesthetist can manage not only a fixed list with a predictable case profile but also the range of perioperative emergencies and complications that may arise. These issues are key areas of discussion during the annual appraisal and the following principles should be considered:

- The amount of practice should be sufficient to allow the anaesthetist to maintain core anaesthetic skills to practise safely, e.g. airway management, vascular access.
- The appraiser needs to be confident that the anaesthetist has adequate experience to manage the range of perioperative emergencies that may arise.
- The anaesthetist must be able to present an adequate CPD portfolio to support the full range of his or her practice including management of critical incidents.

‘For the purposes of revalidation how should I demonstrate that I am up-to-date in my CPD?’
A report of your CPD undertaken over the course of the year should be presented annually for discussion at appraisal. If you are a registered user of the RCoA CPD system (www.cpd.rcoa.ac.uk) a report can be generated detailing your educational activities, credits gained and documented learning outcomes and reflections. You will need to demonstrate that your CPD covers the scope of your professional practice. The same level of anaesthesia-based or focused CPD is expected from all doctors whether practising clinically in theatres part- or full time. Through the CPD Matrix the College provides guidance as to the knowledge and skill areas to be covered by an anaesthetist.

‘I am planning to take a short career break (e.g. maternity leave/to undertake voluntary work abroad). How does that affect appraisal and revalidation?’
Your ability to revalidate should not be affected although you may need to manage your appraisals around the career break as much as possible. Before you leave speak to your appraiser, using the checklist provided by the Academy of Medical Royal Colleges to help plan an absence from practice, covering issues such as CPD and ‘keeping in touch’ arrangements. When you do come back, a return to work (RTW) programme organised by your employer may be necessary. The College has issued guidance containing signposts to educational activities, such as the simulation RTW sessions delivered by the GAS (Giving Anaesthesia Safely) Again group dealing with issues around confidence, team skills and decision making. If your revalidation date occurs around the time you come back to work your responsible officer may recommend a deferment of your revalidation to the GMC, allowing you time to collect the required supporting information for your portfolio and to be appraised.

‘Due to the nature of my work I am having difficulty collecting patient feedback. What advice can you give me?’
The GMC recognises that it may not be possible or appropriate for some doctors to collect feedback from their patients. For some anaesthetists the administration of the process (in particular, patient selection and timing of distribution and completion of questionnaires) may be difficult. Where this is so, discuss with your appraiser, thinking broadly how you will collect the feedback, e.g. from family members or carers instead, in lieu of the patient. Appraisers and responsible officers will also need to recognise that for anaesthetists the patient feedback process might...
take considerably longer to complete compared to other specialty medical groups. The reasons (limitations in regard to time-periods in which questionnaires can be distributed and which patients can be selected) are explained the College guidance on patient feedback.3

‘If I work in both anaesthesia and intensive care medicine do I need to have two separate annual appraisals?’

The answer is no. The NHS Revalidation Support Team supports the idea of ‘whole medical appraisal’ in covering the scope of your professional work. However, you will need to collect and present supporting information covering aspects of work across both specialties for discussion at your appraisal. Both the College and the Faculty of Intensive Care Medicine have produced specialty guidance documents on the supporting information to be collected to help doctors demonstrate that they are up to date and fit to practise. The specialty guidance documents are available through the revalidation pages of the College website.

‘I have a GMC licence to practise but work entirely outside of the UK. Will I need to revalidate?’

If you hold a GMC licence you will need to revalidate in the same way as doctors practising in the UK, and link to a UK designated body. If your employer or contractor is based within the UK they may be able to provide you with a link to a responsible officer, and you should discuss your revalidation with him or her at the earliest opportunity. You also have the option to retain your GMC registration (and continue to remain in good standing) but relinquish your GMC licence to forgo the requirement to revalidate. It should be remembered that the licence gives doctors legal rights and privileges in the UK only that are not applicable in any other country. When you return to the UK to work you can apply to the GMC for your licence to be restored. You would then need to link to a designated body, participate in annual appraisals and provide supporting information in line with GMC guidance. Any relevant information gathered while working abroad, as well as evidence of ongoing CPD, should be brought to your first appraisal on return to the UK.

To keep up to date with our work on revalidation and CPD please visit our website: www.rcoa.ac.uk/revalidation. Please email your comments to: revalidation@rcoa.ac.uk.

References
2 Returning to work after a period of absence. RCoA, London 2012 (www.rcoa.ac.uk/node/771).
Patient notes on a scandal

Mrs I Dalton, Chair, Patient Liaison Group

When I joined the PLG in 2011, the NCEPOD report ‘An Age Old Problem’ made disturbing reading and I was pleased to join the College working party formed to find a way of addressing the issues raised therein. Since then every few months a new ‘scandal’ to do with NHS services has been brought (or dragged) into the light. The Mid Staffordshire Report brought things to a head: action plans have been written; a new inspection regime is about to start; ‘failing hospitals’ has crept into the vocabulary and some trusts are in ‘special measures’; individuals (at a low level, however) have been brought to book; a trust is being sued for causing an unnecessary death. And, no doubt, it will not stop there; new problems continue to be raised.

As a patient, I am struggling to formulate an appropriate reaction and make sense of what is going on; hence the notes which follow.

Numbing down

There is a real danger that ordinary patients will become desensitised by the Shock! Horror! reporting surrounding that which has gone wrong in the NHS. I fear that tabloid headlines and dramatic news clips are reducing the seriousness of the issues to the level of the antics of celebrities, and soon patients will greet examples of lack of compassion with a delicate (or lip-licking) shudder of horror and pass on to the sport and the weather reports. Thus for the average as opposed to ‘professional patient’, the whole issue could become merely a spectator sport; even a source of ghoulish glee.

However, the real problem is that all this lowers rather than raises patient expectations. People are told that the NHS is ‘failing’ some patients, so are more inclined to expect poor treatment themselves and anyway – what can they do about it? If they are ill, they need treatment and they have to take what they get. (The fact that, usually, the treatment is good is seldom publicised).

We all know that if the attitude of the patient is positive s/he is more likely to recover well. So come on, Jeremy Hunt, do some reassuring and make that upfront.

Moreover, the average patient is not aware of the seriousness with which Medical Royal Colleges are addressing what has been uncovered: the publicity given to that is almost non-existent and, contrariwise, the publicity given to demands for more pay by some professionals – for more bodies on the ward by others – gets headlines.

Weighing the pig doesn’t make it any fatter

It seems to be widely accepted that the Ofsted model for inspection of schools will hang nicely round the neck of the NHS. Well, some elements will – the lay inspectors, the central role of clinicians and longer time given to the process on the ground. I look forward to seeing the Framework for Inspection, however, because everything hangs on this.

However, hospitals, compared to schools, are enormous institutions – where do you start and how do you cover every aspect in 14 days? When concentrating on high mortality in one department, how do you ensure that you will not miss scant attention to nutrition in a ward where the statistics point to successful outcomes? How can you sensibly report to the public on mortality in ICUs when many of the patients who survive will then be part of the statistics of another ward? It is always easy to inspect against a national statistical framework but the subtle or ‘soft’ measures like ethos, compassion or empathy are much harder to address.

Remaining in a state of readiness, especially with short notice inspections, will occupy a great deal of staff time at all levels. In education, a huge consultancy industry has blown up around ‘preparation for inspection’ including courses, mock inspections and other advice. If this happened in the NHS, all this would take time from planning and thinking how you will improve the things for which you are responsible, based on your knowledge of the situation in which your hospital operates.

In the early days of Ofsted, the reports were very useful to schools, for they contained detailed reports on individual sections and departments. They are now very short and come under broad headings with a four tier judgement for each. They are useless as a practical management tool but wonderfully useful for grading the place on a four point scale. This pleases politicians (simple souls who need a sound bite a day) because it is in their interest to have more or fewer failing institutions, depending on their length of time in government, capital to be made in opposition, closeness to an election, or giving the public what they think it wants. What will the reports look like?
Climate of fear

In the early 90s, I attended a meeting of the Local Government Association to which all Chief Education Officers were invited. A government minister uttered these words, etched forever on my memory: ‘I want to see the weight of driving up standards felt by every teacher in the country.’ Not, ‘We must support... in improving standards’; not even, ‘Every teacher must feel responsible for...’ but, ‘Feel the weight’.

Accountability is a good thing for leaders and they should expect accountability, with support, from all their staff but you cannot run any successful business, institution or national service by fear. Fear saps initiative; it encourages a timid approach to the job by attempts to keep your nose clean and your head down; above all it encourages people not to report mistakes. The old saw, ‘When you’ve got them by... [er, the Greeks called them ‘the shameful parts’] their hearts and minds will follow,’ is facile and untrue. If the recent scandals make people afraid, the whole business of wanting ‘openness and transparency’ is lost.

Accentuate the positive...

The issue is not about crude labelling of hospitals and trusts. Even in Mid Staffs many patients praised the care they had received. There will be pockets of excellence in hospitals categorised as ‘requiring special measures’ as there will be poor practice in hospitals judged good overall.

The starting point should be twofold: to establish first what is working well and should be kept, developed and emulated, then to find what is unacceptable, plain wrong, and must be stopped forthwith.

Now you can’t change culture in five minutes. However draconian the sanctions, however bright and expensive the CQINS, let us once and for all debunk the idea that you can change a culture by edict or from on high. Parliamentary Acts and government ministers have a dreary tendency to preface their initiatives with ‘We will improve X by Y.’ Who is this ‘we’? What are they, actually, going to do apart from telling people what to do and, more dangerously, how they are to do it?

Cultural improvement has to be led, personally, by those who have the capacity to inspire others to follow. It is not possible to lead if someone external is drawing the map, holding the compass and insisting that, whatever you say, the destination can be reached by their route and theirs alone.

It takes time. Care and compassion are neither 101 things a nurse or doctor can do nor a warm, soggy, feeling. They are rooted in empathy with the human condition, in whatever shape or person it comes, delicately perfumed or smelly. It is common humanity, backed by common sense. If that is currently ‘the land of lost content’ we are doomed to a wretched future. Like mercy, the quality of care cannot be constrained, but it can be massaged and managed. There is a lot to be said for praising people and enhancing their self-esteem, too. But false praise like the repeated throw-away statement, ‘I have nothing but praise for most of our hard working Xs’ (fill in the blank as required), fools nobody.

So let’s stop nodding unwisely when the next politician or éminence grise has the cheek to seek headlines by declaring that they will change the culture of the NHS. Reach for the sick-bag and then get on with doing it yourself because that is the only way it will get done.

We live and learn but not the wiser grow

I wish that politicians would address themselves to the fundamentals of treatment and care and bring ‘the still, small voice of calm’ to bear on matters of importance rather than braying and bleating and hearing only the strident calls of those who can summon the largest number of twitterati.

The big questions for the NHS are philosophical. How do we avoid the train crash of an ageing population? How much can we afford to do? What are we going to stop doing? What is proper to the NHS and what is not? But who wants philosophers?
The chore that falls to the researcher who writes the grant application form might be likened to ‘lines’ at school: it’s rather repetitive (often more than one application is required to be successful), fairly dull and very time consuming. Sometimes reading applications can be almost as dull, but fortunately the majority are fascinating as they provide an insight into the minds of the researchers and demonstrate their enthusiasm for their work. Research, after all, is an essential process in progressing our specialty and improving the care we provide.

I want to highlight a previous NIAA grant round1 and a grant recipient’s view2. At the recent NIAA Grants Committee for 2013 Round 1, 39 applications for grants from AAGBI/Aneurinthesia, BJARCoA, DAS, RA UK, SEA UK, VASGBI, OAA and APAGBI/BJA/RCoA were reviewed. The last of these grants was jointly funded, demonstrating the successful co-operation between two funding partners to attract bigger projects.

To provide an example of the process I will highlight a successful application for an AAGBI/Aneurinthesia ‘Small Project Grant’ by Dr Stephen Wright and colleagues (Introduction of real-time, mandatory recording of quality indicator data in anaesthesia recovery and regular feedback using statistical process control: the effect on clinician performance and engagement). Dr Wright states he was delighted to be successful... especially as this was my first proper grant application as Lead Applicant. While he is not new to research, he’s not a full-time academic either: for a relative novice I thought the grant application process was about as straightforward as you could hope for. The application form required two abstracts (scientific and lay), a full description of the project and a financial breakdown. The whole application was 18 sides of A4, including title page, signatures and references.

The trigger for his idea was an article in the Bulletin by Drs Collyer and Robertson.3 From having the original idea to submitting the application took ten months. Dr Wright submitted his application in April and the committee met in early July. What happened in between? Three external assessors – chosen by the NIAA based on their relevant research and publication experience, reviewed his application. As well as scoring the application, they also provided a qualitative assessment of the funding priority (and they all assessed the priority as ‘high’). Two Committee members also reviewed the application. All the applications were scored, ranked and then discussed at the meeting in July. While the AAGBI/Aneurinthesia (like all other funders) retained the final say, the other committee members expressed their views and a consensus was reached. Five applications for these ‘Small Project Grants’ were funded (one jointly with SEA UK).

Dr Wright and his colleagues received £14,921, most of which will be to fund a data manager and a statistician. They have also received nearly £10,000 from the Newcastle upon Tyne Hospital NHS Charity for additional support for their work.

Dr Wright has some advice: firstly, find and build collaborations with academics who are genuinely interested in what you are interested in; they may not necessarily be at the university next to you. Secondly, if you are getting consistent advice that your original idea is unfeasible then don’t be worried about scaling it down. Thirdly, if you find a statistician who’ll give stats advice for free, keep hold of them!

In total £287,161 was awarded to 12 applicants. Congratulations to Dr Wright and the other successful applicants and commiserations to those who were not successful this time. The reviewers’ comments are sent to the lead investigators of unfunded projects and the Grants Committee frequently receives revised applications that usually score much higher, and are often funded.

References
Sprint National Audit Projects: SNAP-1 in 2014

Dr E Walker¹ and Dr R Moonesinghe²
Trainee Lead for SNAP-1¹ and National Lead for SNAP-1; Board member, HSRC²

The Sprint National Audit Project is an exciting new initiative that we plan to run for the first time in early 2014. It is a particularly important project as we hope that the data collection will be managed predominantly by trainees and will involve hospitals throughout the UK.

The aim of the Sprint National Audit Projects (SNAPs) will be to provide a 'snapshot' of clinical activity in an area of clinical interest to patients, on an annual basis. It is the intention that the initial studies will be 'service evaluations' rather than audits, but, if successful, there may be more scope to repeat these studies, according to a traditional 'evaluate – improve – re-audit' quality improvement model. They will be quite different to the highly successful National Audit Projects or NAPs: the NAPs have tended to be long projects (usually one year) aimed at identifying rare but potentially catastrophic complications of our practice; the SNAPs will be short, 'snapshot' evaluations of activity and patient centred outcomes which should be important to both patients and anaesthetists. We are currently seeking ethics approval for the first SNAP and the RCoA has agreed to support it financially.

**Patient satisfaction**
As part of a portfolio of projects linked to the Health Services Research Centre (HSRC) a systematic review of patient satisfaction measures in anaesthesia has been completed and published. On the basis of this we have selected a validated patient satisfaction measure to use in the first SNAP. A single-centre pilot study of implementation has already been completed at University College Hospital. The data collected during this SNAP will aim to establish a national benchmark for patient satisfaction after anaesthesia; which in the future can be used by individual hospitals to evaluate their service.

**Awareness**
This part of the project will complement the 5th National Audit Project (NAP5), investigating awareness under anaesthesia. Our aspiration is that all patients undergoing surgery in that week will be questioned using a modified Brice questionnaire (based on that used in the BAG-RECALL study) in an effort to establish an estimate of accidental awareness under general anaesthesia in the UK population.

**How will we do it?**
**We need your help!**
Every anaesthetic department in the UK should now have a Quality Audit and Research Co-ordinator (QuARC). The QuARCs will be asked to co-ordinate the data collection in their hospitals but will invite local trainees to take a pivotal role in the data collection, ensuring the highest possible rate of data capture. All QuARCs and trainee leads in each hospital will be named as collaborators in any publications that result from the SNAP.

All adult (≥18 years) patients undergoing any type of surgery in an operating theatre (excluding obstetrics) will be invited to complete paper forms, either on the day of surgery (for day-case patients) or on the first postoperative day (for inpatient surgery). Demographic data and information detailing specific aspects of perioperative care will be completed by the anaesthetist responsible for each patient. Local QuARCs/trainees will then enter the data into a secure online database, and screen freetext responses for cases of potential awareness. These cases will then be reviewed by expert panels, who will decide whether they demonstrate evidence of true awareness or not. We will be recommending that QuARCs arrange appropriate follow up for all identified cases.

We really hope that every hospital in the UK supports SNAP-1. If you would like any further information or have any questions about the project please see the HSRC website for further details at: www.niaa-hsrc.org.uk/SNAPs.
News from the FPM

Dr K Grady, Dean

It is a pleasure and privilege to write this as the recently elected Dean of the Faculty of Pain Medicine. I am honoured and humbled, fully aware of the responsibilities the role brings as well as excited by the opportunities this presents.

First and foremost I would like to pay tribute to Professor David Rowbotham, my predecessor as Dean. Dave brought considerable skills, and inimitable awareness and tact to the position from which we have all benefitted considerably. Dave’s decanal achievements have been significant, including the launch of the ePain project, the driving of the research agenda in pain medicine, and our central involvement in the National Pain Summit. He has had a keen eye for the evolving commissioning process and has overseen unprecedented advance in pain medicine education and assessment. The Faculty’s high, well informed standards on the complex technical interventions of spinal cord stimulation and intrathecal drug delivery, and on the practice of paediatric pain medicine and cancer pain management, have been made explicit by his commissioning of Faculty documents in these areas.

A personal thanks Dave from me, and I am sure on behalf of all Fellows, Members and Officers; you have done a fantastic job. Of course, we will benefit from your guidance and wisdom as a continuing Board member.

My appointment sees other changes as I step down as Chair of the Training and Assessment Committee and of the Faculty Examination to be succeeded by a group of highly driven colleagues. Dr Barry Miller takes up the Chair of the Training and Assessment Committee with Dr Jon Mc Ghie as his deputy and Dr Karen Simpson becomes Chair of the Examination. I wish them well in these roles. I am supported by Dr Mark Taylor who continues in office as Vice-Dean.

The beautiful British summer caused pause for reflection. The work of both Faculty committees is well established. Now is the time to ‘quality assure’ the output of both, and examine the functionality of the areas under their remit. A working party of the Training and Assessment Committee will look at potential quality enhancement of our pain medicine curriculum and training, and scrutinise workforce issues. Similarly, the Professional Standards Committee is addressing the need for further published Faculty standards. This links well with the Anaesthesia Clinical Services Accreditation (ACSA) project of the College for which we will be covering all aspects of pain management.

Standards of patient care are foremost on the Faculty’s agenda. The Care Quality Commission’s declaration of pain as one of the draft fundamental standards of care is a huge step; the Faculty, with the British Pain Society and the Chronic Pain Policy Coalition (critically including patient charities and advocacy groups) have submitted a paper on the implementation of the new standard.

Commissioning of pain services will affect our patients as well as our professional lives. We will meet regularly with Dr Andrew Baranowski, Chair of the Clinical Reference Group for Specialised Pain Services, which develops policy for the NHS Commissioning Board, and in Dr Beverly Collett we have dedicated Board input to the processes of local commissioning.

We are delighted that Dr Stephen Ward, a Board Member has been appointed Chairman of the new NICE Low Back Pain Guidelines Development Group. This is good news indeed, and we wish him well in this very important work.

Finally, further and wider good news: the Faculty is now involved formally in the Essential Pain Management course of the Australian and New Zealand College of Anaesthetists (ANZCA). ANZCA has implemented their courses throughout the world to broad acclaim, particularly in the South Pacific. Our aim is to expand on delivery of courses worldwide. To this effect, Dr Clare Roques has run a course in Uganda in September and there are plans for a course in Zambia early next year (for further information contact fpm@rcoa.ac.uk).
The first three years

Professor J Bion¹ and Professor T Evans²
Dean¹ and Vice-Dean²

Few individuals have the opportunity to act as midwife at the birth of a new specialty. However, the foundation members of the Board of the Faculty of Intensive Care Medicine have been privileged to assume this role, and as we approach the end of the third year we can now take stock of what has been achieved and also look forward as our work to promote high quality patient care comes to fruition.

The formation of the Faculty was attributable to the work of many individuals over the years, and required the support of the Trustee Royal Colleges’ presidents and councils. The Royal College of Anaesthetists and the Royal College of Physicians in particular have been actively involved in several of our workstreams; the RCoA’s beneficent and constructive role as the governance college for the Faculty is particularly recognised.

The key step in securing the future of ICM as a primary specialty was approval in 2011 of the new training programme by the GMC, followed by its configuration either as a single or dual CCT (with a partner specialty). This work undertaken by the Faculty’s Training Committee directed by Dr Simon Baudouin (previously the Intercollegiate Board) required hundreds of hours devoted to developing the ICM programme and undertaking competency mapping. Since then we have held two highly successful rounds of recruitment to the specialty, with a growing number of posts and an even larger number of good quality applicants, auguring well for our future.

The size and composition of our future workforce are a major preoccupation. We are working with the Centre for Workforce Intelligence to model the likely expansion in ICM over the next 20 years. This should ensure that specialist posts develop the right balance of frontline patient care, research, education, professional development and family responsibilities, thus also promoting a more equal gender balance at specialist level. Revalidation is now clearly linked both to clinical competence and to markers of quality.

Our multidisciplinary ethos has been reflected in several very successful meetings: the Annual Faculty Day, the first joint Symposium with the ICS and the RCoA in September and, importantly from a strategic point of view, the first national meeting for advanced critical care practitioners (held in July this year). The ACCPs now have a formal presence in clinical service delivery and we will be inviting them to join the Board of the Faculty. The Faculty has been instrumental in setting up the national surveillance programme for infections in intensive care (ICCQIP) under the governance of Public Health England.

The new NHS has presented opportunities and challenges. We have participated in establishing the new commissioning structures for ICM with the appointment of Dr Bob Winter as National Clinical Director and Dr Jane Eddleston as Chair of the National Clinical Reference Group. Together with the Intensive Care Society and our other partner organisations we are developing a comprehensive set of standards for the practice of intensive care medicine entitled: ‘Guidance on the Provision of Intensive Care Services (GPICS)’ – which will link to the new commissioning specification for ICM.

In parallel with dealing with the immediate demands of establishing a new specialty, we have developed a multiprofessional national strategy for ICM, Collaborating for Quality, undertaken by three distinguished national figures, Professor Sir John Temple, Dr Judith Hulf, and Professor Jonathan Cohen, on which findings we will build the future for ICM over the coming years. Thus, we have established the Critical Care Leadership Forum, which held its first meeting on 16 July, with representation from 17 stakeholder organisations. We now have five workstreams: standards, workforce, case mix programme, research, and nursing and allied health professional training programmes.

We wish to close our report by offering our warmest thanks to the members of the Board for their constant support, to our Regional Advisors and Faculty Tutors in every hospital, to our Fellows and Members, and to our exceptional ‘civil service’. We congratulate Dr Anna Batchelor on her election as the next Dean of the Faculty, and Dr Carl Waldmann as the next Vice-Dean, from next October. The specialty will benefit from two such experienced and committed individuals to lead the Faculty for the next three years.
Paediatric anaesthesia competencies for all: Basic, Intermediate and Higher training

All anaesthetic trainees are required to undertake Basic, Intermediate and Higher training blocks in paediatric anaesthesia. The competencies required at each stage are outlined in the CCT guidelines issued by the Royal College of Anaesthetists (www.rcoa.ac.uk/node/581). Basic competencies are gained during CT1/CT2 years. Hands-on paediatric anaesthesia experience will vary depending upon the trainee’s hospital allocations. A dedicated paediatric placement is not a necessity at this stage and simulation may be used to supplement training. Intermediate Level training carried out during ST3/ST4 years is best attained during a three-month (minimum one-month) block of paediatric anaesthesia in an exclusively paediatric environment. By the end of intermediate training, a trainee should be able to safely anaesthetise children, ASA 1 and 2, aged five and over.

Paediatric anaesthesia training is one of the five essential Higher blocks (along with obstetrics, ICU, neuroanaesthesia and cardiothoracic) and involves a minimum of one-month paediatric anaesthesia during ST6/ST7 years. This is ideally carried out as a dedicated block rather than as a result of paediatric cases collated from various sites. By the end of this block, a trainee should feel competent and comfortable anaesthetising children, age of three and above with only distant supervision. Bear in mind that children can present to the emergency department (even in adult hospitals) and may require you to draw upon these skills in your future role as the on-call consultant. Even if you do not wish to choose a consultant post with paediatric responsibilities it is important that you gain skills in managing sick children as a trainee.

The number of cases and exposure to paediatric anaesthesia has decreased in recent years. This may be a result of decreasing trainee numbers and the introduction of the European Working Time Directive. Because of this decreased exposure, it is vital that trainees make the most of all educational opportunities available to achieve paediatric anaesthesia competencies. The use of work-based assessments and competency-based learning can help to focus training. Simulation may be useful for supplementing your clinical learning, particularly in areas such as paediatric critical care, critical incidents and human factors in crises. Several centres in the UK have well resourced simulation centres and run paediatric courses (for example, Managing Emergencies in Paediatric Anaesthesia www.mepa.stipa.org.uk). If, as a trainee, your educational goals are not being met, you should raise this with your educational supervisor so that you feel competent by the end of the paediatric anaesthesia Higher block. At all stages from basic to advanced, you should undergo Level 2 training in child protection. Level 3 Safeguarding training should be carried out by the lead safeguarding anaesthetist at tertiary paediatric hospitals and would be beneficial to those wishing to become lead paediatric anaesthetists in DGHs.

For those with an interest in paediatric anaesthesia: Advanced training

Trainees who wish to pursue a career as a paediatric anaesthetist in a tertiary paediatric centre are advised to undergo advanced training in a tertiary paediatric centre either nationally, or internationally. This ‘pre-CCT fellowship’ normally lasts for a year, after which you may be required to undergo a further ‘post-CCT fellowship’, depending...
upon the consultant job for which you are applying. In general, a minimum of 18 months’ paediatric anaesthesia experience is encouraged prior to applying for consultant jobs as a tertiary paediatric anaesthetist. If you wish to be a lead paediatric anaesthetist in a district general hospital, you should undergo at least six months’ advanced training though most appointees have more experience than this minimum. All advanced training should include experience in paediatric critical care. Details of the Advanced training curriculum can be found at: [www.rcoa.ac.uk/node/1438](http://www.rcoa.ac.uk/node/1438).

**Paediatric neuroanaesthesia**

The Safe and Sustainable Paediatric Neurosurgery report details neuroanaesthesia service standards and, within this, training requirements. These standards recommend that anaesthetists wishing to become a paediatric neuroanaesthetist should spend a period of six months in a nationally accredited or recognised centre for paediatric neurosurgery. The Paediatric Neuroanaesthesia Network (PNAN) and the Neuroanaesthesia Society of Great Britain and Ireland ([wwwnasgbio.uk](http://wwwnasgbio.uk)) run regular educational meetings.

**Regional anaesthesia**

Some would argue that all anaesthetists should be able to provide regional anaesthesia to offer a balanced anaesthetic technique. However, it is inevitable that those who have regular orthopaedic lists, for example, may find it easier to keep these skills up and be the ‘go to’ people for regional techniques. You will be able to draw upon and develop skills learned during your adult anaesthetic experience. It may be worth seeking out a tertiary centre that is enthusiastic about regional anaesthesia and training for your advanced training year. There are a multitude of regional anaesthesia courses at which you can gain hands-on experience (see [www.r-a-uk.org](http://www.r-a-uk.org)). Although not specifically paediatric, the European Society of Regional Anaesthesia ([www.esraeurope.org](http://www.esraeurope.org)) and Regional Anaesthesia-UK may provide useful resources. An MSc in Regional Anaesthesia is now available through the University of East Anglia in Norwich.

**Pain management**

The management of paediatric pain (and in particular chronic pain) is a specialist area requiring specific skills and training. If you wish to develop these skills, attending paediatric chronic pain clinics and pain intervention lists will be of great benefit. The British Pain Society has a specialist interest group for Pain in Children ([wwwbritishpainsociety.org](http://wwwbritishpainsociety.org)). An International Symposium on Pediatric Pain is held every two to three years, the next being in Seattle in 2015. It may be worth becoming a Fellow of the Faculty of Pain ([wwwfpm.ac.uk](http://wwwfpm.ac.uk)). Gaining expertise in acupuncture may be a useful skill ([wwwmedical-acupuncture.co.uk](http://wwwmedical-acupuncture.co.uk)).

**Paediatric intensive care**

Paediatric intensive care has changed over the past couple of decades from a largely anaesthetically-led service to one led by paediatricians. However, an established route to training to be a paediatric intensivist from anaesthetics exists, whether you are requiring a full-time PICU post or a consultant post with continued anaesthetic practice. A minimum of two years’ recognised training is required if you wish to have a major or full-time sessional commitment to PICM. If your aim is to have a lesser sessional commitment, then a one-year programme of training is recommended. Full details can be found on the RCoA website ([www.rcoa.ac.uk/node/249](http://www.rcoa.ac.uk/node/249)). The Paediatric Intensive Care Society holds annual meetings ([www.ukpics.org.uk](http://www.ukpics.org.uk)).

**Difficult airway management**

Whilst all paediatric anaesthetists should gain and maintain competencies in difficult airway management, situations requiring these competencies are less common than in adult practice and usually present in a predictable fashion (but not always!). Certain lists, e.g. ENT, maxillofacial, will have more children with difficult airways requiring fibreoptic or videolaryngoscopic techniques and close communication with the surgical team. Airway

Developing an area of expertise in paediatric anaesthesia

The further you progress in paediatric anaesthesia training, the more you may find yourself developing an area of expertise within this field. It may be possible to request extra lists in the area you are interested in developing and you can demonstrate your interest on your CV by undertaking audits, presentations, teaching, journal clubs or research in your chosen sub-specialty.

**Paediatric cardiac anaesthesia**

Although there is at present no recommended standardised training programme for those wishing to pursue this field, it is likely that you will be advised to undertake post-CCT training in the field. Some centres offer fellowships with a cardiac interest. Good mentorship from established paediatric cardiac anaesthetists is vital, continuing into the early years of being a consultant, as required. The Congenital Cardiac Anaesthesia Network (CCAN) holds annual meetings and circulates regular emailings (contact tony.moriarty@bch.nhs.uk).
fellowships do exist, but are usually adult-based. Paediatric difficult airway courses are run in some centres (for example, the Oxford Paediatric Difficult Airway course).

Out of programme training
Advanced training can be carried out nationally or internationally as an Out of Programme Training (OOPT) year. Working in paediatric anaesthesia in more than one centre during your overall training is recommended since it offers you the opportunity to experience different perspectives, techniques and approaches to paediatric anaesthesia. Spending a year working in a different area or country is an invaluable experience, on both a professional and personal level.

To help you plan and organise your fellowship year, the APAGBI has collated a database of national and international paediatric anaesthetic fellowships which is available at www.apagbi.org.uk/professionals/education-and-training-trainee-section/paediatric-anaesthesia-training/fellowship-data. It is worthwhile contacting previous fellows to ask for their thoughts, opinions and advice on what it’s like to work as a fellow in a department you are interested in and whether or not they would recommend it. If you are applying for a fellowship in a hospital that you are able to visit, it is worthwhile doing so before the interview. Apart from demonstrating your interest in the job, it allows you to learn about the department and what special opportunities it may offer you, and to meet some of the staff.

Make the most of your OOPT year by collecting evidence of the clinical and non-clinical experience you have gained; in particular, maintain a logbook of clinical cases and document courses and teaching in which you have participated during your time away. This will be required to ensure that the training committee is happy that you have fulfilled your educational requirements. It will also help you when it comes to submitting your OOPT report to the RCoA and when updating your CV and preparing for your consultant job interview.

Making the most of your fellowship year
A whole year of paediatric anaesthesia is a fantastic opportunity to hone your clinical and non-clinical skills as you edge closer to becoming a consultant. You will be a useful member of the department in terms of service provision but don’t forget to keep your educational goals in mind. You should feel comfortable speaking to your educational supervisor about the skills you would like to develop and lists in which you would like to participate. Review your logbook regularly so that you can pursue further development needs or experience. Practice reflective learning and seek feedback on your performance. Work-based assessments are an excellent way to do this. It is useful to take notes on certain cases which may be invaluable for future reference.

Whilst your main focus should be on improving your clinical knowledge and skills, seek opportunities for getting involved in departmental audit work, clinical improvement, protocol writing, teaching and research. Since it can be tricky to complete a research project in just one year, it may be worth contacting the research lead or current fellow about ongoing projects in which you could participate. Perhaps you could plan your project and get ethics approval prior to commencing your post. Find out when abstract submission deadlines are for scientific meetings of relevance to paediatric anaesthesia, e.g. APAGBI, ESPA, and aim to present your project at them. Prizes for posters and oral presentation are often available at meetings. The APAGBI also offers grants and prizes for research.

Paediatric anaesthesia research
Getting involved in research can be very rewarding when you present your findings at a meeting, see your study published in a peer review journal or see an improvement in practice as a result of your findings. However, involvement in research is hard work and needs commitment. Finding a good mentor/supervisor is one of the most important steps towards a successful research project/career. It is also worthwhile considering talking to other specialties: useful research can come from cross-specialty collaboration.

You should develop skills in critically appraising papers and practise presenting at a journal club. If you don’t have a journal club forum at your hospital, then form one!

Many good research methodology courses exist, e.g. RCoA Research Methods Workshop. You should also undergo Good Clinical Practice training.

The APAGBI Science Committee webpage (www.apagbi.org.uk/about-us/committees/science-committee) contains advice for those interested in research and can be contacted for advice.
The National Institute of Academic Anaesthesia offers guidance and resources to aid anaesthetic research (www.niaa.org.uk).

Paediatric anaesthesia in developing countries
There are many opportunities for getting involved in anaesthetising children in developing countries. Many organisations look for anaesthetic support, either for short-term work placements, e.g. Mercy Ships, Operation Smile, or teaching and training. If you wish to spend longer in this environment, it is possible to do this as Out of Programme Experience (OOPE). Working in this environment offers an opportunity to enhance your leadership skills. Because resources may be scarcer, you will need a good understanding of the principles of paediatric anaesthesia in order to be able to ‘think out of the box’. It is likely that you will see advanced pathology and conditions that you have never encountered before. If you are wishing to count this time for teaching and training/apa-best-bets for details on how to do so.

As you progress through training, your local resuscitation officer who may well be looking for help on local courses. See www.resus.org.uk.

Get involved in teaching. Teach medical students, nurses and anaesthetic trainees, and volunteer to present at departmental meetings. Perhaps you could deliver a paediatric lecture at a local FRCA course or to the trainees preparing for the exam. Educational and clinical supervisor courses will formalise your teaching skills.

Attend regional paediatric anaesthetic network meetings. Getting involved in your local paediatric network will raise your profile if you plan on applying for a consultant post in the region one day. See the APAGBI Linkman programme to find out where your local network is (www.apagbi.org.uk/professionals/apa-linkman-scheme/regional-networks).

Find out what clinical audit would be of use or interest in your department. The RCoA Audit Recipes Book may provide you with some inspiration.

Write some educational content: look into this in advance of starting your placement. In some cases this may be provided by a split supervisory process involving an educational supervisor from the UK contacting you regularly, for example, by Skype and a named clinical supervisor in the developing country. The AAGBI offers travel grants that may be a useful resource. See the APAGBI Trainee Handbook for a chapter on paediatric anaesthesia in developing countries, which includes a list of useful contacts, websites and further reading.

Developing your CV for paediatric anaesthesia
As you progress through training, your training committee monitors your non-clinical activities (for example, teaching, audit and research). It is possible to meet these goals and display an interest in paediatric anaesthesia at the same time. Some ways you can do this are:

- Become an APLS or EPLS instructor. The generic instructor course contains useful techniques for being a better teacher and instructor. As an instructor, you’ll have to keep your skills and knowledge up to date. Liaise with your local resuscitation officer who may well be looking for help on local courses. See www.resus.org.uk.
- Attend regional paediatric anaesthetic network meetings. Getting involved in your local paediatric network will raise your profile if you plan on applying for a consultant post in the region one day. See the APAGBI Linkman programme to find out where your local network is (www.apagbi.org.uk/professionals/apa-linkman-scheme/regional-networks).
- Find out what clinical audit would be of use or interest in your department. The RCoA Audit Recipes Book may provide you with some inspiration.
- Write some educational content for the APAGBI Trainee Section of the website. Contact alisoncalder@doctors.org.uk if you would like to find out more about this.
- Pair up with a consultant and write a ‘Best Bet’ for the APAGBI website. See www.apagbi.org.uk/professionals/education-and-training/apa-best-bets for details on how to do so.
- Develop your management and leadership skills. Perhaps you could write a protocol, attend a departmental management meeting as an observer or undertake a quality improvement study and present it to the department.

Conclusion
Whether your career goal is to be a paediatric anaesthetist in a tertiary centre, a lead paediatric anaesthetist in a DGH, a DGH consultant with some paediatric caseload or a full-time adult anaesthetist managing paediatric emergencies on call, you must attain the Basic, Intermediate and Higher competencies in the RCoA CCT document.

Paediatric anaesthesia offers a rewarding career path with many opportunities to develop an area of expertise within it and a lifelong career of challenge and fun.

References
Anaesthesia of the anxious and agitated child

Children requiring anaesthesia for surgery or diagnostic procedures, need a different set of clinical skills for the anaesthetist from those encountered in adult practice. Aside from the anatomical and physiological differences, the management of marked anxiety in children with its accompanying behavioural changes can provide the anaesthetist with considerable challenges. Similarly, children with significant pre-existing behavioural issues, e.g. learning disabilities or autism, can require significant consideration and preparation to ensure that the wider perioperative journey, i.e. from leaving home to returning there, is delivered in the most positive and least distressing manner possible.

Whilst most children develop mild to moderate anxiety during their preoperative preparation and arrival in the anaesthetic room, some children develop intense anxiety resulting in difficulty in them feeling able to co-operate. This may also result in challenging behavioural changes including becoming combative. It is this group of children that this article will focus on and suggest some strategies which, when combined, may help the child, parents, carers and health workers involved achieve a positive visit to the hospital and operating theatres.

Anxiety in children

Two-thirds of children develop intense fear/anxiety in the anaesthetic room.1 The most common fears of a child are the fears of separation, a strange environment, painful procedures, surgery and anaesthesia. Age and developmental capacity are major determinants of the nature of the anxiety experienced. Children aged one to three years have fear of separation from a parent. In contrast, older children have fear of body mutilation, loss of control or independence and increasing body awareness. Adolescents have also developed the capacity to consider some of the major consequences of anaesthesia such as awareness and death.

There are short-term and long-term consequences of unmanaged high anxiety states. The immediate effects are a stormy induction in the anaesthetic room which is distressing for the child, parent and staff. This has been shown to result in higher rates of emergence agitation in recovery resulting in higher pain scores and a prolonged recovery period. This also leads to negative behavioural changes in the postoperative period such as sleep disturbance, withdrawal and anger, which may persist in a small group for several months and of course is more likely to result in further anxiety related behaviour changes on future uses of health services.1

Learning disabilities and autistic spectrum disorders

Children with learning disabilities often attend hospital for a wide range of surgical procedures. With increasingly severe learning disabilities, there is an accompanying reduction in the child’s ability to function independently and perform social interaction which may manifest itself as combative behaviour in the more severe cases. Children with a learning disability (IQ less than 70) are considered to have either a mild-moderate disability (3–5% of the population) or a severe disability (0.35–0.5%). The underlying cause of the learning disability is often not diagnosed but is commonly a feature of X-linked syndromes, Down’s Syndrome and cerebral palsy. Adolescent boys with moderate–severe learning disabilities are the most likely group to have challenging behaviour (defined as requiring restraint within their home or residential centre on a daily basis).

Children with autistic spectrum disorder can find visiting hospital challenging and distressing. The incidence of autism in the UK is approximately 1% and has risen
steadily over the last few years. Learning disabilities and autism often co-exist along with other common co-morbidities such as epilepsy and gastro-oesophageal reflux. The difficulty in interacting with other people, and the environment around them means that visiting any new place, such as a hospital, may cause profound anxiety and precipitate challenging behaviour.

**Strategies**

Children with profound anxiety or behavioural issues who require surgery are very likely to have difficulty in co-operating with much of the preparation for an operation and particularly the induction of anaesthesia. Identification of these children beforehand at the time of referral, or as part of a preoperative assessment, allows the anaesthetist to consider the issues and devise a plan to provide a successful induction with minimal distress, and also an appropriate postoperative care pathway prior to discharge.

There are several categories of interventions available which can be easily combined and adapted to help the most challenging behaviour of anxious children: psychological, environment, communication, premedication, restraint.

**1 Psychological**

The preoperative period provides an excellent opportunity for the anaesthetist to clearly establish the challenges for each child and form an individual strategy. Preoperative assessment visits to the theatres allow the child and parents/carers to familiarise themselves with staff and with the environment. Also, parents have the opportunity to share previous hospital experiences with you and of strategies that were or were not successful. This might also allow access to a play specialist who is able to further reduce anxiety through demonstrations of some of the equipment the child might encounter such as cannulas, topical Ametop and masks. Whilst extensive preoperative programmes have been shown to be effective in studies in reducing anxiety, they are often costly and not deliverable within most hospital settings. However, they have identified that significant factors in reducing anxiety were practising with a face mask and also planning distractions with parents/carers for the anaesthetic room. Where a visit to the hospital is not practicable preoperatively, telephone pre-assessments may also be of use in talking through some of the similar issues.

The children, parents and carers should also be provided with useful information to take away with themselves (or access online) such as the RCoA and APAGBI leaflets devised specifically for this purpose (www.apagbi.org.uk/children-and-young-people/leaflets-children). For children with autism and learning disabilities, several visits to the hospital and its surroundings leading up to the day of surgery may be required in order to establish familiarity in a staged fashion. This requires initiation well in advance of the proposed day of surgery.

**2 Environment**

Many studies have examined ways of using the environment to reduce anxiety at induction of anaesthesia such as using low level lighting and music. For many children with severe learning disabilities or autism, having a quiet room/area available to wait in is usually beneficial. For all anxious or agitated children, the presence of the parent/carer during the preparation, induction and recovery phases is very important. Apart from their presence, they are also able to assist with communication and decisions regarding care.

**3 Communication**

In children with the capacity to communicate and interact, non-verbal and verbal communication techniques specifically aimed at reducing anxiety are very useful tools. Whilst as doctors we all employ our communication skills on a daily basis, a structured framework of specific strategies for different situations is very useful. Non-verbal communication forms the majority of most of our interactions with children. By using attentiveness, posture, height and expression, this can form a subconscious calm and engaging background to help put children at ease whilst speaking with them. During the first few minutes of discussion with the child, it is important to gather information which can help establish a rapport, such as interests, hobbies, pets, favourite TV shows or video games.

Specific verbal communication strategies can help hold the attention of a child and also help the child cope with their anxiety. Attention holding strategies include ‘tension release’ where the anaesthetist intentionally builds tension within the dialogue and then releases it with a specific question and (hopefully) releasing anxiety as well, e.g. ‘I am going to ask you the most serious question you have ever been asked etc... what is your favourite TV programme?’ Incongruent behaviour where the anaesthetist acts outside the expected behaviour of a doctor also forces the child to focus on this and hence not on some of the immediate anxieties.

Coping strategies are regularly employed by all staff working with children, such as humour or distraction. The use of tablets/iPads has allowed easy access to favourite TV shows or very immersive simple games, e.g. Angry Birds. These are all designed to help the child focus externally rather than internally and consider how they are feeling. These are particularly useful in the anaesthetic room. Another technique is ‘future orientation’ where some time is spent describing events after the surgery and some of the positive rewarding aspects of having completed the operation, e.g. eating favourite food, no more pain, being king for the day at home.
Hypnotherapy and neurolinguistic programming have shown that benefit can also be gained by the simple control of language used. Trigger words which have immediate subconscious negative associations should be avoided, e.g. anxious, hurt, scared or brave, and substituted, or ‘reframed’, with alternatives.

4 Premedication

In children where the above strategies have not successfully reduced anxiety sufficiently or it is considered that there is likely to be behavioural problems preoperatively, then premedication may be useful. Premedication is designed to modify behaviour through sedation and anxiolysis. Whilst premedication rates in day-cases in the UK have been shown to be about 8%, rates in children with autism have been shown to be 79% with a high uncooperative rate amongst those not receiving premedication.

In children with very challenging behaviour, successful premedication is essential in order for anaesthesia to be induced and hence the surgery completed. This involves the selection of the right sedative agents, the best route of delivery and optimising the compliance of the child taking the premedication. Premedication may, on occasion, be required at home in order to facilitate transfer into the car for the journey to the hospital. This can be arranged through liaising with the carers and local GP.

Midazolam is the most common agent used in the UK but clonidine is also effective and used in some centres. Dexmedetomidine, another alpha 2 agonist, is used in some European countries very effectively but does require nasal administration. Ketamine can also be used but is usually given in combination with midazolam and is effective in children with particularly challenging behaviour such as severe autism. The preferred route of administration is usually oral and this can be achieved in most scenarios by using low volumes of drug, i.e. high concentration, good masking agents, e.g. strong squash or Calpol, and also utilising the skills of the parents/carers to help delivery. In children who refuse oral premedication, some consideration can be given to alternatives such as the nasal route, using a mucosal atomising device, or intramuscular injection.

Both of these require discussion with the carers/parents beforehand as some limited restraint is usually needed for a few seconds. For many children with marked behavioural problems, restraint is a daily aspect of their care and most carers or parents recognise the benefits of this short-lived restraint.

Effective premedication should result in a calm child with reduced anxiety who is able to co-operate with either an intravenous or gaseous induction.

5 Restraint

Despite the use of all of the strategies above, occasionally a child will still remain unco-operative. Restraint is the intentional overpowering of a child allowing anaesthesia to proceed but it is distressing for all involved and undoubtedly has risks and consequences attached to it. A survey of UK paediatric anaesthetists showed that most found that full restraint of a child was only acceptable when performed by a parent on children of younger ages (one to six years). Partial restraint such as holding an arm was considered acceptable in older age groups. If it is thought that some restraint may be required to achieve the induction of anaesthesia, it should be clearly discussed with the parents/carers beforehand and documented. Obviously, the nature and urgency of the surgery are the other factors which must be considered and a decision made on whether it would be better to delay surgery to a later date and devise a new strategy for the next visit.

Treatment pathways

Combining the various tools available above, allows specific treatment plans to be made for each child in accordance with the anxiety or behavioural problems present. The knowledge and presence of the parents/carers of each child should form an integral part of this. The postoperative recovery and discharge pathway should be tailored in a similar way. It is important to ensure all required intravenous analgesia and anti-emetics have been given as the cannula is often removed early in the process.

Example

Child with severe learning disabilities and challenging behaviour

Pre-operative

Telephone pre-assessment with carers
Several visits to hospital environments in preceding week
Premedicate at residential home for journey to hospital
Arrive on day of surgery, admit to quiet room
Premedicate appropriately with carers present
Prioritise to front of list if possible

Anaesthetic Room
Carers present
Appropriate distraction therapy
Communication strategies unlikely to succeed
Induction of anaesthesia
Consider limited restraint by staff or carers

Post-operative
Carers/parents present
Quiet environment
Summary
The recent confidential inquiry into premature deaths of people with learning disabilities highlighted the importance of ensuring that all children should be able to access the same procedures and diagnostic investigations as others. This requires anaesthetists to be prepared to manage children with marked anxiety or behavioural disorders who commonly present for anaesthesia and surgery. It is important that there is a clear plan for each of these children to reduce anxiety and reduce challenging behaviour in order to achieve anaesthesia with minimal distress. Each child has different needs and the parents and carers are essential in determining this.

References
7 Confidential inquiry into premature deaths of people with learning disabilities. CIPOLD, Bristol 2013 (www.bristol.ac.uk/cipold/fullfinalreport.pdf).
What is the future for surgery and anaesthesia for children in non-specialist centres?

Surgery in children makes up a relatively small proportion of operations nationally, with only about 0.5 million episodes per year. The service has moved increasingly away from the district general hospital (DGH) to the Specialist centres. In this personal view of the recent history of this much debated topic, I will outline how I feel the trend has arisen, and consider some possible solutions: organisational and professional.

The current service

Even in general surgery the number of children operated upon make up a relatively small proportion of cases nationally and there are only about 0.5 million episodes per year. In a large DGH, with a wider range of specialties on site, numbers are often small in comparison with, for example, the totality of orthopaedic practice, which is increasing in keeping with an ageing population with multiple co-morbidities. Most surgery occurs in well babies and children undergoing minor and intermediate procedures. At a local level, for the majority of surgeons and anaesthetists, paediatric practice has always made up a relatively minor part of their caseload. This proportion remains a very significant factor with respect to retention of competencies, as well as competition for space and services.

The reasons for a move towards delivery of surgery away from the DGH are multiple, and operate to varying degrees in different parts of the UK but include:

1 A belief that quality of care is likely to be better in centres with a larger throughput which is better able to provide appropriate competencies and facilities. This prevails despite the fact that specific volumes for general non-specialist surgery and anaesthesia are currently undefined. However, those which emerged after the first NCEPOD report dealing with surgery in children continue to have an impact on thinking and practice rather than clear concepts of competence.

2 Concerns about good governance arrangements highlighted formally within the proceedings of the Kennedy enquiry. Subsequent reviews by the Health Care Commission (HCC) in England focused heavily on surgery and anaesthesia in children, and on basic paediatric skills training. Many standards adopted by the HCC were difficult if not impossible to achieve outside a children’s hospital setting, e.g. complete separation of children from adults in outpatient areas. This contributed to the sense of uncertainty and lack of confidence particularly in trusts in England, and caused anxiety around what was required to deliver a satisfactory service.

3 There are now very few general surgeons who are trained and sufficiently confident to operate on children in the DGH. This is a particular problem out of hours, as emergency rotas cannot be sustained. It is felt by many that local ability to provide a surgical service for children will soon disappear with imminent retirements of the few general surgeons prepared to operate on children. The situation is not the same for all surgical specialties, some of which carry out reasonably high volumes of work in childhood, e.g. ENT, orthopaedics, urology, oral surgery. Whilst the anaesthetic curriculum has continued to describe, and aims to deliver, a range of important competencies for the care of babies and children to all anaesthetists, there is no doubt that many new consultants report a lack of confidence which in part may have resulted from a reduction in general surgical caseload.

4 Changes to the profile of surgical and anaesthetic activity in children. In addition to indicating a swing towards...
specialist care, a 2005 data exercise commissioned by DH England on the number of operations being performed in childhood revealed substantial reductions in simple elective ear nose and throat surgery, general paediatric surgery and ophthalmology cases. The reasons for these changes include revised selection criteria for surgery, and on occasion a more conservative approach, with effective medical management for some conditions. In the same time frame there has been an increase in need for anaesthesia for diagnostic endoscopy and radiology.

5 Changes to the paediatric surgical population. Having said that most babies and children are relatively fit and are generally undergoing minor procedures, there is an increasing group of survivors of, for example, extreme prematurity, whose ongoing co-morbidities may pose additional problems for local services when surgery is contemplated outside the specialist centre.

Where are the major stress points?
These occur mainly in relation to dealing with paediatric emergencies, both medical and surgical.

The delivery of a competent acute paediatric service is heavily dependent on the availability of anaesthesia and surgery on site. In particular care of acutely ill or injured children relies on the anaesthetic services available locally. In the management of abdominal pain (a very common presenting problem), and major trauma (which is rare) there is a need for reliable surgical assessment and expertise.

In turn surgeons and anaesthetists rely on the skills of paediatricians and paediatric nurses to facilitate the peri-operative care of babies and children. New plans for UK paediatric services have been outlined as part of the output of the ongoing RCPCH ‘Facing the Future’ project. The standards being used by the RCPCH, regularly subject to national review and careful audit, have revealed a shortfall in the number of senior clinicians in many centres. As a result it is anticipated that there will soon be fewer 24-hour inpatient paediatric units so that compliant rotas which fulfil the expected standards are provided. This will have major consequences for the planning and delivery of surgical and anaesthetic care for children from a regional perspective, and it is likely that this will result in a greater number of transfers.

Inevitably when children require transfer, even if there is no need for surgery, e.g. for the assessment of abdominal pain, there are significant implications for the child and family, the transport infrastructure and the capacity of the tertiary centre. There are time critical complications in some conditions when delay occurs, e.g. testicular torsion, and the implications are greatest to children presenting in remote areas. The 2011 NCEPOD report demonstrated very clearly that delays often occurred in transfer of surgical babies and children, with more than 60% of clinical cases reviewed within the study taking greater than 12 hours from decision to transfer to arrival in the surgical centre. The reasons for delays were varied but did not clearly relate to lack of relevant ICU provision.

Do the failures in the system result in any measurable problems in terms of morbidity and mortality? It is known that the UK lags behind other European countries in terms of infant and child mortality, and it has been estimated that there are nearly 2,000 excess deaths per year in children in the UK compared with the best European country (Sweden). The UK performs less well in terms of mortality from common serious conditions such as asthma and pneumonia. What about surgery? This specific data is not presently available, but it is likely that the overall child mortality rate reflects a global problem with our systems of care. Whilst the paediatric surgical and anaesthetic community may have been reassured by the 2011 NCEPOD report which showed that in only a minority of deaths examined were there clear remediable factors, not all deaths were subject to review due to relatively poor data returns. Whilst at the outset this study was not designed to provide reassurance about death rates, it has been noted on many previous occasions that we have no reliable denominator for the number of surgical and anaesthetic episodes which occur in children nationally. It would be a useful start if such data was routinely collected.

Organisational solutions
At various points in recent years there have been efforts on the part of relevant professional groups to examine the situation and provide guidance. In 2007 a joint statement provided by the Children’s Surgical Forum (CSF) of the Royal College of Surgeons in England (which included representation from both the RCoA and APAGBI, and from Scotland) concluded that care should continue to be delivered as close to home as possible. In relation to general paediatric surgery (GPS) it stated that:

- General surgical consultants working in district general hospitals which provide a significant volume of general paediatric surgery should be identified to provide training for general surgical trainees.
- Training for GPS may be through secondment to a specialist paediatric centre, by attachment to general surgical consultants who provide GPS, or by a combination of the two.
- The provision of GPS needs to be seen as a relevant, secure and interesting career.

In December 2010 the CSF published a survey of GPS provision in England and concluded that less than 50% of DGHs were able to provide an emergency general paediatric surgical
service, and that just under 60% were able to deliver an elective service.

Following these findings the CSF re-visited the concept of networks of care to facilitate the organisation of surgery and anaesthesia for children.10 This moved us on from the ‘hub and spoke’ model which categorised the DGH as the minor player at the end of the pathway. Networks are a familiar concept in many other areas of more complex healthcare and have generally been beneficial for paediatric cancer services and for neonatal and paediatric intensive care. They function best with the input of experienced and committed clinicians representing all components of the service (including primary care and public health) who are prepared to work together collaboratively to produce care pathways which can provide the best outcomes for babies and children wherever they present. Whilst informal networks have existed for decades for surgery and anaesthesia in children, they have been particularly successful in Scotland.11 The overarching project ‘Better Health, Better Care – a national delivery plan for children and young people’s specialist services in Scotland’12 is important in that it was facilitated by Scottish Government and received clear political and financial support to provide a service fit for the future. It serves the diverse needs of a community much of which is remote from large centres. Surgery and anaesthesia as well as care of critically ill children form part of one strategy. Many other parts of the UK face similar geographical challenges, and there are examples of good practice within well established children’s surgical, anaesthetic and critical care networks in the UK. However, there is evidence that the expertise and standards set by these groups have not, to date, been harnessed and applied in a consistent fashion nationally.

In the UK in 2010 only about 50% of NHS hospitals believed they were part of a network for surgery and anaesthesia in children.5 In those which did, the infrastructure was examined and disappointingly it showed that ongoing funding, leadership and governance arrangements were very variable.

The current round of health reforms in England following on from the Health and Social Care Bill in England offers an opportunity to re-visit the need for children’s surgical networks. There is now a commitment to prioritise care for all children in a number of ‘strategic’ networks in England.13 In effect this means that additional funding exists and there is a welcome focus on the need for specific outcomes for children via the Children and Young People’s Health Outcomes Forum14 whose lifetime has been extended.15 Work has been completed to revise the standards for surgery and anaesthesia by the Children’s Surgical Forum with input from the RCoA and APAGBI6 and guidance provided for the new Children’s Health and Wellbeing Boards in England on commissioning arrangements for specialist services.17 While there may still be confusion about what constitutes specialist vs non-specialist practice, the job of the new clinical reference groups is to define this more clearly and specialist general surgery, anaesthesia and acute pain now appear within one service specification.18 In some parts of England funding is at last being used to provide sessions for clinical network leads and in others there is support for an administrative base. It is unclear where this support will come from thereafter, and it may be that those networks that do not rely on central funding but levy a small charge to participating trusts have a more sustainable model. The prime example of this is the ‘Partners in Paediatrics’ group based in the West Midlands which has a particularly active anaesthetic network, with recently published revised standards19 which encompass care of the critically ill child as well as anaesthesia.

So…

1 Children are now less likely than in the past to have both planned and emergency surgery and anaesthesia in a DGH setting. In most instances this alteration in practice does not form part of a well thought out plan but has occurred as a result of changing practice and service organisation and may be perceived as a means of ensuring improved quality of care.

2 The omission of general surgical training in the recognition and care of children in the DGH with common and relatively simple surgical conditions, is a fundamental barrier to delivery of care in this location in the future. There is an impact on anaesthetic competencies, and on the local paediatric service, including the unit’s capability to care for the sick or injured child.

3 The delivery of surgery for children as part of an integrated clinical network is not consistently available throughout the UK, but there are moves in some parts of the country to make this a routine feature of service delivery.

Possible professional solutions

1 Surgical training and competencies

Although the Intercollegiate Surgical Curriculum (August 2010) clearly mentions the commonly presenting surgical conditions of childhood and the need for trusts to continue to be able to provide a service, it is still regarded as an area of special interest. Whilst all general surgeons are expected to develop a special interest uptake of a particular option is largely up to the individual. It is expected that there will be a reduction in general surgery trainees in line with national projections in the next three years.20 It is also noted, within the same projections, that general surgery on call imposes an emergency workload that includes
children. However, whilst recognised in both the curriculum and in recommendations, this seems to be at odds with what is delivered in most training programmes.

Efforts to persuade general surgeons of the need to turn back the clock to an age when all were trained to care for children with common conditions have largely failed. Perhaps then the next best and most obvious model is to more forcibly suggest that paediatric surgical competencies are provided post CCT, and that hospitals mandate that paediatric competencies form part of the ‘essential’ criteria for the appointment of general surgeons in all but the centres with specialist paediatric general surgery on site.

2 Maintenance of anaesthetic competence/confidence

At all levels of the RCoA 2010 Curriculum, competencies for the care of children are included and prioritised. Ultimately, at CCT anaesthetists aspiring to work in a general or university hospital department are expected to be confident to deliver anaesthesia for simple surgery to an otherwise fit three year old and many will have higher competencies. The expectation is that these competencies are maintained and that this includes the ability to provide resuscitation and some PICU skills essential in a team situation for the care of all critically ill or injured babies and children. Unfortunately, the curriculum may well no longer be appropriate for the majority of generalists, with evidence that the retention of skills and confidence in the care of children for even simple routine surgery is low in many units.

Recent reviews have highlighted a reduction in paediatric caseload for trainees post European Working Time Directive (EWTD). There is no doubt that a reduction in number of cases has been further exacerbated by a diminishing amount of surgery for children outside specialist centres. For all these reasons, both delivery of the current curriculum and the maintenance of competencies once achieved are both extremely challenging. It may be timely to look again at the competencies which are really required by the generalist (as opposed to the specialist) for the generality of anaesthesia for children. In the same way that trusts ‘invest’ in surgeons with the right skills to deal with the routine diagnosis and management of children and young people in the local population, anaesthetists should consider curricular changes which can better reflect these needs.

What about colleagues who feel they currently lack the relevant competencies and/or confidence? A survey conducted by the RCoA and APAGBI in 2010 indicated that there were under-utilised training opportunities. Some of these could be taken up by consultant and SAS colleagues in their CPD programme. This could be facilitated by an initiative championed at the outset by the RCoA, and which has recently come to fruition with the approval of a much simpler system for clinically based CPD opportunities in hospitals where the doctor has no formal contract. The Certificate of Fitness for Honorary Practice was approved in March 2013. The idea for this ‘passport’ was one which originated from the RCoA and was promoted by Dr Anna-Maria Rollin with support from APAGBI and latterly the Children’s Surgical Forum. The aim is to facilitate attachments for high quality and relevant CPD and, if clinical need arises, it will also allow clinicians to move between hospitals more readily, e.g. should surgeons or anaesthetists wish to provide on-site assistance to colleagues at short notice. It is important that lead paediatric anaesthetists and clinical directors are aware of this initiative and discuss it with their hospital human resources department so that the appraisal and revalidation process can incorporate the use of the certificate in future.

3 Revalidation

The GMC recommends that clinicians audit paediatric elements of their job plan separately. National incentives are required to encourage surgeons and anaesthetists with a mixed adult/paediatric practice to continue to deliver this important element of service, and provide robust evidence within revalidation cycles that competencies are being maintained. This might be further supported locally by incentives such as an additional study leave entitlement.

4 Joint working with other paediatric groups

There is no doubt that at a national level paediatrics requires a stronger and clearer voice. What is required is a ‘whole system’ approach to tackle many of the inequalities which exist, with surgery being just one example of the patchy approach in terms of priority setting and national policy. The collaboration needs to occur across the age ranges and at all levels from primary to tertiary care. Established and emerging networks for surgery require anaesthetists to be fully engaged and work collaboratively whenever possible with paediatric and surgical colleagues using joint standards of care.

Conclusions

Networks of provision for surgery and anaesthesia, based on nationally derived standards and pathways of care, should be recognised and consistently delivered across the UK. There is now potential for better recognition of need and support for these networks. There remains a risk that DGH provision of surgical and anaesthetic services for children will further decline as local competencies diminish and paediatric care is more strictly regionalised. Possible organisational and professional solutions are presented.

A ‘whole system’ approach to paediatric care in the UK is required and this must include surgery and
References


6. The acutely or critically sick or injured child in the DGH. A team response. DH, London 2006 (www.rcseng.ac.uk/node/635).


Pain in children after day case surgery

‘Tears at bedtime: a pitfall of extending paediatric day-case surgery without extending analgesia’ was an editorial published by Andrew Wolf in 1999. It warned that the increase in day surgery in children would require careful management of pain relief after discharge, and that the management would be complex and require the following:

– Developing techniques to extend the duration of regional analgesia after discharge;
– Optimising the dosing schedules of systemic analgesia;
– Educating parents to assess pain and administer analgesia more effectively;
– Maintaining contact between the day-case unit and the patients, either directly or through routine telephone follow up.

Where are we 14 years later? Sadly, despite all the advances in care, we are not really any further forward.

Day case surgery in children
The arguments for increasing day case surgery in children are still compelling, with parents, children, and clinicians preferring children to return home to a normal environment – decreasing the costs of the procedure, and freeing up hospital facilities for more urgent cases.

Improvements in anaesthetic and surgical techniques (especially laparoscopic surgery) have also permitted a rapid and clear recovery from surgery. At the time of the editorial in 1999, the most extensive surgical cases that were likely to be managed as a day case were (adenoid) tonsillectomy, circumcision and orchidopexy. Recent publications have suggested that children undergoing nephrectomy and cholecystectomy may also be treated as day case patients. These advances in clinical practice have also been associated with an improvement in postoperative care of children. Prior to discharge, it is now routine practice for children to be provided with regular medication, and for the parents and child to receive verbal and written information about analgesia and care, with a contact number often being supplied for further advice.

The pain at home study
This study was performed by Dr Glyn Williams (Great Ormond Street Hospital) and Dr Graham Bell (Royal Hospital for Sick Children, Glasgow) on behalf of the Association of Paediatric Anaesthetists.

Parents were consented for involvement and then contacted on days 2, 7, and 14 after surgery for either (adenoid) tonsillectomy or orchidopexy.

Early results of this study indicate that a significant majority of children experience post-operative pain.

Children undergoing (adenoid) tonsillectomy experience more pain and for longer than children undergoing orchidopexy. Clinical experience and this study confirms that children who undergo tonsillectomy often have their highest levels of pain three to five days after surgery. And for Adeno(tonsillectomy) this pain can last for up to two weeks.

Whilst it may be acceptable and expected that some children have mild pain in the time after surgery, the majority appear to have moderate or severe pain.’
label as excellent clinical practice (as noted above) in dealing with children who go home.

It is interesting, or perhaps a little depressing, that parents contacted still gave high satisfaction scores for the care of these children, suggesting that parents still expect their children to be in lots of pain after surgery, possibly because these parents are used to seeing their children in pain with recurrent tonsillitis.

Whilst there are certainly financial savings to the treating hospital, it would appear that these costs are now being borne by the parents who have to take increased time off work to care for the child. Continuing pain also increases episodes with general practitioners, and sometimes the hospitals themselves, requiring advice and further analgesia.

These children are also commonly unable to return to school for two weeks after surgery.

### Can we optimise analgesia?

As in all cases of analgesic management, the most important steps to complete first are non-pharmacological, with distraction/diversion/coping techniques needing to be utilised fully as well as analgesics.

#### Paracetamol

This remains the first line medication for analgesia. It is safe and has a long history of efficacy. There has recently been discussion as to the maximum safe dose of Paracetamol that may be administered to a child each day, but the MHRA has not changed the advice given in the BNFc that children in severe pain may receive 90 mg/kg/day.

#### Second line drugs

In the US, codeine was the second line drug of choice, but in the UK, NSAIDs are used. A Cochrane review has declared that there is no increased risk of bleeding after tonsillectomy when NSAIDs are used. There would not seem to be any advantage of one NSAID over another; it may be that diclofenac is more potent than ibuprofen, but the oral preparation of diclofenac is often unpalatable to children, who would prefer to receive ibuprofen.

The pain at home study however, demonstrated that despite regular medication with paracetamol and an NSAID, children were still in pain. It is thus necessary to look at third line analgesics for use at home.

### Third line drugs

#### Codeine

Codeine has been used successfully for many years as a medication for use at home, either on its own or in combination with Paracetamol.

Codeine is predominantly metabolised to codeine-6-glucuronide which is active, but is also metabolised via the cytochrome P450 enzyme CYP2D6 to morphine in the liver. This enzyme is heterogeneous, with some individuals being non-metabolisers, who receive less analgesia with codeine, and some who are ultrametabolisers and are at risk of peaks of plasma morphine resulting in respiratory depression. This respiratory depression appears to be the cause of recent deaths of African American children with sleep apnoea in the USA who underwent (adeno)tonsillectomy. The MHRA has recently recommended that codeine not be used in children under 13 undergoing (adeno)tonsillectomy, although it remains the drug of choice for many clinicians managing pain in children after Paracetamol and an NSAID.

#### Dihydrocodeine

There is little clinical practice using dihydrocodeine in children in the UK, and as this is also dependent on the same cytochrome system as codeine and tramadol, there is every possibility that the same problem may occur with ultrametabolisers.

#### Tramadol

Tramadol is an effective analgesic. It has been used successfully on continental Europe for a number of years. It is associated with an increase in nausea and vomiting compared to codeine, and may produce some behavioural effects, but it also has a lower incidence of respiratory depression. While tramadol has weak analgesic effects per se, its metabolite O-desmethyltramadol is ten times more potent than the prodrug. This metabolism is also dependent on the cytochrome P450 CYP2D6 enzyme, thus children who do not receive analgesic benefit from codeine, may not with tramadol either. Tramadol would, however, appear to be a safer drug to use for children undergoing (adeno)tonsillectomy, but at present there is no preparation available for children.

#### Oramorph/morphine

Oramorph 5 mg in 10 ml solution is available for use, and in this preparation it is not a controlled drug. Clinicians have extensive experience of using Oramorph. The metabolites are known, and metabolism is much less heterogeneous. This preparation of Oramorph does have a high alcohol content (96% of excipients). Oramorph may be the drug of choice as a third line medication for children after major surgery who are discharged home, although there remains some reticence for clinicians to dispense Oramorph to children because of concerns regarding introducing a drug of dependence into the community.

### Can we increase the duration of neuraxial blockade?

This would also appear to be a solution for a number of surgeries that are undertaken as day cases, for example circumcision and orchidopexy. It is hoped that the introduction of long acting liposomal bupivacaine may be available soon. Ketamine will increase the duration of action but has now fallen out of favour due to concerns about neurotoxicity and apoptosis.

Clonidine will increase the duration of action, but in the dose that is analgesic, it is also sedative.
(Dia)morphine will increase the duration of analgesia, but it is not recommended for children to go home on the same day of surgery because of the risk of respiratory depression.

**Summary**

We appear to be no further forwards in the management of pain in children after day case surgery, despite steps in place to try to alleviate this distressing phenomenon. We need to improve our care: clinicians need better preparations of analgesics for children, and we must improve the information given to parents – perhaps including a drug chart for parents to use at home.

With the desire to improve patient satisfaction and the need to make financial savings, the variety and complexity of surgery offered as day cases will inevitably increase, but perhaps we need to consider which surgeries and patients are truly suitable to be managed at home.

**Reference**

The Quality Management of Service Committee (QMSC) and the Professional Standards Directorate spent almost two years developing a scheme which has attracted strong support from many high level stakeholders. During that two year period, a number of anaesthesia departments in the NHS were kind enough to give their time and effort to the A CSA pilot. Those departments provided a rich resource of learning about the process. In addition, from looking at the small sample of hospitals that took part, themes began to emerge which revealed much about the problems that are common in anaesthesia today.

Here, we will describe the findings of the A CSA pilot project; what we learnt about accreditation and how we plan to use that knowledge, and also the themes that the specialty may wish to consider as a starting point for making positive changes.

Summary of Pilot Project
Between October 2011 and June 2013, a total of 25 hospital trusts and health boards were involved in the A CSA pilot project. Of those 25, nine took part in an on-site A CSA review at their department. Data was collected in two phases. A total of 20 departments submitted information during the first phase using a simple form. The form included numerical fields (for example the number of beds, the number of consultants), but the main focus of the scrutiny was the information provided as free text in response to open questions. This was not only labour intensive but impersonal. The amount and quality of information that could be gleaned from reading a form varied greatly.

Following the first phase pilot project, the QMSC set about writing the A CSA standards, a set of objective benchmarks developed from the publication ‘Guidelines for the provision of anaesthetic services’, each of which could be assessed only as ‘met’ or ‘unmet’. After the standards had been written, in October 2012, some of the original pilot sites and some new ones were engaged and agreed to submit a second return. The second-stage return was a self-assessment against the A CSA standards. Data was submitted using Excel spread sheets. The main purpose of the submission was not to benchmark departments at this stage, but to test the data gathering and submission process. The data submission served as the basis for a pilot on-site review of compliance with standards in nine departments. Reviewers were drawn from members of the Quality Management of Service Committee, Patient Liaison Group and A CSA administration team. Initially, a team of three spent one day on site but during the four months of the on-site reviews, this evolved to be four reviewers and at least one and a half days on-site. Each review began with a general verbal presentation about the department, then a close look at the unmet standards. This formed the basis of a constructive conversation about how they might be met in the future. The reviews finished each time with a discussion about how the A CSA process could be refined and what the A CSA team could do for departments to ensure that it was a beneficial process.

Anaesthesia Clinical Services Accreditation (ACSA) was launched officially at the College on 18 June. At the launch event, the Medical Director of NHS England Professor Sir Bruce Keogh stated that accreditation had come of age and that accreditation is not only ‘a great endeavour, it’s come at the right time’.

Sir Bruce went on to say ‘What I see here is really quite significant and powerful leadership from this College. Leadership which I think will be followed by… the body of the anaesthetic community within the NHS. I think that’s really, really important.’
What was learnt about accreditation?
The process of capturing information from departments was a rich learning curve, allowing consideration about how information can best be submitted, and the kind of information that is available in departments, and a surprising amount about what was not! It also informed a discussion about how to measure what is good and what is bad.

At the beginning of the data collection from pilot sites over two years ago there was an expectation that the return of simple form from a department might be enough to gauge whether or not they could be given some kind of quality mark by the College. The standards by which departments are measured have become much more sophisticated, as has the format for collection, and now requires the online tool Adobe® FormsCentral, which allows fast access to references.

The approach to conducting an on-site review, the criteria for reviewers and required training, how to prepare and what exactly what to look for, are now established. However, working with departments also demonstrated that accreditation presents an enormous opportunity for initiating change.

Undergoing such scrutiny should really act as the start point and not the end point, if the process is going to offer any benefit. In his talk at the ACSA launch, Professor Sir Bruce Keogh said ‘Accreditation is not just about looking at minimum levels, it’s about driving improvement’. That is a lesson we learnt gradually, by taking data that the pilot sites worked hard to provide, looking at it and realising that actually the process would be pointless if it did not mark the beginning of a phase of improvement.

What were the areas of strength?
It was reassuring to learn from the data collection that most of the pilot sites were largely compliant with most of the standards. The ACSA process includes a period of detailed self-assessment and then an on-site review during which just a sample of the standards are tested by the ACSA review team. The question has been raised about whether sampling the standards, rather than scrutinising every standard, is rigorous. One of the significant learning points to be taken from the ACSA pilot project was the honesty of departments in assessing themselves. The pilot sites used the self-scrutiny to take stock, to really consider how good they actually are and to look for ways in which they might become better.

Openness is an integral element in getting the most out of the process, and without it the benefits of the scheme are greatly reduced. All reviewers relayed how impressive was the level of engagement of the pilot sites, who used the project as an opportunity to improve and dedicate time to self-reflection. To quote feedback from two clinical directors following ACSA pilot on-site review:

‘The ACSA process allowed us to reflect not only on where we could make improvements but also the wealth of resource already available within the department. Life moves so quickly that it was good to stop and reflect.’

‘The process of preparing for and undergoing external scrutiny was a very effective way of focusing on critical aspects of our department's structure and working practices, and helped shine a light into some areas where it was not previously apparent that improvement was required. Overall a very useful process.’

Areas of national difficulty
Some standards were more often unmet than others. The ten most commonly unmet standards at the departments that we sampled are included below.* The best way to tackle non-compliance with each standard will vary from department to department, and one of the benefits of ACSA is a tailored approach for each organisation. Below are some

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<tr>
<th>Table 1 The ten most frequently unmet standards in the pilot sites</th>
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<tr>
<td><strong>1.1.1.4</strong> There is a policy for the provision of sedation</td>
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<td><strong>1.1.1.9</strong> There is a policy for the management of morbidly obese patients as appropriate in all areas</td>
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<td><strong>1.1.1.10</strong> There is a policy for the post-procedural review of all patients</td>
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<tr>
<td><strong>1.1.1.17</strong> There is a policy to address death in the operating theatre</td>
</tr>
<tr>
<td><strong>1.1.1.18</strong> There is a policy to address the airway management of patients in the emergency department</td>
</tr>
<tr>
<td><strong>1.2.3.1</strong> A process is in place to ensure that abnormal results of investigations are flagged to the relevant person in a timely manner</td>
</tr>
<tr>
<td><strong>1.5.0.6</strong> Patients have a formal risk assessment performed which informs the process of consent</td>
</tr>
<tr>
<td><strong>2.2.4.1</strong> Drugs intended for regional anaesthesia are stored separately from those intended for intravenous use</td>
</tr>
<tr>
<td><strong>2.4.1.2</strong> Appropriate office space is provided for all aspects of the anaesthesia service</td>
</tr>
<tr>
<td><strong>2.5.1.1</strong> There are sufficient administrative staff to support all aspects of the anaesthesia service</td>
</tr>
</tbody>
</table>
examples of the guidance offered to pilot sites for the ten most often unmet standards.

Some other common guidance given to the pilot sites was that the involvement of more members of the department in completing the self-assessment increases the awareness of policies and guidance documents that are already in place or in stages of development. A number of departments were advised to review standards against all of their organisation’s policies, rather than just those originating in the anaesthesia department.

*Not all departments that were involved in the pilot were non-compliant with the ten most unmet standards. The standards that were met or unmet were different for each department and information about specific standards is confidential between the RCoA and the organisation.

There is a policy for the provision of sedation (1.1.1.4)
The results of the pilot study suggest that hospital-wide policies for administration of sedation are absent or inconsistent. There is often no lead clinician, and responsibility for sedation lies with individual clinicians, especially for endoscopy. Training is poor. Work from the Academy of Medical Royal Colleges is awaited and will help to encourage the formulation of policy.

There is a policy for the management of morbidly obese patients as appropriate in all areas (1.1.1.9)
Whilst equipment is often available for morbidly obese patients, for example, operating tables, individual policies and guidelines, standards and processes need to be co-ordinated into formalised guidelines following the pathway of the patient from the point of preoperative assessment to surgery, and post-operative care. A lead anaesthetist should be appointed to co-ordinate policy. Morbidly obese patients having anaesthesia delivered by trainees should have a robust risk assessment, the responsible consultant should be made aware if there is perceived risk, and that consultant’s name should be documented.

There is a policy for the post-procedural review of all patients (1.1.1.10)
Whilst emphasis is often placed upon preoperative assessment, it is far less common to find patients routinely visited after discharge from the recovery room. The role of the anaesthetist as a peri-operative physician needs to be developed and time allocated for this activity.

There is a policy to address death in the operating theatre (1.1.1.17)
A policy that addresses all the issues, including dealing with relatives, should be developed in consultation with other members of the theatre team. The policy should encompass all aspects of care of the deceased patient, including the dignity and preparation required to meet coroners’ needs, staff and family support, debriefing of staff and appropriate cover. This is a very rare event, and information should be at hand to help cover lists, debrief staff and provide pastoral care. An anaesthetist should write a policy in conjunction with a senior member of the theatre nursing staff. This may be a project suitable for a senior trainee to engage with and to help draft.

There is a policy to address the airway management of patients in the emergency department (1.1.1.18)
Trainee anaesthetists are often left with intubated patients and no assistance in the emergency department. In order to demonstrate compliance with this standard a more formal ratification of current processes and access to support and leadership are required. The roles and responsibilities of anaesthetists, emergency physicians and intensivists often need to be clarified. Discharges from ICU need to be audited with a reduction in bed blocking affecting pathways further back, where patients need admission to ICU. Funding is often insufficient to release an ODP/anaesthetic nurse from theatre to assist and should be built into business plans.

A process is in place to ensure that abnormal results of investigations are flagged to the relevant person in a timely manner (1.2.3.1)
Last-minute cancellations for medical reasons are unacceptable when previous results have not been acted upon. Often person to person communication systems are the only ones in place but better IT helps. Funding and job planning should allow consultant input into preoperative assessment, and consultant input should take place well in advance of the day of elective surgery.

Patients have a formal risk assessment performed which informs the process of consent (1.5.0.6)
It is recommended that all patients should undergo POSSUM scoring which should then be documented and communicated to patients as part of the consent procedure. Patients and relatives should be helped to understand the risks and benefits that inform the consent process. It may require investment in making appropriate space available. Developing a same day admission unit enables the anaesthetist to conduct pre-assessment more easily with improved theatre efficiency.

Drugs intended for regional anaesthesia are stored separately from those intended for intravenous use (2.2.4.1)
This simple policy is frequently not
adhered to despite recommendations, but is easy to address.

**Appropriate office space is provided for all aspects of the anaesthesia service (2.4.1.2)**

Anaesthetic departments are often the largest in the hospital, but office space remains a perennial problem. An area for administration, teaching and personal interaction somewhere close to the main work area of the members of the department is essential.

**There are sufficient administrative staff to support all aspects of the anaesthesia service (2.5.1.1)**

Anaesthetists often have to undertake their own administrative work due to lack of secretarial support. This is wasteful of consultant time and resource. The provision of administrative staff should match the provision in the AAGBI guideline.

**Conclusion**

ACSA is already producing information from the analysis of the pilot study, and much information will be gleaned as the project develops further. The future is exciting, and not only will a good practice library will be developed to share best practice nationally, but trends of concern founded upon a strong evidence base will also be identifiable, providing the opportunity to focus energy on matters that will improve anaesthetic care for all of our patients. As Sir Bruce Keogh said, ‘with this project, accreditation has come of age.’

For more information please contact ACSA@rcoa.ac.uk.
Xtreme Everest 2: science near the summit

Xtreme Everest 2 (XE2) was the second major research expedition in the Everest region to be undertaken by the University College London Centre for Altitude, Space and Extreme Environment (CASE) Medicine. This expedition was a collaboration with the University of Southampton Centre for Human Integrative Physiology (CHIP) and Duke University which, together with CASE Medicine, now form the Caudwell Xtreme Everest Hypoxia Research Consortium. Following the success of Caudwell Xtreme Everest (CXE) in 2007, XE2 was one of the most comprehensive prospective high altitude research expeditions ever undertaken, and the largest study of the Sherpa population at altitude to date.

Fuelled by their shared passion for human physiology and the extreme environment, the 50 medical professionals and scientists on the expedition spent three months living beneath Everest’s summit studying nearly 200 people’s physiological, cellular, and genetic mechanisms for coping with the hypobaric hypoxic insult.

The science – ‘why do some people cope better with a hypoxic insult than others?’

There has been a longstanding interest in high-altitude physiology; however, only recently was it suggested that investigating the physiological effects of hypobaric hypoxia at high altitude may benefit patients suffering from hypoxaemia in the critical care setting. Not only does this paradigm side-step the obvious ethical difficulties involved with instigating clinical trials in the critical care environment, but by exposing healthy volunteers to a controlled hypoxic exposure, through phenotype-genotype investigation we may uncover coping mechanisms that would have otherwise remained undiscovered in the critical care setting due to the heterogeneity of pathology and interventions. With this proposed model in mind, the Caudwell Xtreme Everest Hypoxia Research Consortium initiated its programme of hypoxic research through the instigation of field studies, normobaric hypoxic chamber studies and pilot clinical studies.

Results from CXE 2007 have led us to believe that the notable differences in performance between individuals at high altitude cannot be explained solely by the restoration of systemic oxygen delivery during acclimatisation. Whilst increasing ventilation, cardiac output and red blood cell mass may not hold the key; we at CASE Medicine strongly suspect that variation in performance may be due to changes in nitric oxide (NO) biology, mitochondrial metabolism and the microcirculation. These three areas, thought of as a ‘microcirculatory-mitochondrial unit with its master regulator NO’, thus formed the backbone of our recent scientific research on XE2. A summary of the studies included on XE2 may be seen in Table 1.

Aside from the novel scientific studies performed at altitude, the unique focus of XE2 was to explore the physiological differences between lowland inhabitants, and a population who had been exposed to high altitude hypoxia for thousands of years – the Sherpas. As direct descendants of those living on the Tibetan highland plateaus, and renowned for their superlative tolerance to hypoxia high up in the Himalayan peaks, through natural selection Sherpas have undoubtedly fashioned their genetic heritage to favour a hypoxic lifestyle. Admittedly these genetic alterations may be difficult to reproduce in our intensive care settings; however, if we are able to identify and imitate the downstream effects of these base changes, then perhaps we will be able to improve treatment strategies for the hypoxaemic patient.
### The expedition

As was the case in 2007, Nepal provided our hypoxic research laboratory. Purpose built laboratories were constructed in London (50m), Kathmandu (1,300m), Namche Bazaar (3,500m) and at the base camp of Mount Everest (5,300m). Having already completed baseline testing in London, over two weeks between the months of March and May 2013, 180 trekker-come-subjects followed an identical, but staggered, ascent profile from Kathmandu to the heights of Everest base camp. Sequential repeated ascent testing at the laboratories in Namche Bazaar, and Everest base camp allowed us to examine the physiological changes occurring with ever increasing hypoxia, whilst additional testing on descent in Kathmandu allowed us to explore what happens post exposure to a hypoxia insult with the seemingly relative abundance of oxygen in the air once again restored. Importantly, it was this identical ascent and descent profile to which every subject rigorously adhered, that allowed us to hypothesise that the observed differences in measured variables (attributable to the changing partial pressure of oxygen) were likely to be accounted for by underlying phenotypes and genotypes.

Aside from the aforementioned Sherpas, our cohort of subjects included new (altitude naïve) subjects, repeat (from CXE) subjects, identical twins, and children. The latter of these only ascended to 3,500m, and the identical twins allowed us to explore the relatively novel, but extremely fascinating scientific subject that is epigenetics. One further cohort, comprised of the 15 Everest base camp investigators, was also closely studied for it was in this subgroup of ‘lowlanders’ that we were able to observe the serial chronic physiological changes occurring over three months spent at altitude.

### Logistics

There are a number of challenges to be faced when attempting to deliver research in a high altitude environment, including extremes of temperature, barometric pressure, communication, and the logistical supply to a remote setting. The latter of these was a gargantuan feat, and prior to our departure every single piece of equipment we would require for three months was calculated for (down to the 5 ml syringe, plaster and battery), and purchased. With this done, and in unison with ongoing London baseline

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**Table 1 Summary of Xtreme Everest 2 study areas and experiments**

<table>
<thead>
<tr>
<th>Microcirculatory blood flow</th>
<th>Cellular and mitochondrial physiology</th>
<th>Nitric oxide metabolism</th>
<th>High altitude performance</th>
<th>Other physiological changes</th>
<th>Genetics and epigenetics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forearm venous plethysmography</td>
<td>Cellular respiration in skeletal muscle biopsies</td>
<td>Plasma, urine, exhaled breath and salivary analysis</td>
<td>Daily Lake Louise score</td>
<td>Hypoxic ventilatory response</td>
<td>Baseline genetics from initial blood samples</td>
</tr>
<tr>
<td>Near infrared spectroscopy and laser doppler of forearm</td>
<td>Muscle, plasma and urine (metabolomics, lipidomics and proteomics)</td>
<td>Oral reduction of $^{15}$N sodium nitrate</td>
<td>Cardiopulmonary exercise testing ($\text{VO}_2$ peak, oxygen kinetics and critical power)</td>
<td>Haemoglobin mass using a carbon monoxide re-breathing technique</td>
<td>Epigenetic changes in blood (DNA methylation and histone modification)</td>
</tr>
<tr>
<td>Side-stream darkfield imaging of the sublingual microcirculation</td>
<td>Direct exhaled nitric oxide concentration</td>
<td></td>
<td></td>
<td>Skeletal muscle mass assessment using ultrasound</td>
<td></td>
</tr>
</tbody>
</table>

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XE2 Everest Base Camp Laboratory lying at the foot of Mt Everest
testing, approximately 14 tonnes of equipment was flown to Nepal, eight tonnes of which was further transported up to Everest base camp. Unfortunately, due to the absence of roads, this eight tonnes was carried up over 4,000m in vertical height, by local porters or yaks. In total, an estimated ‘baggage train’ of over 80 porters and 275 yaks was required to deliver said equipment to base camp.

At each field laboratory in Nepal, whilst the physical structure varied from that of a converted conference room in Kathmandu, to a military insulated tent at base camp, we ensured that every laboratory had a 24-hour constant supply of electricity. In a similar pedantic manner employed in calculating our scientific and medical equipment requirements, each individual piece of electrical equipment had its power consumption calculated, and a laboratory specific grid was pre-manufactured in the UK. At base camp once constructed, electricity was produced by nine petrol-fuelled generators, with 36 car batteries that provided a continuous supply at night when the generators were switched off. The circuit was also fitted with complex computerised power control units to guarantee a constant supply of electricity in the event of a power failure, for midst testing a power failure would have been a catastrophe.

The temperature at Everest base camp laboratory ranges from -30°C at night to +25°C by mid morning. Living conditions aside, this posed a significant challenge for keeping temperature sensitive equipment in working order and appropriately calibrated. Prior to our departure we confirmed with each and every manufacturer whether their scientific equipment could withstand these fluctuations of temperature (many of whom understandably had no idea), and moreover, due to the pressure drop, everything had to be tested and validated in a hypobaric chamber. Computers with their standard spinning hard drives did not function at 5,300m, thus each of the 20 laptops used at base camp had to be converted to solid-state drives.

**Medical encounters**

XE2 had a dedicated medical team at each of its three laboratories and a further team at Pheriche (4,300m) – the location at which severe acute mountain sickness often presents itself. Safety always came first and foremost, followed by the science. Working in fully equipped medical ‘departments’, this dedicated team was comprised of general practitioners, emergency medicine doctors and anaesthetists. With constant telecommunication between each site, the team’s primary role was to provide medical care to all of our subjects and investigators; however, due to our arrival at base camp early in the season, they soon became busy providing assistance to Sherpas and locals from other communities and climbing expeditions. Common presentations included the expected spectrum of high-altitude illness; acute mountain sickness (AMS), high-altitude pulmonary edema (HAPE), and high-altitude cerebral edema (HACE), but also malignant hypertension, skin infections, trauma, acute abdomens, plenty of gastrointestinal infections and even two cases of undiagnosed pregnancy! In most cases these presentations were dealt with on site; however, in the more serious circumstances helicopters were used to allow medical evacuation to Kathmandu (weather permitting) for definitive care after stabilisation.

Given that the expedition was primarily comprised of medical professionals from a whole host of specialties and grades, the importance of having one nominated ‘doctor-of-doctors’ at each site (working alongside clearly stated medical protocols) cannot be emphasised enough. Living in a foreign, stressful and hypoxic environment certainly took its toll on all members of the team, and

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“Studying healthy subjects at high altitude is a valid model for human hypoxaemia and may provide translational benefits for critically ill patients.”
having a clear consultation pathway with one person in charge, ultimately allowed transparency and continuity in one’s medical care.

**Conclusions**

Studying healthy subjects at high altitude is a valid model for human hypoxaemia and may provide translational benefits for critically ill patients. Conducting research in the extreme environment remains logistically, physically and mentally challenging to both investigators and trekker subjects; however, hopefully the results of the XE2 expedition may reveal some of the Sherpas’ physiological secrets to ultimately aid our treatment stratagems for the hospitalised hypoxic patient.

**References**

The environment, the gas bill and the route to sustainable anaesthesia

In the context of life sciences the term ‘sustainable’ refers to being maintained at a steady level without exhausting natural resources or causing severe ecological damage. In 1987, the Brundtland Commission of the UN defined sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs, in particular the essential needs of the world’s poor, and the idea of limitations imposed by the state of technology and social organisation on the environment’s ability to meet present and future needs. In the setting of the NHS, sustainability refers to the balance required between social, financial and environmental factors in order to ensure that future generations do not suffer as a result of the way we behave today. It is intimately related to minimising the environmental impact of healthcare delivery, greenhouse gases (GHG), global warming and climate change.

The route map to sustainable health

The Sustainable Development Unit (SDU) of the NHS published the Route Map for Sustainable Health in 2011 for individuals, hospitals and networks to help work towards the delivery of sustainable healthcare. The six themes cover individual and societal attitudes and behaviours, governance and use of resources against standards, and innovations in care and technology. The route map is used to define where one is at present, what is the destination and by which route. The progress along the route begins with getting started during which sustainability is understood, progressing to a transition to the expectation that sustainability is becoming the norm and finally to a transformation in which sustainability is routine and culturally embedded and self-regulated. By starting with individuals’ behaviour, the route map places the onus on all of us.

Individual behaviours

Many anaesthetists have made practical changes to their own homes and in their own lives to reduce energy consumption. Aside from acknowledging the ever increasing size of the gas or electricity bill or gloating at the amount of money earned from the feed in tariff from the solar PV system, does one actually examine and analyse year on year the energy one’s home has used? Without doing so, how can we know how much energy has been saved by our extra layers of loft or cavity wall insulation? As one of the management adages states: ‘You can’t manage what you don’t measure’. Unless you measure energy consumption you are unlikely to make the effort to reduce it.

Energy consumption and CO₂ production

Energy to power our homes and hospitals comes predominantly from the combustion of fossil fuels; the more energy we use the greater the CO₂ production. Our utility companies inform us that 1 kWh of energy (3.6 MJ) from gas combustion is enough to heat a radiator for an hour or cook a family meal. The heating value of methane is 50 MJ/kg, i.e. about 14 kWh/kg or 72 g (4.5 mol) methane per kWh. As the reaction is \( CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O \), complete combustion of 4.5 mol methane will produce 4.5 mol of carbon dioxide, very nearly 200 g. Electricity production has inherent losses in generation and transmission and the figures for the CO₂ production per kWh from gas and from coal generated electricity are 355 g/kWh and 886 g/kWh respectively. The average for all fossil fuels is 660 g/kWh. Since the energy production required to power our homes produces six tonnes of CO₂ per home per year and the atmospheric concentration of...
CO₂ is rising by 1.9 ppm/year, then perhaps the first individual action we should make is to begin to record, graph and act upon our domestic energy use rather than just settling the bill or direct debit.

**Departmental behaviours**

Much has been written on the subject of efforts to reduce the environmental impact of anaesthesia practice⁵–⁷ Mostly qualitative, the authors make many useful and practical suggestions. Taking the analogy with our homes though, are there quantitative measurements we could make in order to manage and minimise our environmental impact?

**Embedded carbon**

At every stage of manufacturing processes, energy is required. The SDU has addressed this⁸ and the breakdown for pharmaceuticals is in Box 1.

**Box 1 The process outline from development to end of life for pharmaceuticals described by the Sustainable Development Unit**

- Research and development
- Clinical trials and marketing
- Manufacture of active pharmaceutical ingredient (API)
  - Material and chemical inputs
  - Material and chemical transport
  - Energy/fuel generation and consumption
  - Waste disposal
- Solvent manufacture, use and disposal
- Catalyst manufacture, use and disposal
- Solvent recovery and incineration
- Process emissions from synthesis
- Chemicals for cleaning
- Sterilisation
- Refrigerants
- Preparation of the product form
  - Tablet, injection
  - Production and disposal of consumables
- Manufacture of drug delivery system
  - Syringe, syringe driver, vapouriser
- Packaging
- Distribution
- Administration
- Disposal/end of life

**Carbon dioxide equivalents (CO₂e)**

The impact of the release of GHGs other than CO₂ is expressed in terms of the amount of carbon dioxide that would need to be released to have the same warming effect as the GHG in question. In other words, carbon dioxide equivalent is the product of the mass of the gas released multiplied by its global warming potential (GWP).

**The GWP of inhalational anaesthetic agents**

In general the GWP is expressed over the 100 year time horizon (GWP₁₀₀) and is influenced by the agent’s absorption of IR radiation and the atmospheric life time. The GWP₁₀₀ of CO₂ is by definition 1. The GWP₁₀₀ of nitrous oxide is 298, sevoflurane 130, isoflurane 510 and desflurane 2540⁹. The disposal to the atmosphere of inhalational anaesthetic agents is of far greater impact than the manufacturing process, especially if those agents are co-administered with nitrous oxide.¹⁰ Using modelling techniques the authors calculated the CO₂e to provide one MAC hour of anaesthesia. Table 1 is derived from their data. Desflurane and nitrous oxide cause the most warming and sevoflurane the least. Once the mass of each anaesthetic vapour agent used is known, the CO₂e can be calculated. The comparative values for the CO₂e for inhalational anaesthetic agents are presented in Table 2.

**Calculating the annual CO₂e for inhalational anaesthesia**

Hospital pharmacies have accurate records of the numbers of units of each drug issued each year. Obtaining accurate records of medical gases delivered may require some detective work. As part of medical gas suppliers’ corporate and social responsibility should each hospital and anaesthetic department be issued with an annual statement of nitrous oxide delivery? Inserting the values in Table 3 will give the total CO₂e for each anaesthetic department.

Within my own Trust, the decision to remove sevoflurane vapourisers from all but paediatric theatres in 2010–2011 resulted in a fall in the drug bill as less sevoflurane was used but a rise in the environmental burden of agents with higher GWP (Figure 1).

**On course to embedded sustainability**

Championed by a departmental lead for sustainable anaesthesia, measurement, recording, and acting on environmental data will not just raise awareness but serve to change departmental behaviour to minimise fresh gas flows and think more widely about sustainable anaesthesia. Once established, standards can be set and the tool used to measure and compare

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**Table 1 Comparative values for the CO₂e (g) of manufacturing and disposal of anaesthetics to provide a one MAC hour of general anaesthesia. The upper value for nitrous oxide reflects the higher FGF required for sevoflurane anaesthesia.** (Derived from Sherman et al¹⁰)

<table>
<thead>
<tr>
<th>Agent</th>
<th>Manufacturing process CO₂e (grams)</th>
<th>Atmospheric disposal CO₂e (grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrous oxide</td>
<td>130–260 g</td>
<td>22,000–44,000 g</td>
</tr>
<tr>
<td>Isoflurane</td>
<td>50 g</td>
<td>1500 g</td>
</tr>
<tr>
<td>Sevoflurane</td>
<td>150 g</td>
<td>1250 g</td>
</tr>
<tr>
<td>Desflurane</td>
<td>370 g</td>
<td>33,000 g</td>
</tr>
</tbody>
</table>

**Table 2 The CO₂e of the vapour from the contents of a single size E nitrous oxide cylinder and single bottle of commonly used anaesthetic agents**

<table>
<thead>
<tr>
<th>Agent</th>
<th>CO₂e (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size E nitrous oxide cylinder (34 kg)</td>
<td>1013 kg</td>
</tr>
<tr>
<td>Isoflurane (250 ml)</td>
<td>190 kg</td>
</tr>
<tr>
<td>Sevoflurane (250 ml)</td>
<td>49 kg</td>
</tr>
<tr>
<td>Desflurane (240 ml)</td>
<td>886 kg</td>
</tr>
</tbody>
</table>
performance over time. Technological innovation from anaesthesia workstation manufacturers such as low flow reminders and the matching of FGF to end tidal concentrations will further refine the delivery of minimal flow sustainable anaesthesia.

It is unlikely that top down enforcement will bring about behaviour change. More effective, is the application of science to our anaesthesia practice and to leave the planet a little less jeopardised than it potentially might be.

Figure 1 The trends in CO2e over the financial years 2008–2012 for a university hospital NHS trust. The removal of sevoflurane vaporisers from all but the paediatric theatres in 2010 saved money but increased the CO2e (1 tonne is 1000 kg)

<table>
<thead>
<tr>
<th>Agent</th>
<th>Volume per bottle (L)</th>
<th>Density (kg/L)</th>
<th>Number of units used</th>
<th>GWP</th>
<th>CO2e (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoflurane</td>
<td>0.25</td>
<td>1.496</td>
<td>x</td>
<td>510</td>
<td>=</td>
</tr>
<tr>
<td>Sevoflurane</td>
<td>0.25</td>
<td>1.52</td>
<td>x</td>
<td>130</td>
<td>=</td>
</tr>
<tr>
<td>Desflurane</td>
<td>0.24</td>
<td>1.456</td>
<td>x</td>
<td>2540</td>
<td>=</td>
</tr>
<tr>
<td>N2O E size</td>
<td>34 kg</td>
<td>1.08</td>
<td>x</td>
<td>298</td>
<td>=</td>
</tr>
<tr>
<td>N2O G size</td>
<td>17 kg</td>
<td>1.08</td>
<td>x</td>
<td>298</td>
<td>=</td>
</tr>
<tr>
<td>N2O J size</td>
<td>34 kg</td>
<td>1.08</td>
<td>x</td>
<td>298</td>
<td>=</td>
</tr>
<tr>
<td>Entonox</td>
<td>Mass used</td>
<td>0.88</td>
<td>x</td>
<td>298</td>
<td>=</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 The formula to calculate the CO2e for anaesthetic agents. Inserting the values for number of each agent used and multiplying across the rows gives the CO2e

References
Anaphylaxis has recently been announced as the topic for NAP6. This article explains the process of selecting the topic for NAP6 by the HSRC Executive Board. For NAP3 and NAP4 the topics to be studied were chosen in part because of special representations by individuals and in part because of topicality. As the NAPs evolved it became important to cast the net for potential topics more widely and a call for proposals was put out for NAP5. This same process, further refined, has again been used to select the topic for NAP6.

**Proposals**

Adverts for proposals for NAP6 were placed in College and Association journals and on respective websites in late 2012 for three months. Those making contact were asked to complete a proposal proforma and only topic proposals accompanied by a completed proforma were considered. In total 91 suggestions were received and 56 completed proformas, covering 33 topics. Proposals were received from Canada, New Zealand and Australia as well as throughout the UK. This amounts to approximately twice the number of proposals and topics submitted prior to NAP5.

All 56 proformas were reviewed by members of the Health Services Research Centre (HSRC) Executive Management Board prior to a full board meeting in March 2013, and board members were given the opportunity to score the proposals using a structured evaluation form. The evaluation form was used to identify topics best related to complications that were important to patients and clinicians, rare and incompletely studied, appropriately defined and of broad specialty interest. The form also captured whether results of a NAP would be likely to inform and change practice and whether alternative methodologies would better suit the proposal.

- To avoid missing high quality proposals not captured by the structured evaluation form, all topics outside the long list were described and board members were asked to indicate if they wished to discuss a topic further. Several topics were discussed in this way.
- Eleven topics were long-listed. The reasons for ruling out each topic were discussed and documented. Several of these topics could be considered for future NAPs.
- After further discussion four topics were short-listed: anaphylaxis, complications in central venous cannulation (CVC), in-theatre cardiac arrest, and complications following peripheral nerve block (PNB). These were discussed in further detail.
- Anaphylaxis and CVC were agreed as finalists. Two of the proposers of each of these topics were then invited to present their proposal to the Board.
- There was consensus among the reviewers throughout this process.

**Stage 2: decision making**

In May 2013 the two final topics were each ‘pitched’ to the Board by two proposers. This was followed by a Q&A session. The presentation and questions explored proposed methods, outputs and impacts.

Further discussion in committee was undertaken prior to making a recommendation. Both topics were considered to be very strong but the final decision was a unanimous one. The Board recommended to College Council that NAP6 studies anaphylaxis during perioperative care and this was subsequently endorsed. Funding for the project was approved by College.

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‘Proposals were received from Canada, New Zealand and Australia as well as throughout the UK.’
Why anaphylaxis?

Perioperative anaphylaxis occurs infrequently; however, it leads to rare but serious complications whose epidemiology and clinical impact are incompletely defined. It is important to patients and anaesthetists/intensivists. The incidence of anaesthesia-associated anaphylaxis is variously reported (mostly from studies outside the UK) to be between 1 in 3,000 to 1 in 20,000. The natural history of anaphylaxis is uncertain. There are fairly recently published guidelines on management and investigation of suspected anaphylaxis (Resuscitation Council UK, Association of Anaesthetists of Great Britain and Ireland, British Society of Allergists and Clinical Immunologists) against which management and investigation could be audited. There are approximately 30 clinics in the UK that investigate anaesthesia-associated allergy, and four combined anaesthesia-immunology clinics.

Anaphylaxis can happen to any patient: in response to anaesthetic drugs, antibiotics, fluids, bone cement, surgical dyes and antiseptics, e.g. chlorhexidine. Approximately one to two patients are admitted to ICU in each hospital in the UK each year as a result of anaesthesia-associated anaphylaxis. A NAP studying anaphylaxis will provide ample opportunity for (and indeed, in order to succeed in its aims, will require) multispecialty collaboration.

While the topic for NAP6 has been chosen, the exact process to be followed is yet to be planned. Questions that NAP6 might address include:

- How often do serious anaphylactic reactions occur?
- What is the epidemiological distribution (who, what, when etc) of these cases?
- What is the outcome of these events: short- and longer-term harm?
- What are the causative agent groups and individual drugs (either as prevalence or incidence data)?

Next steps

Those involved in NAP5 will likely be pleased to hear that there will be an interlude between completing NAP5 (publication due September 2014) and starting the data collection period of NAP6 (planned start date spring 2015). However, there is much to do in the interim.

A clinical lead will be appointed in the coming months (this post will be advertised on College website, journals and other sites). The clinical lead will then, with assistance, develop the detailed infrastructure of NAP6 including seeking regulatory approvals, seeking partners, designing data-collection forms and establishing the network of Local Co-ordinators whose work underpins everything that is achieved by the NAPs.

Further details on NAP6 will be made available as they become available, but I anticipate that NAP6 will follow a structure very similar to NAP3 and NAP4. I hope the enthusiasm that anaesthetists have shown in recent NAPs will be maintained to enable us to shine a light on this important topic.
Developing high reliability multiprofessional teams in the operating theatre: a national initiative

Authored on behalf of the project Steering Group (see Box 1)

Operating Theatres and Interventional Suites are complex, dynamic environments in which the delivery of safe healthcare is fraught with challenge. There can be significant and harmful consequences to the patient’s well-being if a procedure does not progress as intended. This potential hazard may arise in response to having to manage a high volume of cases or when performing lengthier, technically challenging procedures. Additional factors include the urgency of the procedures involved, and the potential for staff members’ lack of familiarity with one another, the task itself, and any associated technologies involved in the care provided. Conversely, high quality outcomes are supported by workforce factors related to the professional expertise of the staff involved and their ability to work together effectively and reliably even if they are unfamiliar with one another. Similarly, beneficial organisational features include the design and maintenance of systems and processes which support safer patient care, e.g. the provision of clean, well maintained instruments, having a carefully designed work environment, and using clearly defined standard operating policies. The term ‘resilience’ describes the achievement of safe, stable performance in the face of dynamic and sometimes unpredictable work demands. This approach to work design is well described in the organisational psychology literature and is demonstrated within a number of high reliability industries, which are defined by their ability to perform at an ‘ultra safe’ level or standard. Examples include the nuclear fuel, oil refining, and aviation industries. This standard of performance is achieved by developing the organisational capacity, capability and culture to engage in continuous systems improvement, whilst striving to incorporate a combination of appropriate behaviours and practices at individual, team and organisational levels in a consistent and transparent manner. The safety culture within such teams and organisations is such that they embrace the standardisation of processes (to reduce variability in performance) whilst acknowledging and enabling the need to be innovative and creative in order to respond to unique circumstances. Resilience also relies upon having clarity over roles and responsibilities within teams, whether team members are located in one place at a given moment or distributed geographically or along a care pathway. High performing teams demonstrate mutual respect, effective communication, and actively maintain a shared and accurate perception amongst team members of individual and joint capabilities and the priorities for the task in question, i.e. the teams possess a ‘shared mental model’. Resilient teams develop and display the ability to monitor and adapt their own performance dynamically. Subsequently, they capture learning opportunities presented by near misses and unplanned events through processes such as team debriefing and engagement with reporting systems, thus enabling timely proposal and iterative rapid testing of potential solutions to specific problems. All of these qualities require effective leadership within the team context, and this specific attribute is one which all team members may be required to demonstrate to different extents according to circumstances.

The place of education and training within this context is to help develop individuals with the ability to work effectively within multiprofessional teams. Postgraduate (and undergraduate) curricula for healthcare professionals historically have emphasised the relevant knowledge and technical abilities required to be able to perform specific professional and specialty roles. Recent curricula revisions have seen ‘generic’ skills and behaviours being refined and more clearly defined in terms of more specific non-technical skills such as leadership, team working, situational awareness and decision-making in the clinical context. These attributes, which can be observed in practice and improved through focused training and feedback, are ‘portable’ skills. This means that they can be applied when working within regular cohesive teams or in response to situations that require staff to work together on an ad hoc or urgent basis, e.g. in an emergency, without being familiar with one another. However, historically within the UK there has been little time and resource invested formally into rehearsing the application of
these skills by individuals within the context of team-based learning and the development of effective team skills, behaviours and standardised work practices. Opportunities for teams to meet away from providing direct clinical care tend to be in the context of addressing service improvement initiatives, rather than focusing on the underpinning team skills and behaviours themselves.

The introduction of new commissioning arrangements for healthcare workforce education and training (within England), along with the publication of an education outcomes framework (within the NHS) heralds an opportunity to refocus aspects of workforce training that seeks to demonstrate a closer relationship with improving clinical outcomes. In 2011 the World Health Organisation ‘Patient Safety Curriculum Guide’ emphasised the need for more explicit attention to developing effective team working, a concept well recognised within other high risk industries. Within the NHS there is increased professional and public access to organisational serious incident data (‘Never Events’) as well as publication of individual surgeon-reported outcomes. Scrutiny of this data is likely to provide further incentive for multiprofessional team training in order to improve performance as well as quality of care, especially in light of the Francis Inquiry calling for greater clinical leadership to promote patient safety interventions.

However, in order for such education and training to become feasible there needs to be an appropriate ‘curriculum’ describing the essential theatre team skills and behaviours, which must be aligned with corresponding organisational responsibilities to ensure it can be implemented in the healthcare context. Attention must also be paid to developing a faculty who are knowledgeable and capable of delivering such a curriculum at a local level. Ideally this faculty will be drawn from those multiprofessional groups represented within the clinical teams, thus enabling the team skills and behaviours introduced during an educational context to be emphasised within everyday practice in the workplace. In response to these requirements a collaborative educational project has commenced under the leadership of the Royal College of Surgeons of England and the Royal College of Anaesthetists. The initial focus will be on enhancing teamwork in clinical teams working the operating theatre with the intention to expand into other related clinical environments as the programme develops. This will be based upon developing an evidence-based educational curriculum and a faculty development process suitable for implementation in the UK healthcare system. This project will invite involvement from other key professional groups and learned bodies (such as the Association of Simulated Practice in Healthcare, ASPiH) to reflect the relevant clinical staff groups and wider workforce development communities. Specific academic groups (Imperial College London and Oxford University) will provide expert research input to inform the development of evidence-based team training models and subsequent evaluation of the effectiveness of the programme implementation.

The main educational programme will be designed to ensure it is adaptable in its delivery, acknowledging the dependency upon access to local facilities and the availability of resources, including simulated environments or equipment. The project will embrace the concept of training local faculty to deliver the programme within their own or neighbouring NHS trusts. Web-based modules and introductory resources will be developed as a prerequisite to subsequent face-to-face sessions in order to optimise the use of professional time. Once the initial development of these learning resources has been prepared, the project will engage with a limited number of trusts as pilot test sites in order to evaluate the course design and feasibility of its delivery. Learning resources will promote the use of specifically designed simulated scenarios in order to emphasise positive team behaviours, such as the use of structured communication techniques, delegation of duties, briefing and debriefing. The use of standardised processes will be explored, along with algorithms or other cognitive aids that enhance the management of potentially serious conditions or improve the reliability and effectiveness of day-to-day work. The principles of quality (or service) improvement will be explored based on identification of local needs and staff/leadership engagement.

The aspiration is to embed and sustain improvement in team skills and behaviours linked with safe and reliable practices by developing local faculty and engaging organisational leaders. In order to reinforce the importance of local organisational and leadership support it is anticipated that the initial faculty development process will require multiprofessional participants to attend as a team and have explicit approval from their Trust Senior Executives to implement subsequent team training within their organisation. Quality assurance of local programme delivery will be overseen by the RCSEng and RCoA. Evidence of educational outcomes will be linked to broader measures of improvements in safety culture and team climate and, ideally, in clinical outcomes. This aspect of the programme evaluation will be the focus of a parallel research programme being planned with the Centre for Patient Safety and Service Quality at Imperial College, London. This will allow for evidence-based guidelines to be developed and built into the programme, ensuring a strong scientific foundation for the training. The use of validated assessment tools of team skills and behaviours throughout will provide empirical evidence for the efficacy of the programme, lending further support to its credibility.
References


Please contact the project group (teamtraining@rcseng.ac.uk) for further information related to the development of this collaborative educational project or to express interest in becoming directly involved.

Acknowledgements

The project group would like to thank Mr Peter McCulloch and colleagues (Quality, Reliability, Safety and Teamwork Unit, Nuffield Department of Surgical Science, Oxford University) and Mr Jonathan Stewart (Consultant Surgeon and Head of Faculty, Hollier Simulation Centre) for their comments on this article during its preparation.

Box 1 Initial Project Steering Group

- Professor Bryn Baxendale (Consultant Anaesthetist, Nottingham University Hospitals NHS Trust and Education Tutor for Human Factors, Royal College of Surgeons of England).
- Professor Jonathan Beard (Professor of Education, Royal College of Surgeons of England).
- Ms Sonal Arora (Academic Clinical Lecturer in Surgery, Centre for Patient Safety and Service Quality, Imperial College London).
- Dr Nick Sevdalis (Senior Lecturer in Patient Safety, Director of the ‘Non-Technical Skills and Simulation’ Research Group, Department of Surgery and Cancer, Imperial College London).
- Dr Tom-Clutton Brock (Council Member, Royal College of Anaesthetists).
- Ms Sharon Drake (Director of Education and Research, Royal College of Anaesthetists).
- Ms Louise Goldring (Head of Education Development, Royal College of Surgeons of England).
Education in anaesthesia, ICM and pain medicine – building on success

Dr L Boss
Consultant Anaesthetist,
Guy’s and St Thomas’
NHS Foundation Trust,
London

Dr S Edgar
Consultant Anaesthetist
and Director of Medical
Education NHS Lothian

Challenge: Postgraduate medical education must change from competence by time to competence by design.

Education is at the core of quality and safety in healthcare since ‘good’ doctors are the result of purposeful and effective training. However, practising clinicians are acutely aware of the increasing list of potential barriers to delivering high quality education in the modern NHS setting.

The General Medical Council (GMC) now has a statutory obligation to promote high standards in medical education¹ and the expectation is that, by increasing accountability and improving accreditation processes,² they will encourage professional development in postgraduate medical education.

The CPD Matrix,³ produced by the RCoA, is a framework designed to support continuing professional development (CPD). It identifies ‘Education and Training’ as a core element (Level 1) necessary for successful revalidation.

Medical education, as a discipline, has a long history (see Figure 1) and has evolved enormously in the past decade with the emergence of evidence-based teaching techniques, outcomes-based curricula and assessment methods that are valid and reliable. However, it will never be an exact science and it will always depend on enthusiastic teachers willing to share their experience, and ambitious learners hungry for new knowledge and skills.

The Anaesthetists as Educators (AaE) Programme⁴ is the conduit through which the College offers development activities designed to support the delivery of high quality teaching and training in the workplace. The programme comprises a set of interactive workshops and engaging educational resources, planned and facilitated by a team of anaesthetists who believe that their professional duties include offering high quality education and training in the clinical workplace.

Engagement with the programme will support development of practising clinicians as effective clinical educators, equipped with the necessary skills and attributes needed to meet, and evidence professional development in relation to Postgraduate Medical Education in the UK, as defined by the GMC.⁵
Workshops
The AaE programme currently comprises three workshops: An Introduction to Education, Teaching and Training in the Workplace, and Educational Supervision. Whilst each addresses specific learning needs, the workshops are designed as a set and complement each other. They are intended to offer stepwise progression to the developing educator, adding layers of complexity and support, and building on increasing knowledge, skills and experience.

The content of each course is mapped to the seven domains identified in the GMC's framework for the professional development of medical supervisors. Participation in these courses will provide supporting evidence towards the approval process for clinical trainers and subsequent appraisal and revalidation activity.

An Introduction to Education
This one-day workshop provides an overview of postgraduate medical education in anaesthesia. It covers key concepts surrounding how adults learn, how to teach in theatre and how to give lectures. It also introduces clinical and educational supervision, assessment and appraisal and recognition of the trainee with problems. This workshop is suitable for trainees, career grade anaesthetists and consultants who have had no previous training in teaching or medical education. It provides the groundwork for the Teaching and Training in the Workplace course.

Teaching and Training in the Workplace
This two-day practical course is intended for senior trainees, career grade anaesthetists and consultants who have already experience of teaching and supervising trainees in the clinical environment. It builds upon the knowledge and skills learnt in the Introduction to Education workshop.

This workshop takes an in-depth look at the education and assessment of trainee anaesthetists and raises awareness of some of the key concepts associated with education. It also provides the unique opportunity to practise the techniques discussed and receive constructive feedback from experts.

Educational Supervision
This workshop comprises facilitated discussion on the topics of: governance of education, revalidation of trainees and trainers, effective educational supervision, serious untoward incidents, doctors in difficulty, and feedback and assessment. The course offers time to discuss and reflect on the problems and challenges of educational supervision in anaesthesia and helps participants increase the effectiveness of the educational supervision they provide.

This workshop reflects the GMC requirement for the roles of Educational and Clinical Supervisors to be formally recognised and is suitable for established Educational Supervisors. It is particularly suited to those in a supervisory role who require evidence of continuing professional development for the revalidation process.

Articles
This new series of innovative educational resources, available online, is designed to accompany and support the AaE workshops. Each article is written from the perspective of the developing educator and it is hoped that any grade or level of anaesthetist could make use of the material and find it both stimulating and challenging. Articles cover key educational topics relevant to teaching and learning within the context of clinical anaesthesia, see Box 1.

The articles are designed to complement the workshops but they can be read independently of the courses or indeed worked through individually. They are intended to increase understanding of the learning environment, raise awareness of key topics not previously considered, encourage engagement with clinical education and, most importantly, promote the capability to foster learning in others, see Box 2.

The RCoA 2010 Curriculum acts as a framework and learning outcomes for each article are mapped to relevant competencies found in this document. Completion of the learning activities, reflections, tasks and evidence of progression sections, can act as evidence to demonstrate continued professional development and be submitted as evidence in appraisal and revalidation processes.

Conclusion
Modern anaesthesia is extraordinarily safe. This is due, in no small part, to the very high standards expected...
Box 2 An overview of the format for each article

Each article offers:

- **Intended learning outcomes** – mapped to 2010 Curriculum competencies.
- **Activities** – pre-course endeavours that mirror the Basic, Intermediate and Higher stages of learning (the same nomenclature used in the 2010 Curriculum).
- **Tasks** – mini-assignments designed to spark interest, help link information to individual experiences, and promote active learning.
- **Reflections** – intended to encourage deeper thinking and understanding of the subject.
- **Evidence of progression** – this section suggests opportunities that the reader might use to demonstrate that they have embedded learning – using the same Basic, Intermediate and Higher stages of learning employed by the 2010 Curriculum.
- **Further reading** – key references that act as signposts to further learning
- **RCoA 2010 Syllabus Key** – the 2010 competencies relevant to each article.

by the RCoA and is integral to the delivery of teaching, training and continuing professional development in our specialty. However, in the same way that the practice of medicine has changed over the last decade, education in healthcare has also innovated and developed.

We do ourselves and those who follow us no favours to presume that what we have always done in relation to education is what we should continue to do – however, change forever provides its own resistance.

The challenge offered at the start of this piece intimates that education in healthcare has moved to a competence model of professional development. To succeed, this must be predicated on an evidence-based process of training and assessment undertaken by skilled individuals motivated to engage with the system.

The AaE programme and the new accompanying article series are specifically designed to signpost and support clinicians in this quest; and, by keeping an eye firmly directed to safe and effective health care delivery in the UK, we will maintain the external view of our professional specialty as one that provides high quality, supportive and developmental education and training.

References

On Thursday, 4 July 2013, the NIAA Grants Committee met to consider the first round of 2013 applications for funding on behalf of the Association of Anaesthetists of Great Britain and Ireland (AAGBI) and Anaesthesia, The Association of Paediatric Anaesthetists of Great Britain and Ireland (APAGBI), the British Journal of Anaesthesia (BJA), the Difficult Airway Society (DAS), the Obstetric Anaesthetists Association (OAA), Regional Anaesthesia UK (RA UK), the Society for Education in Anaesthesia UK (SEA UK), the Royal College of Anaesthetists (RCoA) and the Vascular Anaesthesia Society of Great Britain and Ireland (VASGBI). The committee considered 39 applications over ten categories for a requested sum of £966,397 and made a total of 12 awards to a value of £287,161.

A list of the successful applicants can be found in the table opposite and abstracts can be viewed at: www.niaa.org.uk/article.php?newsid=848.

<table>
<thead>
<tr>
<th>AAGBI/Anaesthesia Small Research Grant</th>
<th>Dr Matthew Mackenzie, East Surrey Hospital</th>
<th>A simulator based randomised comparison of national guidelines for local anaesthetic toxicity versus modified versions</th>
<th>£11,790</th>
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<tbody>
<tr>
<td></td>
<td>Dr Henry Reynolds, Bradford Royal Infirmary</td>
<td>Does repeating a scenario after debriefing, in anaesthetic simulation training, improve acquisition on non-technical skills?</td>
<td>Jointly funded by the AAGBI and SEA UK to the sum of £3,000</td>
</tr>
<tr>
<td></td>
<td>Dr David Smith, Southampton General Hospital</td>
<td>Developing a clinical measurement of depth of anaesthesia using brain connectivity measures.</td>
<td>£14,940</td>
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<tr>
<td></td>
<td>Dr Alison Steven, Northumbria University</td>
<td>An evaluation of the implementation and impact of a mentoring programme for anaesthetists in the North East.</td>
<td>£6,997</td>
</tr>
<tr>
<td></td>
<td>Dr Stephen Wright, Freeman Hospital, Newcastle upon Tyne</td>
<td>Introduction of real-time, mandatory recording of quality indicator data in anaesthesia recovery and regular feedback using statistical process control: the effect on clinician performance and engagement.</td>
<td>£14,921</td>
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<table>
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<tr>
<th>APAGBI/BJA/RCoA Research Grant</th>
<th>Dr Martin Lewis, University Hospital, Bristol</th>
<th>Novel strategies to protect the immature heart against reperfusion injury.</th>
<th>Jointly funded by the APAGBI and BJA/RCoA to the sum of £18,005</th>
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<td>BJA/RCoA Project Grant</td>
<td>Professor Tim Hales, University of Dundee</td>
<td>Preclinical identification of local anaesthetics that target colon cancer cells.</td>
<td>£63,462</td>
</tr>
<tr>
<td></td>
<td>Dr Simon Lambden, University College London</td>
<td>The role of the nitric oxide regulatory pathway in critical illness.</td>
<td>£9,000</td>
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<td></td>
<td>Professor Andrew Rice, Imperial College London</td>
<td>The role of HIV gp120-driven macrophage-sensory neuronal interactions in the pathogenesis of HIV-associated polyneuropathy and neuropathic pain.</td>
<td>£64,592</td>
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<tr>
<th>OAA Small Project Grant</th>
<th>Dr Surbhi Malhotra, St Mary’s Hospital, London</th>
<th>Is shivering following neuraxial blockade in obstetric patients related to changes in patient temperature? A prospective observational study.</th>
<th>£10,827</th>
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<table>
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<tr>
<th>OAA Large Project Grant</th>
<th>Dr Gareth Ackland, University College London</th>
<th>Elucidating the molecular mechanism underlying epidural related maternal fever.</th>
<th>£59,627</th>
</tr>
</thead>
</table>

| RA UK Project Grant | Dr Shilpa Munirama, University of Dundee | Development of a model of subperineural injection during ultrasound guided regional anaesthesia. | £10,000 |
Aim
It is essential that e-Learning Anaesthesia is kept accurate and up to date as a web-based resource for students, trainees preparing for examinations, and any College Fellow wishing to undertake online CPD.

e-LA was launched in August 2008 and we are entering its sixth year of usage. It has evolved over those six years so that there are now over 750 peer reviewed sessions available on the learning platform, but some of those earlier sessions have now been out there for quite some time. Unlike a book that requires re-editing and reprinting in distinct new editions over its lifetime, a web-based resource can be updated or changed as soon as errors are detected or as soon as new developments in a sub-specialty occur. Whilst we have been actively engaged in producing new sessions, we have been impressed by feedback we have received which clearly demonstrates how effective users are at picking up on errors, inconsistencies, and omissions that have slipped past the editorial process.

So what are you asking?
The ‘My Learning’ area of the Learning Management System is an area of e-LA that gives direct access to individual sessions (Figure 1). What you may not have noticed is that to the right of each session are a number of small icons (Table 1). Clicking on the second of these icons (Table 1) opens a feedback tab for that session (Figure 2).

Table 1
Icons associated with each session in ‘My Learning’

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Icon" /></td>
<td>Shows whether the session has not been started, is in progress (as above), or has been completed.</td>
</tr>
<tr>
<td><img src="image2.png" alt="Icon" /></td>
<td>Accesses the feedback form to rate that session or report errors (see Figure 2).</td>
</tr>
<tr>
<td><img src="image3.png" alt="Icon" /></td>
<td>Gives access to a personal notes page (up to 4,000 characters).</td>
</tr>
<tr>
<td><img src="image4.png" alt="Icon" /></td>
<td>Adds this session to your personal library.</td>
</tr>
<tr>
<td><img src="image5.png" alt="Icon" /></td>
<td>Shows a summary of the session, keywords used to index it, and author details.</td>
</tr>
</tbody>
</table>

Figure 1
Access to the feedback feature via the ‘My Learning’ page of the LMS. The Anaesthetist and the Theatre Team session has been highlighted. Normally this would be opened by clicking on the session name (blue text). The feedback form is available to the right of this text by clicking on the third column of icons (there are a total of three sessions and feedback forms visible on this screenshot).
Please use this facility to feed back your opinions and ratings relating to a session’s content, presentation, interactivity, and self-assessment exercises. These global ratings are useful as a means of flagging poorly performing sessions, and there is a checkbox available to ‘red flag’ errors discovered in that session for rapid review and correction. Please use the comments box to give as many specifics and details as possible about where the error(s) lies.

What will you do with my feedback?
A decision on the order in which content is reviewed and updated will be made based on known changes in practice that affect the curriculum, merged with frequency of feedback from users with respect to quality of the sessions and input from the rating system which scored the sessions once they went live.

Because of the size of the project and limited resources available to support an editorial team, we think it is essential that we develop, within e-LA users, a community spirit where users are encouraged to provide feedback as part of a continuous review and maintenance programme for the project.

‘Module 1 – An introduction to anaesthesia’ was the first module completed. It contains 78 e-Learning sessions and four self-assessments. There have been some changes to the curriculum for the first three months since this module was developed and we have therefore decided to review and update this whole module first. After this we will target individual sessions, selecting topics based on the criteria referred to above.

With a project this size one can’t help feeling that the revision process may well have the same never-ending quality as embarking on painting the Forth Bridge, but with careful guidance from a body of well-educated and informed reviewers it will be possible to maintain an up-to-date resource that will continue to be as useful tomorrow as it is today.
It was a real surprise to receive an email telling me I had launched the millionth e-Learning Anaesthesia session. It was less of a surprise to hear that it was an MCQ revision session, as I was in the middle of my final preparations for the dreaded Part 1. I passed the revision session and a week later passed the actual exam! e-LA had been a godsend both during my first year in anaesthesia and during that final nervous push towards the exam, so when the College asked me for some feedback I was very happy to contribute.

My key message to other trainees is to use e-LA early and to use it often. I've been practising anaesthesia for 14 months, but only really started to use e-LA in earnest around six months ago. There are so many e-learning sessions and other resources that it takes a long time to work through them. However, it is time well spent as I certainly learned better from e-LA than from books – I found the diagrams, flow charts and animations really helpful. With so many huge topics to tackle, I also knew that e-LA highlighted the key elements I needed to know, enabling me to focus my time productively.

I have found e-LA very easy to access, apart from the issues with animations and videos not working on my iPad. I'm pleased to hear that this will soon be a thing of the past and that the sessions will work on tablet computers and smart phones.

Now that the MCQs and the main basic science components of the exam are behind me, I need to make a start on Modules 3, 4 and 5, which I am now aware are mapped to the Year 2 training I have just started and cover ICU, Obstetrics, Paediatrics, Anaesthesia in the Elderly, Pain Medicine and Regional Anaesthesia. It will be good to be able to do this on the move.

My other task is to get my head around the My Activity section of the site which allows me to create reports on what sessions I have accessed and how long I have spent on them. I hadn't thought about using this for my forthcoming ARCP and it will be very useful evidence of how much I have been studying over the last year.

e-LA is an amazing resource and anaesthetic trainees are very fortunate to have so much high quality e-learning available to them.
Dear Editor,

Trask’s excellent article on in-flight medical emergencies raises some very important issues related to on-board Good Samaritan acts on which I would like to expand, drawing upon my own experience of an ‘is there a doctor on board?’ cabin crew request.

Firstly, the legal standing, which Trask lays out clearly, leaves me decidedly uneasy. The Good Samaritan act, by definition, requires us to provide medical care outwith our day-to-day clinical practice, inevitably leading to a Catch-22 situation – we have an ethical and professional duty to give assistance, yet it is clearly stipulated that we must also operate without exceeding our clinical expertise. Surely, aside from the minority of us specifically trained in repatriation or retrieval, any situation that requires significant input from ourselves at 40,000 feet will indeed exceed our clinical expertise.

The fact that litigation is very rare, that the law is somewhat liberal in its approach to ‘good will’ and that select divisions of some of the UK medical defence organisations offer a degree of assistance, is of scant consolation. Liability certainly seemed to supersede clinical importance at the medical emergency I attended, with paperwork being thrust upon me immediately by cabin crew, with three-quarters of the single A4 sheet dedicated to the patient’s and my contact details, and a only few lines squeezed in at the bottom for any account of the actual clinical encounter. The 1998 Aviation Medical Assistance Act includes a Good Samaritan clause which protects all volunteers against liability, unless there is gross negligence or wilful misconduct, and it would certainly alleviate some of my concerns if the MDU and MPS offered a similarly uniform indemnity rather than their currently ambiguous stance.

Secondly, Trask mentions the likelihood of an increasing trend in the number of in-flight emergencies with increased accessibility to air travel, which certainly raises the issue of appropriate screening of passengers for fitness to travel. This is especially applicable to the octogenarian whom I attended – having suffered a likely cerebrovascular event, resulting in fluctuating conscious level and complex partial seizures, his wife disclosed a previous medical history of ischaemic heart disease (including CABG), hypertension, hypercholesterolaemia, type II diabetes and renal dysfunction, currently under investigation for crescendo transient ischaemic attacks! The influx of low budget short-haul airlines has inevitably relaxed this process, and whilst a rigorous vetting tool is more relevant to long-haul flights, identifying high risk passengers at the point of booking seems far more sensible than attempting to deal with the consequences in-flight.

Trask lists the emergency medical equipment and medication (adapted from the Federal Aviation Administration and European Aviation Safety Agency) that should be available in-flight. Surprisingly, neither mentions oxygen, the most commonly used medication during in-flight emergencies, nor the equipment to administer it! Trask highlights that the current guidelines on the minimum requirements are conflicting, and that smaller/low-cost airlines may well balance potential need against limited storage, cost and training, I would wholly support her comments, but also add that even if the drug/equipment is present, it may still be unsatisfactory – having diagnosed a probable stroke requiring airway support, I requested high flow oxygen via a non-rebreath mask, and was provided with the only equipment available, a Hudson mask and a cylinder capable of delivering only 2–3 litres/minute due to an in-built flow restriction.

Finally, Trask mentions the role of ground-based physician services during in-flight emergencies, but I would like to draw attention to the importance of the ground-based crew on arrival at the flight’s destination. Particularly in the case of time-sensitive conditions, where flights may have already diverted/landed ahead of schedule, the final responsibility of the Good Samaritan is to ensure that the cabin crew/pilot keep the land-crew fully informed, and to request that the appropriate medical services/emergency personnel/ambulance crew are waiting on the runway on arrival in order to facilitate a swift face-to-face handover and then safe and rapid transfer of the passenger for ongoing care.

Dr P A Ward, Anaesthetics ST6, Northwick Park Hospital

References

Dear Editor,

I read with interest the article by Professors Bion and Evans on ‘Collaborating for Quality’. While no one can doubt the advantages of all the professional organisations in critical care medicine speaking with one voice through a forum, there are the questions as to which forum, who will listen, the topics of conversation and how outcomes will be delivered.

More letters can be found at www.rcoa.ac.uk/letters
Leaving education and training aside, the Department of Health prior to the Heath and Social Care Act (2012), relied on Critical Care Networks (that were formed as a result of recommendations arising from ‘Comprehensive Critical Care’’) to aid the implementation of national policy for critical care. As of April this year that role has been reinforced by their rebirth as Operational Delivery Networks. It is likely that the first substantive product of the Clinical Reference Group (CRG), a National Service Specification for Critical Care, will be operationalised (for want of a better term) by the Critical Care Networks.

The Critical Care Networks, set up by NHS England, are multidisciplinary organisations (not nursing organisations as implied in Figure 1 of the article) where managers, clinicians and nurses come together in an endeavour to deliver ‘safe and effective services across the clinical pathway’.

Among other things this involves improving the quality of care and co-ordinating the critical care response to events in a given geographical area. Their role has been reinforced by the recent NHS reorganisation.

It strikes me that Figure 1 in the article is thus not representative of the true picture. If a body were to be put at the centre it would surely be the Clinical Reference Group which, though set up to advise NHS England on specialised services, is going to have a big impact on critical care commissioned by the Clinical Commissioning Groups (CCGs). The CRG has input from professional bodies as well as representatives from the 15 Senate areas.

The implementation of products from the CRG is likely to involve the Critical Care Networks. The networks are NHS organisations rather than independent bodies. These should thus be on the opposite side of the diagram to the professional bodies and should link the CRG with the Trusts (Providers) for non-specialist commissioned services and CCGs, and the Area Teams with the Providers for specialised services.

It would seem that the CRG is the brain that will process inputs from the professions. It is the voice that the ear of NHS England will hear and the networks will be the operational arms.

One wonders whether, in this area, the Critical Care Leadership Forum has been overtaken by events.

Dr J Groves, Consultant in Anaesthesia and Intensive Care, Chesterfield Royal Hospital

References

A reply from the authors:
We thank Dr Groves for his interest in our article and his perceptive comments. He is correct to describe the networks as being multidisciplinary; they consist of nursing, physician, and managerial components. Our diagram attempted to provide a parsimonious model of the predominant voice in each of the professional groupings. We agree that the networks should be implementation devices, but do not view this as being restricted to commissioning. Moreover, colleagues in the networks have produced important materials on nurse training and on standards for peer review, hence their positioning with the professional organisations.

We take a different view from that of Dr Groves about the centrality or otherwise of the Clinical Reference Group (CRG). The role of the CRGs is to manage quality through commissioning, with line management linking purchasers and providers with NHS England. The role of the Critical Care Leadership Forum (CCLF) is much wider, and is independent of NHS England. Unlike the CRG, the CCLF has responsibility for, and can represent, the full range of professional organisations including physicians, nurses and allied health professionals, and their activities covering multiprofessional education, training, research, audit, quality improvement, and peer review. The coming together of the component professional organisations in CCLF should be regarded as a practical manifestation of the breadth and extent of their commitment to this vision, whilst maintaining independence from the commissioning processes to ensure that we maintain a balanced view of quality of patient care.

Apart from the requirement to clarify the composition of the networks, our model was approved by all organisations and individuals concerned, including those in commissioning. The first meeting of the CCLF on 16 July was attended by 16 organisations involved in intensive care. We asked the participants to describe what they wanted the CCLF to do, and how its success might be judged. A common theme was that the CCLF should aim to improve the quality of patient care by taking a multiprofessional approach to integrating research, best practice guidance and standards, education and training, and audit and implementation sciences. The fact that
intensive care is now a primary specialty gives us a unique opportunity to turn this aim into a long-term strategy, in which commissioning is but one part.

Professor J Bion and Professor T Evans, Faculty of Intensive Care Medicine

AsWeWere

The public mind has lately been most painfully occupied with the terrible catastrophe that befell the three aëronauts of the ‘Zenith’ in their ascent about a fortnight ago, which proved fatal to two of them, and placed the life of the third in extreme jeopardy. The immediate cause of death is still a disputed point, and the subject has been fully discussed. At the Academy of Sciences it was maintained that death was caused by asphyxia; whereas at the Academy of Medicine it was attributed to the extreme rarefaction of the air. Some of the savants have advanced that both the hypotheses are correct; but the opinion of M Gaston Tissandier, the surviving traveller, is that the deaths of Sivel and of Crocé-Spinelli, his companions in the ‘Zenith’, were evidently caused by the rarefaction of the air.

M Colin, a well-known Academician, stated that no amount of ballonets (bags) of oxygen, whatever may be their number, would be sufficient to bear against the low atmospheric pressure which exists beyond a height of 7000 metres. The deaths of the two aëronauts were not caused by want of air or an insufficiency of oxygen. It is proved by experiment that a human being is capable, without any great inconvenience, of living for some time in an atmosphere containing half the normal quantity of oxygen. No amount of inhalation of oxygen would have prevented the bleeding from the mucous membranes of the mouth and lungs, which was accompanied by extreme lassitude and temporary paralysis of the respiratory muscles, which proved fatal – symptoms caused by low atmospheric pressure.

Another point is whether the gases generated during digestion in the stomach and intestines would not under such conditions push the diaphragm upwards, and thus interfere with the movements of respiration. This would seem to have been demonstrated in the surviving traveller, who, according to his own account, escaped the sad fate of his companions by having undertaken the ascent with an empty stomach, whereas the latter had enjoyed a hearty meal before starting. Besides which, M Tissandier remained for a longer time in a state of syncope, in which all three fell when the balloon got to a certain height, which enabled him to resist the unusual influences to which he was exposed, whereas the unfortunate Crocé-Spinelli, in a state of delirium, threw overboard everything he could get hold of. This had the effect of so lightening the balloon that it ascended with vertiginous rapidity, as if, to use M Tissandier’s own words, ‘it was being sucked up towards the sky.’

The majority of members of both Academies, after the official enquiries, came to the conclusion that the deaths should be attributed to the combined influence of physic-chemical causes. The moral lesson to be drawn is that man ought to keep within his own sphere, as he is no more fitted to soar to the lofty regions of the air, than he is to dive into the depths of the ocean. But notwithstanding this strong advice, there are other aëronauts who have proposed to the Aëronautic Society of Paris to continue the experiments begun by the crew of the ‘Zenith’. They will be provided with a special apparatus to prevent asphyxia, and counteract the sudden transition from a dense to a light atmosphere. The boat of the new ‘Zenith’ is to contain a reservoir of compressed air sufficient to sustain the life of a man for several hours; and in addition they are all to wear a ‘scaphandre’ or envelope made of vulcanised indiarubber, also filled with air. The wearer will be covered from head to foot, and will be able to bear with impunity barometrical depressions indicating an altitude of 15,000 metres.

The apparatus is to be subjected to experiments in the great iron pneumatic room at the Sorbonne, and no doubt a report will be made on the subject.


France was so far ahead in the space race in 1875? Stranger than fiction; even Jules Verne did not think to take his men to the moon with space suits in a pressurised cabin. Presumably the ‘great iron pneumatic room at the Sorbonne’ was Paul Bert’s barometric chamber.

David Zuck, History of Anaesthesia Society
Report of Council

At a meeting of Council on Wednesday, 18 September 2013, Dr J-P van Besouw was admitted as President for the year 2013–2014. Dr D Nolan and Dr L Brennan were admitted as Vice-Presidents for the year 2013–2014. The past Vice-President’s Medal was presented to Dr H Jones.

Fellowship ad eundem of the College was awarded to: Dr Atul Gaur, Dr Fariborz Neirami, Dr Grainne Nicholson and Dr Guruswamy Velupandian.

The following appointments/re-appointments were approved (re-appointments marked with an asterisk):

Regional Advisers
Kent, Surrey, Sussex
Dr S Panayiotou, Worthing Hospital, West Sussex

Wales
Dr E Wright, Llandough Hospital, South Glamorgan

West Midlands North
Dr P Mills, Birmingham Women’s Hospital

Deputy Regional Advisers
Northern
Dr J Morch-Siddall, Royal Victoria Infirmary (in succession to Dr G Enever)

West of Scotland
Dr S I Marshall, Monkland District General Hospital (in succession to Dr E M McGrady)

West Midlands
Dr T J McLeod, Birmingham Heartlands Hospital (in succession to Dr S Edmends)

College Tutors
Oxford
Dr J S Hewitt-Gray, Horton General Hospital (in succession to Dr R E Paul)

Northern
Dr R J Geary, Darlington Memorial Hospital (in succession to Dr P Krishnan)

East Yorkshire
*Dr A M Sladkowski, Scarborough General Hospital

West Yorkshire
Dr S J Hill, Calderdale and Huddersfield NHS Foundation Trust (in succession to Dr P Krishnan)
*Dr J F Burns, Airedale General Hospital (term extended)

Northern Ireland
*Dr A M Chisakuta, Royal Group of Hospitals, Belfast (term extended)

North Thames Central
*Dr Chakravarti-Chattopadhyay, Barnet General Hospital

North Thames East
*Dr C Sheppey, Royal London Hospital

Mersey
*Dr A Wong, Whiston Hospital

North West
*Dr O W Pratt, Salford Royal NHSFT

South East Scotland
*Dr B Shippey, NHS Fife
Dr E Dickson, Royal Hospital for Sick Children (in succession to Dr C M Smith)

Wessex
Dr A C Woodward, Jersey General Hospital (in succession to Dr A J Thompson)

Kent, Surrey, Sussex
*Dr S Sudan, Royal Sussex County Hospital
*Dr G Sridhar, Frimley Park Hospital

Leicester and South Trent
Dr J Stone, Northampton General Hospital (in succession to Dr P Davies)
Dr A Kelkar, Leicester General Hospital (in succession to Dr N L A Hickman)

Nottingham and Mid Trent
*Dr Z A Sadiq, Derby Hospitals NHS Foundation Trust

Wales
Dr J Walker, Ysbyty Gwynedd (acting Tutor covering for Dr S H Burnell)

West Midlands South
*Dr K S Gregory, Birmingham Heartlands Hospital
*Dr K Ramachandran, University Hospitals of Coventry and Warwickshire NHS Trust
*Dr I K Suri, Warwick Hospital
There are no appointments/re-appointments this month.

To note recommendations made to the GMC for approval, that CCTs/CESR (CP)s be awarded to those set out below, who have satisfactorily completed the full period of higher specialist training in anaesthesia. The doctors whose names are marked with an asterisk have been recommended for Joint CCTs/CESR (CP)s in Anaesthesia and Intensive Care Medicine.

**July**

**Anglia**
- Dr Rajashree Chavan
- Dr Ari Ercole
- Dr Nathaniel Broughton *
- Dr Paul-Simon Whitney
- Dr Sui Hee Goon
- Dr Kaushik Bhovmick *
- Dr Vijayakumar Gopal *
- Dr Ravi Kari

**South East**
- Dr Sarah Cowman
- Dr Sarah Bigham *
- Dr Amrut Muddanna
- Dr Josep Macmillan
- Dr Karthikoyan Ponnusamy
- Dr Oswald D’Mello

**North Central**
- Dr Gagandeep Atwal
- Dr John McGrath
- Dr Roger Thompson

**Bart’s and The London**
- Dr Eduardo Svoren
- Dr Sanjay Kuravinakop
- Dr Seema Shah
- Dr Matthew Wikner

**Imperial**
- Dr Vimal Grover *
- Dr Sharon Pickworth

**St George’s**
- Dr Simon Wood *
- Dr Jelena Devic
- Dr Sameer Rajan *
- Dr Ai-Shi Lim

**Kent, Surrey, Sussex**
- Dr Catherine Doyle
- Dr Celia Bygrave
- Dr Deepak Manjiani
- Dr Nanda Senathi
- Dr Ashok Nanyanasamy

**Mersey**
- Dr Kirsten Fehrmann
- Dr Alex Houston
- Dr Colleen Mackie

**North West**
- Dr Kate Bailey *
- Dr Jon Hopper *
- Dr Robert Sharcross *
- Dr Tina Duff *
- Dr Jane Lowery
- Dr William Davies *
- Dr Jonathan Barnard-Smith *
- Dr Suraj Jayasundara

**Northern**
- Dr Rajendra Singh
- Dr Christopher Dickson
- Dr Uwe Franke *
- Dr Karuna Kotur
- Dr Martin Doran
- Dr Zubair Mohamed *
- Dr Ian Baxter
- Dr Rakesh Bhandary
- Dr Barry Paul *
- Dr Devachandran Jayakumar *

**Northern Ireland**
- Dr Rory Maguire
- Dr Aidan Cullen
- Dr Patrick McKendry
- Dr Mainad Deighan

**Oxford**
- Dr Imran Mohammad
- Dr Shravan Tirunagari
- Dr Nikolaos Makris *
- Dr Catherine Atkinson

**Severn/Bristol**
- Dr Anthony Carey

**South West Peninsula**
- Dr Michelle Barnard *

**Wessex**
- Dr Robert Chambers *
- Dr Andrew Baker *

**Birmingham**
- Dr Raju Puttaswamy
- Dr Adrian Jennings
- Dr Andrew Downs
- Dr Richard Hodgson

- Dr Max Hodges
- Dr Hozefa Ebrahim

**Wales**
- Dr Fiona Brennan
- Dr Paul Clarke *
- Dr Sabelo Ndlovu

**East Scotland**
- Dr Claire Wallace
- Dr Linda Dubiel
- Dr Pavan Bangalore C Raju
- Dr Neal Willis

**South East Scotland**
- Dr Katy Nicholson
- Dr Michael Macmahon *

**North Scotland**
- Dr Prabodhachandran M Sasidharan

**West Scotland**
- Dr Somashhekar Gangaiah
- Dr Ramesh Vedagiri Sai
- Dr Sivakumar Belu Suderson
- Dr Karim Elkasrawy
- Dr Keir Mellmoyle
- Dr Ross Junkin

**West Yorkshire (Leeds/Bradford)**
- Dr Matthew Law
- Dr Deborah Horner
- Dr Timothy Bennett
- Dr Natalie Drury
- Dr Justine Heard
- Dr Nehemiah Mupedziswa
- Dr Lucy Adams
- Dr James Taylor
- Dr Mohammed Rajab
- Dr Jadeep Ravi
- Dr Robert Tuffin *
- Dr Parvez Peer
- Dr Benjamin Rippin

**South Yorkshire (Sheffield)**
- Dr Susanne Parkinson
- Dr Ashok Elayaperumal

**August**

**Anglia**
- Dr Darcy Pearson *

**London**
- Dr Kiran Salaunkey
- Dr Rathanavel Govindaraju Kanagavelu
- Dr Wangui Manguyu
- Dr Christopher Pollitt
**North Central**  
Dr Jeremy Windsor  
Dr Shilpa Reddy  
Dr Baldeep Panesar *  
Dr Amod Manocha  
Dr Stephen Stamatakis  
Dr Parvan Kukreja  
Dr Kamalakkannan Subhas

**Bart’s and The London**  
Dr Priti Gandre  
Dr Tapiwa Kundishora  
Dr Timothy Egan  
Dr Niven Akotia

**Imperial**  
Dr Anberin Khan  
Dr Michael Kynoch  
Dr Tania Strickland  
Dr Amardeep Riyat  
Dr Sameer Patel *  
Dr Varunee Wirasinghe

**St George’s**  
Dr Mark MacGregor  
Dr Dominic Sacco  
Dr Carolyn Johnston  
Dr Frank Schneider  
Dr Jan Rudiger

**Leicester**  
Dr Vishal Handa  
Dr Simon Leach  
Dr Yee Tang  
Dr Kausik Dasgupta

**Nottingham**  
Dr Oliver Knipe  
Dr Steven Gill *

**Mersey**  
Dr Emer McCarron  
Dr William Airey  
Dr Sergey Rastopyrov

**Northern**  
Dr Munyaradzi Vushemasimba  
Dr Avinash Kapoor  
Dr Amy Norrington  
Dr Rhiannon Roberts  
Dr Matthew Garner  
Dr Manjunatha Sollapura Vallabai Patel

**Northern Ireland**  
Dr Philip Anderson  
Dr Caroline West  
Dr Robert MacSweeney *  
Dr Linda-Jayne Mottram *  
Dr Muhammad Latif

**Oxford**  
Dr Michael Devile *  
Dr Yaroslav Stefak

**Severn/Bristol**  
Dr Alistar Johnstone

**South West Peninsula**  
Dr Susan Davies  
Dr James Cole

**Tri-Services**  
Dr David Evans *

**Wessex**  
Dr Joseph Tyrrell  
Dr Angela Denner  
Dr Suzanne Kellett

**Birmingham**  
Dr Narayana Polisetty Venkata Satya

**Stoke**  
Dr Catherine Stewart

**Warwickshire**  
Dr Rajneesh Sachdeva  
Dr Hendrik Cilliers  
Dr David Howard  
Dr Jennie Kerr  
Dr Ramesh Murugesan Sadasivan  
Dr Divya Khare

**Scotland**  
North Scotland  
Dr Stephen Friar *

**West Scotland**  
Dr Neelakshi Desai  
Dr Sundara Muthukrishnan

**West Yorkshire (Leeds/Bradford)**  
Dr Andre Carneiro

**South Yorkshire (Sheffield)**  
Dr Alexa Mannings

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**Appointment of Fellows to consultant and similar posts**

The College congratulates the following Fellows on their consultant appointments:

- Dr F M Brennan, University Hospital of Wales
- Dr R Chambers, University Hospitals, Southampton
- Dr O D’Mello, Wigan, Wrightington and Leigh NHS Trust
- Dr U Franke, James Cook University Hospital, Middlesbrough
- Dr S C Leach, The Royal Shrewsbury Hospital
- Dr S P Paramasivan, Morriston Hospital, Swansea
- Dr P K B C Raju, Ninewells Hospital, Dundee
- Dr N Schofield, Royal Free Hospital, London
- Dr E Walker, Gartnavel General Hospital, Glasgow

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**ERRATUM**

The Editor would like to apologise to Dr Kirsty Parsons from the South Yorkshire (Sheffield) Region for the incorrect spelling of her given name in the list of recommendations made to the GMC for approval of a CCT/CESR (CP), which was published in the September Bulletin.

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**ELECTION TO COUNCIL 2014**

**IMPORTANT NOTICE**

Please refer to the College website for details of the Council Election.

[www.rcoa.ac.uk/election](http://www.rcoa.ac.uk/election)

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**Appointment of Members, Associate Members and Associate Fellows**

The College congratulates the following who have now been admitted accordingly:

**Members**

- Dr Andrew Thomas Ratcliffe
- Dr Annika Elisabeth K Ryberg
- Dr Vinita Felmine

**Associate Members**

- Dr Attila Petri
- Dr John Martin Boselli
Anaesthetists as Educators: an Introduction
18 November 2013 (code: A12)
RCoA, London
Registration fee: £220 (£165 for RCoA registered trainees and affiliates)

Airway Workshop
20 November 2013 (code: C65)
RCoA, London
Registration fee: £260 (£195 for RCoA registered trainees and affiliates)

Faculty of Pain Medicine Annual Meeting
22 November 2013 (code: B08)
RCoA, London
Registration fee: £185 (£135 for RCoA registered trainees and affiliates)

CPD Study Day
26 November 2013 (code: C79)
RCoA, London
Registration fee: £200 (£150 for RCoA registered trainees and affiliates)

Joint RSM/RCoA Event – Emergencies in Anaesthetic Practice
29 November 2013
Royal Society of Medicine, London
Standard/early bird registration fee: £200/£130 (£150/£100 for registered trainees and affiliates). Further details from:
www.rsm.ac.uk/academ/ane04.php

Leadership and Management for Anaesthetists: Working Well in Teams... and Making an Impact
3 December 2013 (code: A93)
RCoA, London
Registration fee: £220

Recent Advances in Anaesthesia, Critical Care and Pain Management
3–5 December 2013 (code: C11)
Crowne Plaza, Nottingham
Registration fee: £490

Recent Advances in Anaesthesia, Critical Care and Pain Management
5–7 February 2014 (code: C68)
RCoA, London
Registration fee: £490

Airway Workshop
6 February 2014 (code: B53)
RCoA, London
Registration fee: £260 (£195 for RCoA registered trainees and affiliates)

CPD Study Day: Burns and Plastics
24 February 2014 (code: C63)
RCoA, London
Registration fee: £200 (£150 for RCoA registered trainees and affiliates)
ANAESTHETISTS AS EDUCATORS: TEACHING AND TRAINING IN THE WORKPLACE
24–25 February 2014 (code: C84)
RCoA, London
Registration fee: £425 (£320 for RCoA registered trainees and affiliates)

ULTRASOUND WORKSHOP
27 February 2014 (code: D23)
RCoA, London
Registration fee: £240 (£180 for RCoA registered trainees and affiliates)

AIRWAY WORKSHOP, CARDIFF
5 March 2014 (code: C96)
Hotel Marriott, Cardiff
Registration fee: £260 (£195 for RCoA registered trainees and affiliates)

AFTER THE FINAL FRCA: MAKING THE MOST OF TRAINING YEARS 5 TO 7
6 March 2014 (code: B16)
RCoA, London
Registration fee: £165

THE FACULTY OF INTENSIVE CARE MEDICINE ANNUAL MEETING
7 March 2014 (code: F33)
RCoA, London
Registration fee: £160 (£85 for RCoA registered trainees and affiliates)

LEADERSHIP AND MANAGEMENT: LEADING AND MANAGING CHANGE: SUCCESS WITH SERVICE DEVELOPMENT
11 March 2014 (code: C41)
RCoA, London
Registration fee: £220

ANNIVERSARY MEETING – TRAUMA
12–13 March 2014 (code: A03)
The Mermaid, London
Registration fee: £445 (£335 for RCoA registered trainees and affiliates)

AIRWAY WORKSHOP
Date and venue:
20 November 2013 (code: C65)
RCoA, London
Registration fee: £260 (£195 for RCoA registered trainees and affiliates)
Event organiser:
Dr R Bhagrath

9.00 am
Registration
Delegates will be split into three groups – all groups will rotate through the following topics:

AM SESSIONS
Station 1
FIBREOPTIC HANDLING SKILLS
Station 2
SUPRAGLOTTIC AIRWAYS
Station 3
RESCUE TECHNIQUES

PM SESSIONS
Station 1
AWAKE FOR INTUBATION
Station 2
VIDEOLARYNGOSCOPY
Station 3
EXTUBATION

4.00 pm
Close

SAVE THE DATE
RCOA ANNUAL CONGRESS
15–16 May 2014, National Museum, Cardiff

RECENT ADVANCES IN ANAESTHESIA, CRITICAL CARE AND PAIN MANAGEMENT
June 2014, Action Stations Portsmouth
CPD STUDY DAY

Date and venue:
26 November 2013 (code: C79)
RCoA, London

Registration fee:
£200 (£150 for RCoA registered trainees and affiliates)

Event organisers:
Dr C Frerk and Dr P Groom

The CPD Study Days series of lectures are designed to cover the essentials you will need to keep up to date with as part of your revalidation in anaesthesia.

A feature of the day is ample opportunity for questions from the floor when the experts will be happy to answer queries at all levels. The day covers a variety of topics and our aim is that no delegate should leave for home wishing they had found out more about any of the subjects and not had the opportunity to do so. As part of continuing professional development these lectures should assist individuals to enhance their portfolios for revalidation purposes.

» Welcome and introduction
  Dr P Groom, Liverpool

» The role of educational and clinical supervisors within the current curriculum (1H01, 2H01, 2H02)
  Dr P Davies, Northampton

» Cardiac disease in clinical practice (2A03)
  Dr N Scawn, Liverpool

» Goal directed therapy: what now? Practical aspects (2A04, 2A05)
  Dr S Jhanj, London

» Anaphylaxis and angioedema – what should I do? (1B01, 2A06)
  Dr M Hill, Plymouth

» The critically ill patient – at base and when they need transfer (2A11, 2C01)
  Dr M Fried, Scotland

» Organ donation – what anaesthetists need to know (2C06)
  Dr P Murphy, Leeds

» Human factors and investigation of incidents (1I01, 1I03)
  Dr P-A Laloe, Yorkshire

» The latest in airway management (2A01)
  Dr A Higgs, Warrington

» 4.45 pm
  Close

ACUTE PAIN MANAGEMENT STUDY DAY

Date and venue:
3 February 2014 (code: B28)
RCoA, London

Registration fee:
£165 (£135 for RCoA registered trainees and affiliates) or £315 (£255 for RCoA registered trainees and affiliates) when booked with FPM Diagnostic Investigations Study Day on 4 February 2014

» Effective acute pain management – identifying the challenges
  Dr N Singh, Scunthorpe

» Pain management in the opioid dependent patient
  Dr C Stannard, Bristol

» Pain management in the paediatric patient
  Dr D Patel, Manchester

» Pain management in the obstetric patient
  Dr N Lucas, Harrow

» Pain management in the morbidly obese patient
  Dr A Mallick, Leeds

» Enhanced recovery after hip and knee arthroplasty – the Oswestry success story
  Dr J C John, Oswestry

» Enhanced recovery after surgery – what’s regional anaesthesia got to do with it?
  Dr M Checketts, Dundee

» Evidenced based postoperative pain management: what’s it all about?
  Dr B Fischer, Redditch

» Ultrasound guidance for identifying epidural space – the hows and whys?
  Dr V Kumar, Scunthorpe
LEADERSHIP AND MANAGEMENT FOR ANAESTHETISTS: WORKING WELL IN TEAMS... AND MAKING AN IMPACT

Date and venue:
3 December 2013 (code: A93)
RCoA, London

Registration fee:
£220

Event organiser:
Dr C Ralston

An interactive workshop designed specifically for anaesthetists. The workshop is a balance of plenary sessions, group work and exercises with the emphasis on real life issues, open discussions, up to date information and specific time for one to one discussions.

- Welcome and introduction
  Dr C Ralston and Ms V Glenny
- Case scenarios in team working
- What are the key ingredients of team effectiveness?
- Do we need to like each other to work well together?
- Working in multi-disciplinary teams
- Team effectiveness planning

At the end of the workshop, each participant will have:

- Enhanced their understanding of how teams work through the introduction of basic tools and frameworks that can be applied to their own teams.
- Had the opportunity to practise working in a group setting and explore the challenges this can present.
- Considered the particular challenges and benefits of working in a multidisciplinary setting.
- Explored and developed a personal plan for maximising their effectiveness in their own team setting.

FUTURE DATES
- Leading and managing change: success with service development
  11 March 2014 (code: C41)
  Registration fee: £220
- Introduction to leadership and management for anaesthetists: the essentials
  29–30 May 2014 (code: B56)
  Registration fee: £445

ANAESTHETISTS AS EDUCATORS: TEACHING AND TRAINING IN THE WORKPLACE

Date and venue:
4–5 December 2013 (code: C80)
24–25 February 2014 (code: C84)
RCoA, London

Registration fee:
£425 (£320 for RCoA registered trainees and affiliates)

Event organiser:
Dr S Williamson

DAY 1
- Session 1: Welcome and course introduction
- Session 2: Learning and teaching
- Session 3: Feedback: the fuel to drive performance
- Session 4: Workplace teaching: planning

5.15 pm
Drinks reception for all

DAY 2
- Session 5: Workplace teaching: skills teaching
- Session 6: Workplace assessment
- Session 7: Practice teaching
- Session 8: Wrap up

CPD Matrix Codes
1H01, 1H02, 2H01 and 2H02
# Recent Advances in Anaesthesia, Critical Care and Pain Management

**Date and venue:**
3–5 December 2013 (code: C11)
Crowne Plaza, Nottingham

**Registration fee:**
£490

**Event organisers:**
Dr R Verma and Dr J Williams

## Day 1
- **Mechanisms of action of anaesthesia** (1A01, 1A02)
  - Professor H Hemmings, USA
- **Recent advances in opioid analgesic agents** (1A01, 1A02, 3E00)
  - Dr R Knaggs, Nottingham
- **Cannabinoid analgesic agents** (1A01, 1A02, 3E00)
  - Professor J Zajicek, Plymouth
- **Anaesthesia for hip fractures** (2A03, 3A08)
  - Dr R Griffiths, Peterborough
- **Orthogeriatric risk assessment** (2A03, 3A08)
  - Dr I Moppett, Nottingham
- **Number needed to treat or prospect** (3J00, 2E01)
  - Dr B Fischer, Worcestershire
- **Risk prediction in anaesthesia** (2A02, 2A03)
  - Dr R Moonesinghe, London

## Day 2
- **Epigenetics of anaesthesia** (3J00)
  - Dr A Shaw, USA
- **Carbohydrate loading in the perioperative period** (2A03)
  - Professor D Lobo, Nottingham
- **Simulation training** (3J00)
  - Dr A McIndoe, Bristol
- **Simulation in research** (3J00)
  - Professor J Hardman, Nottingham
- **Neural toxicity of anaesthetics** (1A02)
  - Professor H Hemmings, USA
- **Opiates and long-term outcome** (1A02, 1D02)
  - Professor D Buggy, ROI
- **Validity of consent in anaesthesia** (1F01)
  - Professor P Hutton, Birmingham
- **Wildlife anaesthesia** (3J00)
  - Professor C Walzer, Austria

## Day 3
- **Recent advances in perioperative acute kidney injury** (1A01)
  - Dr A Shaw, USA
- **NICE fluid resuscitation guidelines** (2A05)
  - Dr N Soni, London
- **Findings from EuSOS**
  - Professor M Grocott, Southampton
- **National Audit Project 5** (3J00)
  - Dr J Mackay, Cambridge
- **Beyond 2D ultrasound** (2A04)
  - Dr C Morris, Derby
- **Awareness and depth of anaesthesia** (2A04)
  - Dr D Smith, Southampton
- **Optimal cardiac output monitoring** (2A04)
  - Dr S Gold, Bath
**RECENT ADVANCES IN ANAESTHESIA, CRITICAL CARE AND PAIN MANAGEMENT**

**Date and venue:** 5–7 February 2014 (code: C68)
RCoA, London

**Registration fee:** £490

**Event organisers:** Professor P Foëx and Dr J Carlisle

**DAY 1**
- The College in 2014 (1I05, 3J00)
- Mechanisms of anaesthesia (1A02)
- Malignant hyperpyrexia (1A02, 2C04)
- Mortality of surgery: EuSOS
- Awareness: lessons from NAP5
- Management of severe asthma (2C04, 3C00)
- The patient with coronary stents (2A03, 3G00)
- Update in ICM (3C00)
- Burns management (2A02, 3H00)

**DAY 2**
- Doctors in the dock
- Regulators and inspectors
- What brain imaging has taught us about pain and analgesia (1A03, 3E00)
- Acute pain management (1D02, 2E01)
- Persistent post-surgery pain (2E03, 3E00)
- GUCH in obstetrics (2B06, 3B00)
- What is new in the delivery suite (2B06, 3B00)
- Paediatric emergencies for the generalist (2D01, 3D00)
- Perioperative optimisation (2A03)
- Acute kidney injury (2C05)

**DAY 3**
- Patients with pace-makers, defibrillators (1A03, 2A03)
- Perioperative dysrhythmias
- Minimising the risk of cognitive dysfunction (2A04)
- Anaesthesia and the elderly (1A01, 1A02)
- Unexpected difficult intubation (1B02, 2A01)
- Implications of aortic stenosis (3G00)
- Regional anaesthesia for 2014 (2G01, 3A09)
- The weight challenged patient (3I00)

**PROGRAMME SUBJECT TO CHANGE**
ANNIVERSARY MEETING: TRAUMA

Date and venue:
12–13 March 2014 (code: A03)
The Mermaid, London

Registration fee:
£445 (£335 for RCoA registered trainees and affiliates)

Event organisers:
Dr S Howell and Dr T Moll

DAY 1

SESSION 1
- Trauma systems
- Trauma scores and databases
- Bastion to Birmingham: how civilian patients can benefit

SESSION 2
- Prehospital anaesthesia – the same but different
- Transport of the trauma patient
- Triage

SESSION 3
- Haemodynamic changes in trauma
- Coagulation in trauma

SESSION 4
- Damage control resuscitation and surgery
- Radiology – when to go and where to go

DAY 2

SESSION 5
- Critical care for trauma – is it different?
- Trauma rehabilitation and outcomes

SESSION 6
- Role of hypothermia in trauma care
- Oxygen in trauma: friend or foe
- Managing the anti-coagulated head injured patient

SESSION 7
- The trauma team
- ATLS in the 21st century: fit for purpose?
- Lessons from motorsport

SESSION 8
- Knives and guns
- Burns
- Paediatric trauma
CPD STUDY DAY:
PRE-HABILITATION: STRATEGIES TO OPTIMISE PATIENT FITNESS PRIOR TO MAJOR SURGERY

Date and venue:
20 March 2014 (code: C72)
RCoA, London

Registration fee:
£200 (£150 for RCoA registered trainees and affiliates)

Event organiser:
Professor G Danjoux

 SESSION 1: WHO NEEDS PREHABILITATION?
» Is preoperative frailty a risk factor?
  Professor J Young, Bradford
» Preoperative aerobic fitness and surgical outcome: the evidence
  Dr C Snowden, Newcastle

 SESSION 2: OPTIMISATION
» Cardiorespiratory conditioning in the elderly – mechanisms, strategies and evidence
  Dr G Tew, York
» Musculoskeletal conditioning in the elderly – mechanisms, strategies and evidence
  Professor S Harridge, London
» Preoperative anaemia – importance and optimisation
  Mr T Richards, London

 SESSION 3: GENERAL THEMES
» Preoperative nutritional status – importance and optimisation
  Speaker to be advised

 SESSION 4: CHALLENGES ABOUT TRANSLATION
» The North American experience
  Dr J Myers, California, USA
» Discussion forum and expert panel

5.05 pm
Close

ULTRASOUND WORKSHOP

Date and venue:
27 February 2014 (code: D23)
RCoA, London

Registration fee:
£240 (£180 for RCoA registered trainees and affiliates)

Event organiser:
Dr A Gaur

Outcome
The workshop will provide delegates an opportunity to learn directly from experts regarding the use of ultrasound in regional anaesthesia. The groups are small to allow a chance for adequate hands-on experience of various scanning techniques. Delegates will also get an opportunity to learn how to hold the ultrasound probe and perform various types of needle insertion techniques using real time ultrasound guidance on turkey legs. The workshop is designed to provide more than just basic textual knowledge and intended to improve the psychomotor and cognitive skills; and to raise the standards of ultrasound guided regional anaesthesia.

Delegates will be split into small groups to rotate through eight workstations (40 minutes per station)

<table>
<thead>
<tr>
<th>Station</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Upper limb – above clavicle</td>
</tr>
<tr>
<td>2</td>
<td>Upper limb – below clavicle</td>
</tr>
<tr>
<td>3</td>
<td>Lower limb – femoral and LFCN</td>
</tr>
<tr>
<td>4</td>
<td>Probe and needling</td>
</tr>
<tr>
<td>5</td>
<td>Lower limb – sciatic/ popliteal</td>
</tr>
<tr>
<td>6</td>
<td>Epidural/spinal</td>
</tr>
<tr>
<td>7</td>
<td>Abdominal</td>
</tr>
<tr>
<td>8</td>
<td>Lumbar plexus</td>
</tr>
</tbody>
</table>

5.00 pm
Close

CPD Matrix Codes
3A08, 3A09, 3B00
Consultations

Please see below consultations that the Royal College of Anaesthetists has responded to in the last two months.

<table>
<thead>
<tr>
<th>Originator</th>
<th>Consultation</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS England</td>
<td>NHS Hospital data and datasets: a consultation</td>
</tr>
<tr>
<td>NHS Employers</td>
<td>Working longer review – call for evidence</td>
</tr>
<tr>
<td>Department for Transport</td>
<td>Regulations about the new offence of driving with a controlled drug in the body above a specified limit: consultation document. (Response by Faculty of Pain Medicine)</td>
</tr>
<tr>
<td>National Assembly for Wales – Health and Social Care Committee</td>
<td>Short inquiry into the work of Healthcare Inspectorate Wales (HIW)</td>
</tr>
<tr>
<td>Academy of Medical Royal Colleges</td>
<td>Mental Capacity Act 2005. (Response by Faculty of Intensive Care Medicine)</td>
</tr>
<tr>
<td>Department of Health</td>
<td>Right care, right place, right time: How can we improve health and care for vulnerable older people?</td>
</tr>
<tr>
<td>The King’s Fund</td>
<td>Commission on the Future of Health and Social Care in England – call for evidence</td>
</tr>
<tr>
<td>British Medical Association</td>
<td>Decisions relating to cardiopulmonary resuscitation - guidance for consultation</td>
</tr>
<tr>
<td>Trust Special Administrator (TSA)</td>
<td>Draft recommendations on the future of services for local people using Stafford and Cannock Chase hospitals</td>
</tr>
<tr>
<td>The British Association of Paediatric Surgery</td>
<td>Commissioning guide on the provision of children’s surgery</td>
</tr>
<tr>
<td>National Assembly for Wales</td>
<td>Inquiry into access to medical technologies in Wales</td>
</tr>
<tr>
<td>Scottish Government</td>
<td>Provision of Specialist Residential Chronic Pain Services in Scotland. (Response by RCoA Scottish Advisory Board and Faculty of Pain Medicine)</td>
</tr>
</tbody>
</table>

Deaths

It is with regret that the College records the deaths of those listed below.

Dr H B Hannah, Wiltshire
Dr M J Hartley, Cheshire
Dr K David Johnston, West Yorkshire
Dr K Rauf, Sutton, London
Dr M C Stockwell, Glasgow

The College is able to receive brief obituaries (of no more than 500 words), with a photo if desired, of Fellows, Members or Trainees. These will be published on the College website (www.rcoa.ac.uk/obituaries).

Please email your text and any photo to: website@rcoa.ac.uk.

BULLETIN ADVERTISING

The RCoA Bulletin is published bi-monthly and distributed to over 15,000 anaesthetists worldwide, the vast majority being in the UK. Being so widely distributed, it is obviously seen by many other professionals who work alongside anaesthetists. Advertisements for courses and meetings from anaesthetic societies, or those organisations that are of interest to anaesthetists, are accepted with prior approval of the Editor or Editorial Board.

Advertisements must fit with the aims and aspirations of the RCoA and be related to anaesthesia, critical care and pain medicine. Please contact bulletin@rcoa.ac.uk for separate commercial advertising rates.

Rates below are valid from 1 July 2013 to 30 June 2014:

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Please go to www.rcoa.ac.uk/node/461 to complete the necessary Terms and Conditions of Business and to submit your advert.
Call for abstracts

**Dingle 2014**

16th Current Controversies in Anaesthesia & Peri-Operative Medicine

Dingle, Co. Kerry, Ireland
15th-19th October 2014

€1000 in Prizes. Any research is acceptable provided it has not been published in peer reviewed journal by the abstract deadline of 12th July 2014.

Trainees with abstract accepted for poster presentation are entitled to a £50 discount on registration and an additional £50 discount if also accepted for oral presentation. All presenters, both poster & oral, must register for the conference to present their work.

www.dingleconference.com

**EBPOM Regional Meetings**

**Manchester**
28th February 2014

**Exeter**
11th March 2014

**EBPOM 2014**

Institute of Education, London

Monday 3rd June 2014
- Mastering Cardiac Output Monitoring
Tuesday 1st July 2014
- Great World Fluid Debale
Wednesday 2nd & Thursday 3rd July 2014
- 13th EBPOM Congress in Evidence Based Perioperative Medicine
Thursday 3rd July 2014
- 10th Perioperative CPET Course
Friday 4th July 2014
- 7th National CPET Forum

**Call for Abstracts**

We invite you to submit work for poster presentation. Any research is acceptable provided it has not been published in peer reviewed journal by the abstract deadline of 14th April 2014.

Inclusion of up to 1 table and 1 figure is permitted. Abstract length should not exceed 400 words and should be submitted in 12pt Times Roman font.

£1000 in prizes. See website for full details.

All presenters, both poster and oral, must register for the conference to present their work.

To submit an abstract visit: www ebpom.org/abstracts
State of the Art Meeting 2013
Mon 16 to Wed 18 December 2013
The ICC, East ExCeL, London
The UK’s largest meeting for Intensive Care Professionals

Confirmed key note speakers:
Prof. Djillali Annane, France
Prof. Pat Croskerry, Canada
Prof. Daniel De Backer, Belgium
Prof. Jan De Waetle, Belgium
Dr Jeremy Kahn, USA
Prof. Monty Mythen, UK
Prof. Mervyn Singer, UK
Prof. Arthur Slutsky, Canada
Prof. Charles Sprung, Jerusalem
Prof. Jukka Takala, Switzerland
Ms Kathleen Vollman, USA
Prof. Ingeborg Witters, UK, Germany

Topics include:
Expert Centres or Everywhere?, The Heart of the Matter, Interactive Case Studies, Traumatic Times, Endpoints for Resuscitation, Optimal Staffing, Ventilation, Just a Sharp Scratch: Learning from our Patients, Thinking About Thinking- Better Decisions To Improve Intensive Care Quality, Surgical Intensive Care, Controversies in Critical Care, Understanding The Basics, Acute Kidney Injury, Organ donation & End of Life Care, Joint ICS/ International Sepsis Forum Session, Trainee Sessions: The Cauldron- The Intensive Care Units of the Future are the ICUs of the Mind and The David Bennett Award- An audience with Professor Arthur Slutsky

Also featuring:
State of the Art Exhibition, Industry Symposia, UK’s first medical Pecha Kucha session, Research Presentations, Research Poster Presentations, Multi Professional Research Workshops and Intensive Care Foundation James Lind Alliance Project

Rates frozen from 2012
Standard registration available until 23:59 on the 02/12/13*
*full fee breakdown available on the ICS website

Approved for 15 CPD Points

@ICSMMeetings
E: events@ics.ac.uk
www.ics.ac.uk

The Intensive Care Society
THE MSA SAQ WRITERS CLUB

The Writers Club has seen more than 400 trainees through the SAQ and E&SAQ Papers with a first-time Pass Rate of between 80 and 90 percent for those who have kept to the necessary disciplines. But many trainees apply far too close to the examination to derive anything like the full benefit from Membership. That Full Benefit includes Free Admission to the SAQ Weekend Courses, the Acquisition of a large and useful Collection of Answer Sheets and a valuable Motivation to Revision.

Candidates are urged to join now for the Spring 2014 and Autumn 2014 Examinations.

Enquiries to: writersclub.msa@gmail.com

<table>
<thead>
<tr>
<th>Courses</th>
<th>Dates</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Viva Weekend</td>
<td>2.00 pm Friday, 29 November to 4.00 pm Sunday, 1 December</td>
<td>Limited to 72</td>
</tr>
<tr>
<td>Primary OSCE Weekend</td>
<td>2.00 pm Friday, 3 January to 4.00 pm Sunday, 5 January</td>
<td>Limited to 48</td>
</tr>
<tr>
<td>Primary OSCE/Orals</td>
<td>1.00 pm Friday, 10 January to 2.00 pm Friday, 17 January</td>
<td>Limited to 48</td>
</tr>
<tr>
<td>Primary Viva Weekend</td>
<td>2.00 pm Friday, 17 January to 4.00 pm Sunday, 19 January</td>
<td>Limited to 72</td>
</tr>
<tr>
<td>Primary MCQ/SBA</td>
<td>2.00 pm Friday, 7 February to 4.00 pm Thursday, 13 February</td>
<td>No Limit</td>
</tr>
<tr>
<td>Final MCQ/SBA</td>
<td>2.00 pm Friday, 14 February to 4.00 pm Thursday, 20 February</td>
<td>No Limit</td>
</tr>
<tr>
<td>Final SAQ Weekend</td>
<td>2.00 pm Friday, 21 February to 4.00 pm Sunday, 23 February</td>
<td>No Limit</td>
</tr>
<tr>
<td>Final “Booker” Revision</td>
<td>1.00 pm Sunday, 23 February to 4.00 pm Friday, 28 February</td>
<td>Limited to 90</td>
</tr>
</tbody>
</table>

‘I would like to take this opportunity to thank you for having guided me so well. I managed to finish the Primary and Final FRCA one after the other starting in 2012. I had attended all your courses for each step of the exams, including the Booker Course’ (email June 2013).

To see details of all of our Courses please visit – www.msoa.org.uk or email: enquiries@msoa.org.uk.

*Like* Mersey School of Anaesthesia on Facebook for news and updates.

P.S. Mersey Deanery Trainees should consult the website for special concerns and conditions.
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