

Editorial

Welcome to Update 25:2, a special edition concentrating on the management of emergencies in anaesthesia. This compilation of the most practical and useful evidence-based algorithms and drills will guide management of emergencies in clinical care. Although prevention of life-threatening events is always preferable to treatment, critical events occur daily in anaesthesia and rely on anaesthetists being prepared to put in place effective clinical management.

Managing emergencies is often influenced by what we have learnt from prior experience - something that anaesthetists and theatre staff do on a daily basis, either as individuals or as a team. This ability to learn from our own and others' past performance, with a view to improving future performance, should now be formalised as a priority in every clinician's daily practice. Critical incident reporting and forums such as morbidity and mortality meetings contribute enormously to improving patient safety. These should be conducted in a supportive and blameless environment. We all work within financial constraints, but these safety-focused practices incur only minor, if any, cost. Detailed discussion of the factors that contribute to adverse events within healthcare is found in the first reference,¹ but the contents of this editorial, and the following articles, focuses primarily on treatment of critical events when they do occur.

Much of our time training and practising as anaesthetists is spent predicting and avoiding serious untoward events in theatre. Some adverse events occur because of errors in the clinical systems within which we work. The Safe Surgery Saves Lives campaign by the World Health Organisation aims to address some of these systemic factors using strategies such as the 'Time out' preoperative checklist.² Other potentially life-threatening events are unpredictable and cannot be prevented, for example anaphylaxis complicating induction of anaesthesia. We are trained to recognise these events, react rapidly and initiate treatment. However, well-documented incidents show that despite training, experience and a conscientious approach, the outcome for a patient suffering such an unpredicted event may still be poor.³

An explanation for this is that these scenarios are a major challenge for an individual or group of individuals and they expose our inherent human limitations.³ The clinical presentation may be non-specific, making diagnosis difficult - for example life-threatening hypoxia has numerous causes. In addition a wide variety of factors contribute to cause such crises. Factors include the patient's pathophysiology, staffing

levels and skills, theatre and hospital infrastructure and the equipment that is available. As the crisis deepens the complexity of the situation may increase and the diagnosis may change, for example a case of post-extubation laryngospasm may be further complicated by negative pressure pulmonary oedema. Unfortunately the nature of this type of event, when it occurs during anaesthesia, means that recognition and intervention need to be undertaken rapidly if rapid deterioration is to be avoided. It is well recognised that an individual managing an emergency on their own, and in stressful circumstances, may lose awareness of time passing, and lose sight of the correct diagnosis and appropriate management. Focussing on a task such as intubation may take such concentration that options such as waking the patient up may be missed. Whilst recognising that rare or previously unreported events are harder to identify and therefore potentially harmful,⁴ we also know that 'common things are common' and the diagnosis and management of the majority of crises is achievable using own prior experience or that of our colleagues.

Research performed using high-fidelity simulators demonstrates that experience does not mitigate against failure to deal with a simulated anaesthetic emergency.¹ If we rely on our ability to solve a previously unencountered problem from first principles, progress may be slow, particularly under the stress of an evolving emergency situation. There is a proven advantage to asking for senior help in order to gain a fresh 'unstressed' perspective on the situation. This may also counter the phenomenon of 'confirmation bias' where an individual, misled by earlier events within an evolving crisis, develops a 'strong but wrong' impression of an evolving situation.

Further information useful to guide management of these emergencies is generated by incident reporting and morbidity and mortality meetings. These systems are essential at a local level, and national data may be compiled to good effect as shown by the 'Crisis management during anaesthesia' resources produced by the Australian Patient Safety Foundation.³

A major component of the solution to managing emergencies is to encourage pre-designed responses using written algorithms, drills or protocols. These guide a healthcare worker through their responses at a time when their ability to think rapidly and rationally is compromised by the stress and possible consequences of the event. An algorithm guiding management of an emergency event must be structured, clear, quick and easy to follow, and cover all contingencies.³ Clearly

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there is a balance to be struck between achieving inclusiveness of all possible circumstances within an event and maintaining clarity and practical usefulness.

In compiling this edition we sought compact and clear diagrammatic guidelines that would serve as visual tools to guide management when placed on the walls of anaesthetic rooms and operating theatres in a wide range of healthcare settings. Each guideline is accompanied by a commentary which aims to expand upon the guideline, emphasising the logic behind a sequence of actions, and to describe in more detail practical procedures using unfamiliar equipment.

In some areas of practice robust published guidance is available from expert bodies or committees. However, in some areas it has proven particularly difficult to identify high quality guidance, for example for failed intubation in the obstetric setting. For all topics, where guidance is available, but not in a suitable format, we have endeavoured to create a clear single sheet diagrammatic guideline.

Some areas, such as management of major haemorrhage are complex and it is beyond our remit to try to construct a new guideline. Existing guidance for this topic is becoming increasingly outdated as evidence gathered from conflict zones around the world increasingly supports the use of 'massive transfusion packs' at the outset of management of severely injured patients, with the rationale that it is better to prevent coagulopathy than to attempt to treat it once it has occurred. These packs generally consist of four units of red cells that are used in conjunction with fresh frozen plasma and sometimes platelets. Several guidelines from the UK and US are available and these are currently being used by a working party of the Association of Anaesthetists of Great Britain and Ireland to draw up a guideline which should be freely available by the end of 2010. The European Resuscitation Council's updated algorithms for adult basic and advanced life will be published later this year and will be included in a later edition of *Update in Anaesthesia*.

Clearly production and distribution of a protocol is not sufficient on its own – management of life-threatening emergencies within anaesthesia requires training and practice, not just for the anaesthetist, but for the multi-disciplinary theatre team. Take-up of training is limited and it has been documented that most anaesthetists view themselves as 'better than average', a situation that is not mathematically possible and this may explain why uptake of these training sessions is still poor!

In summary, there is growing support for use of algorithms to manage emergency situations within anaesthesia and critical care. In this edition we feature the best guidelines we could find and hope that this compilation of emergency algorithms contributes to improving patient safety within your own practice, your team and your hospital. Display the algorithms in an appropriate place where they can easily be seen for immediate reference (Figure 1). For each one, familiarise yourself with its sequence and contents, in the context of the commentary that follows each algorithm. This process may be aided by discussion at tutorials or departmental meetings - present cases where the algorithm has been used and identify its merits and limitations.

Each algorithm may need to be adapted to the setting in which you work. Remember that practice is fundamental to success. Simulation does not have to be high-fidelity, but can be equally usefully conducted around a set of theatre scrubs laid out on a desk, with enthusiasm

from the participants involved. Whilst we are all aware of our own past involvement in management of crises, much can be learnt by implementation of an open and blameless system for discussion of critical incidents within your department as a whole.



Bruce McCormick

Editor-in-chief

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News from the WFSA

The Obstetric Anaesthesia Committee

The past year for the Obstetric Committee has been one of forging links with sister organizations and attempting to build the bridges by which we may collaborate on future multidisciplinary projects.

Late in 2009, following an earlier introductory meeting in London, the Chairman, Dr Paul Howell, travelled to Cape Town as guests of FIGO (the International Federation of Gynecology and Obstetrics) to participate in their World Congress. There he joined round-table panel discussions devoted to the FIGO initiative on Maternal and Newborn Health supported by the Bill and Melinda Gates Foundation. He made clear to parties who habitually forget to include anaesthetic involvement in the planning of maternity projects (e.g. obstetricians, midwives, health planners) how pivotal we are in improving obstetric surgical outcome in resource poor areas.

The WFSA has now become a Partner in the World Health Organization Partnership for Maternal, Newborn and Child Health (PMNCH), a multidisciplinary alliance of interested parties who are working to improve the health of mothers and children worldwide. This will hopefully improve our international profile and our ability to liaise with like-minded organizations on joint future projects – all too pressing since it's now clear that Millennium Development Goals 4 and 5 are far from being met.

Links with the Obstetric Anaesthetists' Association (OAA) and Association of Anaesthetists of Great Britain and Ireland (AAGBI) continue to grow, and the WFSA has joined forces with them on several interesting ventures. Thanks to a generous grant from Baxter, and collaboration with the OAA and Elsevier, publishers of the *International Journal of Obstetric Anaesthesia* (IJOA), a two CD set of useful obstetric anaesthetic resource material is being produced for distribution in resource-poor countries. This set, which comprises a variety of different tools including a webcast of the 2008 OAA Three Day Course with slides and abstract book, video of how spinals work, and back copies of *IJOA*, *Update in Anaesthesia* and *Tutorial of the Week*, is almost ready for circulation through usual WFSA routes.

In addition, in collaboration with the Publications Committee, the OAA and the AAGBI, an exciting new handbook of obstetric

anaesthesia, specifically targeted at anaesthetic providers in resource-poor area, has just been completed, and is ready for shipping. Already in hardcopy, it is hoped to make it available in electronic format at some point in the future.

As and when these two new educational tools are received, please do feed back to us with your comments, including what is useful, what is not, and what else would you like included (for the next editions)!

Around the world, individual members of the Obstetric Anaesthesia Committee continue to make significant contributions to the practice of obstetric anaesthesia and analgesia in their own regions, and beyond. Everyone plays their part, but special mention should perhaps be made of Dr Medge Owen who heads Kybele, an organisation that takes multidisciplinary teams into transitional level countries and shows how obstetric (anaesthetic) care can be improved through a combination of formal lectures and hands-on practical tuition. Recent publications show that this approach can make a lasting impact, with sustained changes in practice – an excellent example to us all!^{1,2}

Finally, in the not too far distant future, our next World Congress in Argentina in 2012 approaches. There will, of course, be an obstetric anaesthetic component to the meeting – always popular sessions – so put the dates in your diary, and see you there!

Paul Howell

Chairman
Obstetric Anaesthesia Committee
WFSA

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