Safe Anaesthesia Liaison Group

PATIENT SAFETY UPDATE
Including the summary of reported incidents relating to anaesthesia

1 APRIL TO 30 JUNE 2013

THIS DOCUMENT AIMS TO ACHIEVE THE FOLLOWING:

➤ Outline the data received, the severity of reported patient harm and the timing and source of reports
➤ Provide feedback to reporters and encourage further reports
➤ Provide vignettes for clinicians to use to support learning in their own Trusts and Boards
➤ Provide expert comments on reported issues
➤ Encourage staff to contact SALG in order to share their own learning on any of the incidents mentioned below.

MORBIDITY AND MORTALITY MEETINGS

The SALG Patient Safety Updates contain important learning from incidents reported to the National Reporting and Learning System (NRLS). The Royal College of Anaesthetists (RCoA) and the Association of Anaesthetists of Great Britain and Ireland (AAGBI) would like to bring these Safety Updates to the attention of as many anaesthetists and their teams as possible. We would like to encourage you to add this Update to the agenda of your next Morbidity and Mortality (M&M) meeting and we would also like to hear your feedback on learning points.

Feedback from M&M meetings on how the Patient Safety Update has informed action can be sent to the SALG administrator at SALG@rcoa.ac.uk.

ON THE SALG AGENDA

The following topics are currently under discussion by SALG:

SALG Patient Safety Conference

The SALG Patient Safety Conference will take place on Wednesday, 23 October 2013 at Cardiff City Hall. The event will be opened by Doctor Chris Jones, Deputy CMO in Wales and the programme will include the 2013 Frederic Hewitt Lecture, which will be delivered by Professor Steve Bolsin. More information including how to book is available on the RCoA website.

Incident data reported in Scotland

Colleagues from an NHS organisation in Scotland are working with their Caldicott Guardian to provide cleansed incident data for sharing through the Patient Safety Update (PSU). If you are in Scotland or Northern Ireland and would like to share the learning from anaesthesia related incidents with the specialty via the PSU, we would be happy to hear from you to make the appropriate arrangements. Equally, if you work in a non-NHS organisation that collects incident reports we would be very interested to hear from you regarding ways to share learning. Under the current data sharing agreements held between SALG and the National Reporting and Learning Service (NRLS), anaesthesia-related critical incident reports submitted by those working in the NHS in England and Wales are reviewed regularly by SALG members and shared via this update. Do not send any information about critical incidents without first getting in touch with the SALG administrator at SALG@rcoa.ac.uk or on 020 7092 1574.
The Berwick National Advisory Group has published their report into patient safety in the NHS. SALG note the following in particular: ‘Collaborative learning through safety and quality improvement networks can be extremely effective and should be encouraged across the NHS. The best networks are those that are owned by their members, who determine priorities for their own learning.’ The report’s emphasis on transparency and the interrogation and learning from data echo the values of SALG and the need for critical incident reporting and subsequent learning.

**LEARNING POINTS FROM REPORTED INCIDENTS**

**Drug errors in anaesthesia – how do we reduce them?**

- Patient given muscle relaxant instead of midazolam…

Drug errors in anaesthesia are common and frequently reported in these Patient Safety Updates. ‘Drug swaps’, where the wrong drug is given by mistake, most commonly involve muscle relaxants, antibiotics, opioids/sedatives or vasoactive drugs. Causes include failure to check, distraction, inattention, time pressures, or communication errors.¹ Most errors do not cause serious harm (but the potential is there) and the vast majority go unreported.

Some measures that have been suggested to reduce drug swaps include:¹ ²

- Reduce distractions and interruptions during critical tasks
- Ensure all drug syringes and infusions are labelled clearly
- Utilise double checking techniques
- Simplify and standardise the range of drugs and concentrations used
- Use a standardised layout for drug trays
- Use prefilled syringes and a bar-code reader
- Raise awareness, encourage reporting and learning from incidents within your department.

Have you adopted any techniques to reduce the incidence of drug error in your practice? Have you cascaded these changes to the rest of the department? We are interested to hear your experiences and suggestions. Please contact us via [SALG@rcoa.ac.uk](mailto:SALG@rcoa.ac.uk).


² Cooper L Nossaman B. Medication errors in anesthesia: a review. *Int Anaesthesiol Clin* 2013;51:(1)1–12.

**‘Non-technical skills’ and patient outcomes**

- Patient transferred from ward due to GI bleed requiring gastroscopy. Anaesthetist asked to be available. Gastroscopy performed in theatre. Extent of patient’s comorbidities not communicated. Blood results not available… Procedure attempted under sedation by endoscopist then anaesthetist. Escalation to GA needed. Arrested at induction. Unsuccessful PEA arrest…

Problems with communication and team-working are often the root cause of serious incidents. A number of studies suggest a correlation between non-technical skills (situation awareness, team-working, decision-making and task management) and technical skills.¹ ² Practising simulated emergencies as a team, particularly for teams who do not usually work together, may be one way to improve clinical outcomes.


Transfers, critical care outreach and use of recovery: Maintaining quality care when resources are stretched

- Patient for routine inguinal hernia repair. Uneventful induction, transferred to the theatre, developed severe bronchospasm. Given BLS and ALS. Developed PEA, resuscitated, transferred to Hospital B ICU.

- Patient admitted to A&E at Hospital A with GCS 8-12, confusion, abdominal pain and pyrexia. Immediately contacted medical and anaesthetic team for assessment of stabilisation and transfer. Patient deteriorated requiring intubation, CVC line and arterial line insertion… diagnosis of intra-abdominal sepsis… antibiotics administered. No radiological investigations performed at Hospital A. After four hours patient referred to Hospital B critical care consultant. Arrived at Hospital B two hours later. ET tube measured at 29cm, endobronchial position on arrival altered to 24cm and check x-ray performed. End tidal CO2 greater than 10. Patient inadequately sedated. Admission clerking and transfer documentation incomplete…

- The patient was admitted to Hospital A ED with severe sepsis and acute renal failure… given fluids, arterial line, central line, started on noradrenaline, two unit packed red cell transfusion, 250ml 8.4% sodium bicarbonate… stable with reducing acidosis. We arranged for transfer to Hospital B for urgent dialysis, unavailable at Hospital A. His first serum potassium was 5.7mmol/l and then 6.2mmol/l. His last arterial blood gas did not have a potassium level on it… He was ready for transfer and I left to stabilise another patient in theatre at Hospital A. He left the ED 90 mins later… On arrival at Hospital B critical care he had a cardiac arrest with serum potassium consistently greater than 8mmol/l…

- Patient unwell on ward requiring ITU care (Hospital A). No ITU bed available. Patient transferred to main recovery for resuscitation. Patient remained in recovery all day with no formal critical care nursing, or qualified nurse looking after them. Multiple incidents occurred… staff present gave the highest standards of care possible despite the patient being cared for in the wrong environment with limited resource… Agreed in future either theatre staff would assist in ITU so that an ITU nurse could be based with the patient in recovery or that an agency ITU nurse would be booked...

Interhospital transfers for intensive care may be required, often at short notice, outside normal working hours, even after minor elective surgery. The requirement for interhospital transfers is likely to increase as services become increasingly specialised, and good outcomes can be achieved. The AAGBI Safety Guideline Interhospital Transfer and the Intensive Care Society Transfer of the Critically Ill Adult advise advance planning, and to form networks to coordinate and manage clinically indicated transfers. The pre-departure checklist included in the AAGBI Guideline will help the transfer team to make sure all equipment is available and to avoid omissions in care.

Recovery is increasingly used as a backstop when ICU resources are stretched. The AAGBI Safety Guideline Immediate Post-anaesthesia Recovery suggests that when critically ill patients are managed in a post-anaesthesia care unit because of bed shortages, the primary responsibility for the patient lies with the hospital’s critical care team. The standard of nursing and medical care should be equal to that in the hospital’s critical care units.

Nuss bar removal, a rare complication

- Procedure: Nuss bar removal. Once the case began, having pulled out the stabilisers successfully, the surgeons commenced to pull out the Nuss bar. Once the bar was fully removed severe bleeding was noted bilaterally from the surgical sites…

The Nuss procedure is a minimally invasive treatment for pectus excavatum increasingly performed in children and young adults. A steel bar, bent to the desired chest shape, is inserted under the sternum under thoracoscopic control. Major complications are low, but cardiac/liver injury during insertion is a possibility. This report highlights that injury may also occur during Nuss bar removal due to displacement of the bar with compression of adjacent structures. It is advised that if a pectus bar becomes rotated, a precise assessment of its position in relation to the major vessels is required. In case of any doubt, echocardiography or, better, spiral computed tomography, should be undertaken.¹ NICE guidance recommends that this procedure is only undertaken by surgeons with cardiac or thoracic training and experience, and where there are facilities for managing serious complications.

Surgical ‘never events’ – still occurring
➤ Informed by consultant radiologist that a patient had a CT scan that showed a retained metal retractor having previously had an oesophago-gastrectomy.

Never events are “serious, largely preventable, patient safety incidents that should not occur if the available preventative safety measures had been implemented by healthcare providers” (see NHS Serious Incident Framework 2013).

Surgical ‘never events’ have been defined as wrong site surgery, wrong implant, and retained foreign object post-operation. There were 326 never events reported in hospitals in England in 2011-12, of which 272 were surgical (83.5% of the total). This translates to a wrong implant inserted once a fortnight, wrong site surgery once a week, and a retained swab, needle or instrument every few days. NHS England has established a Never Events Taskforce to consider ways to reduce surgical ‘never events’, which will be reporting in the next few months.

Arterial puncture and central lines – common complication
➤ An anaesthetised patient had a central line inserted after surgery… accidentally inserted into the right internal carotid artery. This was recognised by blood gas result. I was asked to advise and identified that line was in carotid artery cephalad to an abnormally low carotid bifurcation. The following week I learnt that the patient had died from a stroke…

Accidental arterial puncture during insertion of an internal jugular venous line is common (reported incidence 1–11%). Complications are unlikely, unless a guidewire or catheter is inserted. This case is a useful reminder that even in the presence of ultrasound; central venous cannulation may not be a benign procedure. A recent review provides useful advice for misplaced central venous catheters.¹


Tracheostomy care study – NCEPOD
➤ The majority of nursing staff were log rolling another patient; the patient, who had had sedation reduced, spontaneously coughed and displaced his tracheostomy tube… performed approximately five hours previously in theatre by the ENT surgeons. Patient then started to desaturate…

➤ Patient developed bleeding from the site of his surgical tracheostomy. This became severe. He was reviewed by the ICU, anaesthetic and ENT registrars. The decision was made to take him to theatre as a ‘category 1′ patient. He began to deteriorate as the bleeding into his trachea worsened… treatment was delayed. He suffered a cardiac arrest due to hypoxia from pulmonary blood. A period of CPR was unsuccessful…

Tracheostomy care is the subject of the next NCEPOD report, commissioned by the Healthcare Quality Improvement Partnership (HQIP), as part of the clinical outcome review programme. The aim of the study is to estimate the number of tracheostomies performed annually in adults in intensive care, to identify remediable factors in tracheostomy care and to make recommendations to improve practice, both for percutaneous and surgical tracheostomies. Data collection will start in winter 2013; information on the study protocol, clinician and organisational questionnaires is available from the NCEPOD website.

Anaesthetic machine check – check final configuration before use
➤ Patient underwent anaesthetic induction with the filter and catheter mount attached to the ‘wrong’ limb of a Bain circuit, and was ventilated with the ventilator attached to the ‘Bain’ limb resulting in rebreathing and hypercapnia. This occurred due to incorrect equipment set up for a two-bag test (introduced to this Trust two weeks ago). The test bag had been placed directly on the patient end of the Bain circuit with filter and catheter mount omitted. The non-test bag had then been replaced with a filter and catheter mount. The error was identified and corrected before further impact on the patient was noted. The entire anaesthetic dept is aware of this, the second incident of its type to occur in our Trust in a fortnight. The test bags have been labelled ‘test’ and we are investigating buying red bags to distinguish them. It has been reported locally. The lead ODP trainer and anaesthetic clinical lead are aware of further training required.
The AAGBI Safety Guideline Checking Anaesthetic Equipment suggests a two-bag test as a functional check after the breathing system, vaporisers and ventilator have been checked individually. Breathing systems should always be inspected visually for correct configuration and assembly prior to use.

**Hip cement – Hip fracture audit**


Anaesthesia: fascia iliaca block awake, spinal 0.5% heavy marcaine 2.6mls. Level of block T8.

Haemodynamically stable and communicative until cement went in. Two minutes after cementing: unconscious, PEA arrest, 3-4 minutes CPR. Return of spontaneous circulation. Surgical procedure completed, patient transferred to ICU after a brief stay in Level 3 Recovery. Probable cause of arrest: bone cement implantation syndrome. Myself and (surgeon) spoke to family and the theatre team...

Data from the National Hip Fracture Database suggests that a cemented prosthesis gives the best functional outcome for femoral neck fractures, with no increase in perioperative mortality compared to uncemented prosthesis.¹ Further information on this topic may become available from the Hip Fracture Anaesthesia Sprint Audit Project (ASAP) which completes data collection in September 2013.


**APPENDIX: INCIDENT DATA SUMMARY**

A total of 4,916 anaesthesia-related incidents were reported during the specified time period. Only 17 incidents were reported using the anaesthetic eForm; Seven (41%) of these incidents were reported to the National Reporting and Learning System (NRLS) within one day of occurrence. Two (12%) of the incidents reported to the eForm were reported as ‘near miss’ (harm was prevented from reaching the patient). 4,899 incidents were reported using Local Risk Management Systems (LRMS); 36 (0.7%) of these incidents were reported within one day and 2,818 (58%) were reported more than 30 days after they had occurred. Of the incidents reported via LRMS, 685 (14%) were reported as near miss.

All incidents reported via the eForm, and all those reported to the LRMS graded as ‘death’ or ‘severe harm’, were reviewed by the Patient Safety Team, now part of the Patient Safety Function within NHS England (formerly the NHS Commissioning Board). Consultant anaesthetists from the RCoA or AAGBI reviewed incidents identified as having potential cause for concern. No information about the Trust was disclosed in this review; only information about the incident. Most incidents reported via the eForm were completed by consultant anaesthetists, although the eForm is available to all members of the perioperative team.

As with any voluntary reporting system, interpretation of data should be undertaken with caution as the data are subject to bias. Many incidents are not reported, and those that are reported may be incomplete having been reported immediately and before the patient outcome is known. Clarity of ‘degree of harm’ to patients who experience a patient safety incident is an important aspect of data quality.

**ANAESTHETIC EFORM**

The anaesthetic eForm was designed to allow specific clinical information relating to anaesthetic incidents to be reported by anaesthetists and other members of the anaesthetic team, and can be found at: https://www.eforms.nrls.nhs.uk/asbreport.

The RCoA and AAGBI continue to work with the NRLS team at Imperial and the patient safety function of NHS England. SALG would like to reinforce that processes for sharing and learning incidents remain firmly in place. Staff are urged to continue to use the eForm (or your local reporting systems) to report patient safety incidents so that trends and incidents can be acted upon and learning maximised. The eForm is particularly useful as it provides a mechanism by which high quality information can be reported rapidly by members of the anaesthesia team and disseminated nationally.
DEGREE OF HARM (ACTUAL INCIDENTS)

Figure 1 shows the degree of harm incurred by patients within the anaesthetic specialty during the period 1 April 2013 to 30 June 2013. All 15 deaths were reported though LRMS.

![Degree of Harm Graph]

INCIDENT TYPE

Figure 2 shows the type of incidents that occurred within the anaesthetic specialty that were reported using LRMS or the anaesthetic eForm for the period 1 April 2013 to 30 June 2013. The categories were determined at local level.

![Incident Type Graph]