Safe Anaesthesia Liaison Group

PATIENT SAFETY UPDATE

Including the summary of reported incidents relating to anaesthesia

1 JANUARY TO 31 MARCH 2015

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.

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

SALG Safety Initiative Survey
SALG invites you to complete a short survey with the aim of measuring awareness and the impact of SALG communications. We would be particularly grateful if you could circulate this survey widely among your colleagues. Your answers will help inform future SALG communications. Please complete the survey here by 1 July, 2015.

Patient Safety Conference 2015
The annual SALG Patient Safety Conference will be held on 4 November 2015 at ThinkTank (Birmingham Science Museum) in Birmingham. There will also be an Abstract competition for trainee anaesthetists. For more information about event registration, programme and Abstract competition, please click here.

AAGBI position statement on the administration of controlled drugs by anaesthetists
The AAGBI have released a position statement on the administration of controlled drugs by anaesthetists following an amendment to the ‘Misuse of Drugs Act 2001’. The statement is available on the AAGBI website here.

LEARNING POINTS FROM REPORTED INCIDENTS

We are pleased to inform you that the Patient Safety Update now includes data from Scotland, expanding the opportunity to learn from patient safety incidents. The summarised scenarios are real cases reported to have resulted in death or severe harm in patients. The information provided can be sparse, which makes the summaries short and often lacking an outcome. Postulating contributing factors can be difficult. The more detail reported, the easier it is to identify problems and recurring themes. The SBAR tool may assist in providing a framework for the detail of the event, as well as an initial assessment and analysis of the cause(s) and contributing factors and indications of possible local recommendations for action. SALG has used the SBAR tool in its guidance on Morbidity and Mortality presentations.2

REVISITING THEMES FROM NATIONAL AUDIT PROJECTS 3, 4, AND 5

National Audit Project 5 (NAP5)

➤ Rapid sequence induction for EUA/management of persistent torrential nosebleed. Post induction, delay in starting volatile anaesthetic agent leading to accidental awareness. NAP 5 protocols started and patient has been spoken to three times post-op and referred to the clinical psychologist.

NAP5¹ demonstrated that awareness occurs most commonly in the dynamic phases of anaesthesia: induction and emergence and notably when transferring from anaesthetic room to theatre, a period termed the ‘gap’. The authors recommended incorporating a check for this potential gap in delivery of anaesthesia into the theatre safety checklist. This may be achieved in the Time Out part of the pre-surgery check. NAP5 also recommends use of an Anaesthesia Awareness Pathway².


National Audit Project 4 (NAP4)

➤ ICM patient with recently inserted tracheostomy rolled for washing. Saturation probe was not recording… monitor was alarming due to hypertension… patient rolled onto her back… audible noise like a cuff leak or upper airway secretions… no obvious dislodgement… saturations were 90%... Water’s circuit used as the patient was clearly not ventilating properly. When Dr arrived the patient was still saturating at 90%. As the tracheostomy was so new, Dr decided to orally intubate... patient desaturated to 80%. The tracheostomy was removed and the stoma occluded… patient was ventilated using the bag-valve mask. First attempt to intubate – difficult to pass the bougie… patient desaturated so was put back on the bag valve mask… I-gel inserted… saturations then returned to normal range. Second attempt to intubate – tube passed without bougie, difficult to see chest rising… some air entry heard but decreased air entry on left side. Saturating well. Whilst being bagged, patient desaturated to approximately 65% and then lost output, CPR started… return of spontaneous circulation. Consultant was then called. Patient now ventilating on 90% oxygen, saturating well. Chest x-ray showed a left pneumothorax… inserted a chest drain. Repeat chest x-ray showed pneumothorax had resolved. Chest drain stopped swinging and bubbling? Blocked with blood clot… inserted a wider bore chest drain. Bronchoscopy performed. Blood visible in patients mouth… 60mls aspirated on subglottic suction. Blood now visible in both nostrils and some blood in ET tube... tidal volumes dropped, patient ventilated using the Water’s circuit, blood clots evident on suction… Noradrenaline infusion running as hypotensive and increasing requirements… IV tranexamic acid given… 4 units of FFP given.

NAP4¹ highlighted the ICU as a specific area of clinical practice where airway difficulties arose and where they were more likely to have serious consequences, including severe harm or death. The report describes a difficult case that was managed well. Interestingly, the report makes no mention of capnography to confirm endotracheal intubation and adequate ventilation. NAP4 stated that increasing the use of capnography in ICM was the single step that had the potential to prevent the most deaths.


National Audit Project 3 (NAP3)

➤ Two days post bowel resection. Epidural had been working well with normal neurology and patient able to stand up with physios the previous day. More significant neuro deficit in legs noted next day. Epidural stopped pending switch to oral analgesia. Block failed to recede after several hours. Brought to attention of Obstetrics on-call anaesthetist who then contacted me.

NAP3¹ showed that most CNS injury followed the use of CNB in the perioperative period and mostly after epidural blocks. The report also suggested that harm resulted from a failure to recognise problems and delay in responding. The final recommendation of the report identified a care bundle to support safe epidural care. SALG has commissioned the editor of the NAP3 report to create a perioperative epidural checklist, which should be available for review in the next few months.

Balancing risks

➤ Prescription and administration of Clexane to a patient only 2 hours after neurosurgery.

Ensuring that patients have their VTE risk assessed and managed is an accepted part of the surgical safety checklist, and is part of the shared team understanding. NICE1 guidance on DVT prophylaxis in neurosurgery is scant on timing, whilst the AAGBI2 guidance on regional anaesthesia in patients with coagulation abnormalities would suggest that LMWH prophylaxis should be delayed for a minimum of 4 hours post op. Neurosurgery texts go further and claim that delay for up to 24-48 hours post op minimises haematoma risks without increasing DVT risk.


Non-technical skills: their contribution to failure to recognise and failure to rescue the critically ill patient

➤ Patient admitted with shortness of breath. Examined in A&E – severe pneumonia, metabolic acidosis, AKI. ITU and medical referral completed. ITU consultant recommended intubation and admission to ITU. This did not occur, patient stayed in A&E, outreach reviewed in clinical decision unit. Patient intubated and taken to ITU and died a few hours later.

➤ A patient was admitted by the medical team with diabetic ketoacidosis, sepsis probably secondary to pneumonia and episode of SVT of 200 and hypotension. Seen by ICU… decision not for ICU. Patient subsequently seen 4 hrs later by medical registrar who documented a 7 hour delay in the patient receiving antibiotics. Documented septic shock and DKA. ICU SHO saw patient… decision to admit to ICU… about 1 hour delay from last request. Patient not reviewed by ITU registrar or consultant at that time. Patient admitted to ICU almost 5 hours later. No referral to endocrinology. No documentation of ICU consultant review.

➤ Oro-maxillofacial review of post-op head and neck cancer patient admitted to the unit earlier that morning… radial forearm free flap to reconstruct the intra-oral deficit… last review five hours earlier… explained the patients history, the extent of the initial surgery and reasoning behind admission to ICU to the nurse concerned… covered protocol for flap observations in OMFS patients including colour, temp, texture, capillary refill and dopplering… discussed the details of the post-operative instructions… the nurse informed me that this was their first time looking after a flap but had support in the area to help them… suggested low threshold to call regarding any concerns. Later that morning the flap was clearly in a poor condition and had become completely congested.

The three scenarios above are short on patient clinical information and event detail; however they describe situations where care was not as might be expected. Local event analysis will be required to tease out the contributing factors. Many factors may be involved in any single patient adverse incident, from organisational factors to simply poor clinical care; Vincent et al provide a tool to facilitate review of clinical incidents.1 Non-technical skills, such as communication (and handover), clinical decision-making, team and task management when poorly performed may contribute to adverse events in patient care2. Included are some key references on causes of failure to rescue and or to escalate, and a method for tackling the problem.3, 4


Drug errors

➤ After induction of anaesthesia… problems ventilating the patient… reaction to the anaesthesia resulting in brittle bronchospasm… started a salbutamol infusion while investigating the cause. The cause turned out to be ventilator failure rather than bronchospasm. The machine was replaced. Patient then positioned but became tachycardic and hypotensive with ECG ST segment changes… could not explain this or connect it to the earlier events so stopped the salbutamol and called for a second opinion. Several colleagues came to help… one colleague realised the miscalculation of salbutamol dose… patient received an overdose.

➤ Patient for emergency caesarean section. Accidental intravenous injection of local anaesthetic. Immediately recognised. Treated with Intralipid as per AAGBI Guidelines. Anaesthetised, baby delivered by emergency c/s uneventfully. Mother remained haemodynamically stable.

In a crisis, making the diagnosis and delivering the correct treatment is difficult and stressful. Crisis checklists help manage unfamiliar situations, e.g. acute bronchospasm.1 The AAGBI’s Crisis Checklist Working party is developing emergency checklists for local department adaptation.

Drug calculation errors are more common if you are stressed and also if using an unfamiliar preparation. Many people find it helpful to use a two-person check in this situation. NHS England and the MHRA released a stage-three directive on medication errors in April 2014.2 The directive outlines the need to strengthen clinical governance arrangements, to identify Medication Safety Officers locally and to develop a medication safety network.

The latest never-events policy and framework document published on the 25 April 2015 now includes certain wrong route medication as a never-event.3 These include: intended intravenous chemotherapy delivered spinally, intended enteral given parenterally and intended epidural given intravenously. The NPSA (now NHS England) and the NRLS produced a guide to improve safety with medicines entitled Safety in Doses which remains relevant today.4

Iatrogenic injury

➤ Patient reported a ‘hole’ in mouth after general anaesthesia (with LMA) for knee arthroscopy… patient had a small (approx 5mm x 5mm) hole in the right side of the soft palate… had noticed a little blood in his mouth post op… apologised to the patient for the event and told him that review by the maxillofacial team would take place… advised that surgical repair under GA was necessary. The anaesthetist responsible reported that on emergence in the recovery area the patient has regurgitated a little and had required suctioning with a Yankauer sucker. The patient had also developed laryngospasm. The maxillofacial consultant felt that the most likely cause of the trauma was from the Yankauer suction.

➤ Accidental iatrogenic intraoperative oesophageal perforation.

In the newsletter of the American Society of Anesthesiologists there is a report on the latest review of closed claims looking at airway complications between 1980 and 2011. Airway injuries accounted for 9–11% of all closed claims in each decade, and about one-third of all airway claims are associated with difficult intubation. The oesophagus is the most common site of injury.1

A comprehensive summary of iatrogenic injury associated with anaesthesia is available in the CEACCP.2


Central venous catheters – again

➤ Patient found to have omeprazole infusing down the same port as noradrenaline. Omeprazole pushing noradrenaline back down the line as blood noted to be back tracking. Patient’s blood pressure dropped to between 50-60 systolic and had a cardiac arrest. One cycle given and 1 vial of adrenaline given. Cardiac output returned. CPR stopped.

➤ A central line was inserted in the ITU… CXR was checked although there is no documentation of this except for the nurse’s notes. The line was deemed safe to use. There was no documentation of any central venous pressure reading prior to the discovery that the central line was placed in the carotid artery. The line was used to infuse noradrenaline, adrenaline, alfentanil, meropenem, ranitidine, paracetamol and a couple of doses of Tazocin. The patient’s right upper limb was noted to be ischaemic with no arterial pulses. The incident was noted in theatres by Dr who noted the MAP of the arterial line was the same as the pressure on the CVP line. Transducing with appropriate pressures demonstrated an arterial trace.

Anti-reflux valves should be inserted to avoid the risk of back flow when delivering multiple infusions.\(^1\) NICE guidance on the use of ultrasound for the insertion of CVC is well-accepted in practice. Attaching the CVC to a pressure transducer and visualising the venous waveform prior to using the line can enhance safety and provide reassurance.\(^2\)


\(^2\) Gibson F, Bodenham A. Misplaced central venous catheters: applied anatomy and practical management British Journal Anaesthesia 2013; [http://bja.oxfordjournals.org/content/early/2013/02/04/bja.aes497.full.pdf+html](http://bja.oxfordjournals.org/content/early/2013/02/04/bja.aes497.full.pdf+html).

APPENDIX: INCIDENT DATA SUMMARY

A total of 6826 anaesthesia-related incidents were reported during the specified time period. Five incidents were reported using the anaesthetic eForm; two (40%) of these incidents were reported to the National Reporting and Learning System (NRLS) within one day of occurrence. Three (60%) of the incidents reported via the eForm were reported as ‘near miss’ (harm was prevented from reaching the patient). 6057 incidents were reported using Local Risk Management Systems (LRMS). Of the incidents reported via LRMS, 852 (12%) 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/](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 emphasise 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 January 2015 to 31 March 2015. Eighteen deaths were reported though LRMS and none via the anaesthetic eForm.

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 January 2015 to 31 March 2015. The categories were determined at local level.