SAFE ANAESTHESIA LIAISON GROUP

PATIENT SAFETY UPDATE

October–December 2018

PUBLISHED APRIL 2019

LEARNING POINTS FROM REPORTED INCIDENTS

October – December 2018

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 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 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

Perioperative steroid replacement

We start with a timely report, which heralds the forthcoming release of new guidelines on peri-operative steroid replacement:

A patient fell at home sustaining a fractured shaft of femur and was admitted to hospital shortly before midnight. They were usually on steroid replacement, after a pituitary tumour had been resected decades before. Operation took place on the evening of the day following admission. No steroids were administered to the patient until reviewed by medical registrar the following evening for persistent shock following femoral nailing. The patient was transferred to intensive care at the time of medical review and no further steroids given until late in the next evening. The patient failed to respond to treatment including blood, fluids and increasing noradrenaline infusion. Metabolic acidosis ensued and was treated with 1.8% normal saline in error rather than 1.26% sodium bicarbonate as intended. Renal replacement therapy was started but lactate was >10 mmol.l-1, arterial pH was 7.1 and base excess -18 mmol.l-1. Shortly after, the patient vomited, aspirated, suffered cardiac arrest and could not be resuscitated. Local investigation found that the patient received none of their charted oral hydrocortisone as the first script was illegible and nurses were unable to administer or identify the drug prescribed. When corrected, the drug was refused by the patient for reasons not documented, but it is stated that there was slow escalation of this problem. There was no change in prescribed steroid dose to account for stress of fresh fracture. including by the anaesthetist at operation. The medical registrar identified the issue but only prescribed a stat steroid dose and no repeating doses. There was possible failure in intensive care to initially recognise the possible diagnosis. It is stated that an appropriate regime to manage adrenal insufficiency was charted for only the last four hours before death.

This is a sad story, where the opportunity to give best practice care appears to have been missed more than once. There are many lessons. Accessing and reading existing electronic health records in a timely manner in emergency admissions is vital as this story attests. Even in this electronic age though, assiduous taking and documenting of the patient's history remains key.

Prescription of steroids in the perioperative period is complex and contradictory guidance exists, resulting in variation in practice. Consequently, the Association of Anaesthetists has produced a guideline on steroids in the peri-operative period, which provides an evidence-based and consistent approach that clinicians can use in day-to-day practice. It will be published on the Association website and in the journal *Anaesthesia* in the near future.

Total intravenous anaesthesia (TIVA) and unintended awareness

An obese patient was having thoracic surgery. A 22-gauge cannula was placed in a superficial vein on the dorsum of the right hand and was flushed to confirm patency. Anaesthesia was induced and maintained via that cannula using propofol TIVA followed by bolus doses of fentanyl and, following loss of consciousness, rocuronium. At the end of the procedure, following removal of the drapes, the propofol infusion was discontinued and the line flushed. Swelling was evident on the hand around the cannula site. On tracheal extubation, the patient said that they had been awake during the operation.

The 5th National Audit Project (NAP5) demonstrated that TIVA, when used with neuromuscular blocking drugs,

increases the overall risk of awareness under general anaesthesia approximately two-fold.[1] This maybe increased further with non-target-controlled infusion techniques. The Association of Anaesthetists' *Safe practice of total intravenous anaesthesia (TIVA) 2018*[2] and its joint publication with the RCoA, '*NAP5 Handbook*' – *Concise practice guidance on the prevention and management of accidental awareness during general anaesthesia*[3], both recommend that the cannula delivering TIVA drugs should wherever practicable be visible at all times and that whenever neuromuscular blocking drugs are also used, an appropriate depth of anaesthesia monitor should be used.

1. Pandit JJ, Cook TM, the NAP5 Steering Panel. NAP5. Accidental Awareness During General Anaesthesia. London: The Royal College of Anaesthetists and Association of Anaesthetists of Great Britain and Ireland 2014. ISBN 978-1-900936-11-8 (www.nationalauditprojects.org.uk/NAP5home – accessed 10 April 2019.
2. Nimmo AF *et al.* Guidelines for the safe practice of total intravenous anaesthesia (TIVA): Joint Guidelines from the Association of Anaesthetists and the Society for Intravenous Anaesthesia. Anaesthesia 2019;74:211-224. (bit.ly/2U8RILG – accessed 10 April 2019).
3. Pandit JJ *et al*. The 'NAP5 Handbook'. Concise practice guidance on the prevention and management of accidental awareness during general anaesthesia. London: Association of Anaesthetists and Royal College of Anaesthetists, 2019 (bit.ly/2U9D69k – accessed 10 April 2019).

Regurgitation and raised airway pressure

A heat and moisture exchanger (HME) became blocked following regurgitation of gastric contents through a supraglottic airway device and ventilation became difficult. Whenever regurgitation is suspected, consideration should be given to changing the HME. In this case the cause was clear and rectification easy. However, an issue with the HME is but one of several causes of raised ventilator pressures and/or inability to ventilate and, even in the presence of regurgitation, this case is a reminder that in the absence of an evident cause, it is important to follow a systematic means of finding the cause. One approach would be to use the relevant guideline in the Association of Anaesthetists' *Quick Reference Handbook*.[1]

1. Introduction to the Quick Reference Handbook (QRH). *AAGBI* (www.aagbi.org/qrh)

Allergy and anaphylaxis

Two cases were reported:

- **Case 1**: Following intravenous induction of anaesthesia involving remifentanil, propofol and suxamethonium, there was loss of blood pressure, cardiac arrest, severe bronchospasm and rash. Anaphylaxis was diagnosed based upon the clinical picture and subsequent elevated mast cell tryptase level. Formal allergy tests confirmed allergy to suxamethonium.
- **Case 2**: A patient received subdermal blue dye for sentinel node biopsy. Approximately two hours later in recovery, the patient had a severe urticarial rash, hypotension and bradycardia. This was treated with fluids and 6mg ephedrine. Hydrocortisone and chlorphenamine were also given. Adrenaline was not needed and the patient did not require intensive care support. The patient was documented to be allergic to patent blue on electronic medication record and this was reported to the GP.

This is an opportunity to re-promote and recommend re-reading of NAP6.[1] Suxamethonium and dye were two common culprits identified in the audit. All departments should now have robust arrangements in place for acute management of anaphylaxis and for follow up of patient with suspected allergy during anaesthesia. NAP6's recommendations included: having readily accessible treatment guidelines, treatment packs and investigation packs, establishment of departmental lead roles for anaphylaxis and standardised pathways and paperwork for referral for investigation.

1. Cook T, Harper N (eds). Anaesthesia, surgery and life-threatening allergic reactions. Report and findings of the Royal College of Anaesthetists' 6th National Audit Project: perioperative anaphylaxis. RCoA, 2018. (www.nationalauditprojects.org.uk/NAP6home – accessed 10 April 2019).

Fractured neck of femur

Two cases:

- **Case 1**: A 96-year old patient for cemented hip hemiarthroplasty received general anaesthesia with unspecified nerve blocks. There was a background history of dementia, atrial fibrillation, hypothyroidism, osteoporosis and breast cancer. A directive was in place not to attempt cardiopulmonary resuscitation. After cementing and reduction of hip, blood pressure and measured end tidal CO_2 decreased. Intravenous adrenaline boluses were administered with no effect and a multidisciplinary decision was made to stop treatment.
- **Case 2**: A patient with fractured neck of femur was listed for total hip replacement. There was a background of ulcerative colitis with stoma and renal impairment. General anaesthesia was used, with airway management using a supraglottic airway and spontaneous ventilation. During the procedure, the oximeter saturation decreased, with the reason unclear initially but it then became apparent that the patient

had regurgitated a large amount of bile stained fluid. A nasogastric tube was inserted and aspirated and intubation was attempted in the left lateral position but the larynx could not be visualised, so the supraglottic airway was reinserted. At end of procedure the patient had increased oxygen requirement with auscultated crepitations, wheeze and abnormal respiratory pattern so the trachea was intubated and treatment continued in intensive care.

These are yet another reminder of the increasing age and frailty of patients considered suitable for fixation of proximal femoral fractures. Once again, it is an opportunity to refer to the *International Fragility Fracture Network Delphi consensus statement on the principles of anaesthesia for patients with hip fracture*[1] which contains evidence-based advice on managing this group of patients as well as *Safety guideline: reducing the risk from cemented hemiarthroplasty for hip fracture 2015*[2] which contains advice on minimising risks associated specifically with cemented hip prostheses. The second case highlights specifically the airway risks inherent in this group of patients; access to the airway may be difficult once surgery has started (either because of lateral position or because of the height of the fracture table) and anecdotally, regurgitation may be more common. Many practitioners would favour tracheal intubation over use of supraglottic airway for these reasons.

1. White SM *et al*. International Fragility Fracture Network Delphi consensus statement on the principles of anaesthesia for patients with hip fracture. *Anaesthesia* 2018;73:863-874. (https://onlinelibrary.wiley.com/doi/full/10.1111/anae.14225 – accessed 10 April 2019).
2. Griffiths R *et al*. Safety guideline: reducing the risk from cemented hemiarthroplasty for hip fracture 2015. *Anaesthesia* 2015;70:623-626. (https://onlinelibrary.wiley.com/doi/full/10.1111/anae.13036 – accessed 10 April 2019).

Circulatory embolus

A fit and active patient underwent hysterectomy under spinal and general anaesthesia. The patient was very stable during pneumoperitoneum and the initial phases of surgery. After a while, there was sudden onset bradycardia progressing to cardiac arrest. Initial multidisciplinary resuscitation was promptly instigated and was successful, with an intraoperative echocardiogram strongly suggestive of a large embolus in right side of heart. The patient continued to be very unstable despite aggressive treatment and ultimately was not responsive to resuscitation and so a decision was taken to stop resuscitation. The coroner's post mortem confirmed pulmonary embolism as cause of death secondary to deep vein thrombosis of the calf, which must have been present before the operation. It is possible that he pneumoperitoneum or its release may have triggered movement of the clot to become a pulmonary embolus.

Although there was nothing obvious that could have been done to predict or prevent this sudden and unheralded complication, which is notoriously resistant to resuscitation, this is a useful opportunity to remind readers of the Association of Anaesthetists *Quick Reference Handbook*[1] which contains a specific guideline for the systematic treatment of circulatory embolus.

1. Introduction to the Quick Reference Handbook (QRH). *AAGBI* (www.aagbi.org/qrh).

Drug error

Vancomycin 1.5 g had been prescribed as a peri-operative antimicrobial. Two vancomycin 1 g ampoules were taken out of the box, checked and placed on the counter top. The practitioner left the room to collect the 500 ml saline bag, intravenous pump and giving set. On returning, they picked up the ampoules, checked them again and drew them up into 20 ml saline in a syringe, discarding 5 ml as only 1.5 g were needed. The ampoules and syringe were shown to another practitioner and the remaining 15 ml injected into the 500 ml bag of saline and this was infused slowly. The patient experienced weakness and respiratory difficulty and it took some time before it was realised that the ampoules were in fact vecuronium ampoules.

This highlights the eternal importance of the maxim 'always read the label '. However, it also provides a vivid example of confirmation bias – a tendency to interpret information according to pre-existing beliefs. the possibility of human error in all things. The practitioner who made the original error 'double-checked' the ampoules and did not spot the error and the second practitioner did likewise. Knowing that such biases exist can help us form strategies to make them less likely. In scenarios when inexplicable signs or symptoms present, *'could I have made a drug error*?' is a useful question to ask and is a useful inclusion in cognitive aids.

Management of a difficult intubation

General anaesthesia was administered for thrombolysis and venous stenting in a patient with deep venous thrombosis. The interventional radiology consultant requested prone positioning so the anaesthetic plan was to intubate the trachea and ventilate the lungs. Assessment predicted a difficult airway and at laryngoscopy, only the epiglottis was seen. The first intubation attempt resulted in oesophageal intubation, identified 'by abdominal movement with

ventilation'. A second attempt was successful using a videolaryngoscope and bougie. Some hours later, subcutaneous emphysema was noted, and imaging was undertaken. Local root cause analysis concluded that oesophageal perforation had most likely been caused by the accidental oesophageal intubation.

It is not stated in the report what plans were in place for tracheal intubation, given that difficulty had been predicted. Standard laryngoscopy with use of bougie may not have been the most logical first choice in this circumstance. It is not clear whether oesophageal intubation was diagnosed solely by the abdominal movement, but this case serves as a reminder that capnography is part of the minimum recommended monitoring wherever anaesthesia takes place.[1] This includes remote locations such as interventional radiology suites. The RCoA recently launched an educational campaign to remind practitioners of capnography's importance, following two cases highlighted by coroners.[2] The case is also a reminder that bougie use is not risk-free. It was concluded here that oesophageal perforation had occurred. In the absence of further clinical information, it is not evident whether tracheal injury was ruled out – this would also potentially produce surgical emphysema of the type described.

1. Association of Anaesthetists of Great Britain and Ireland. Recommendations for standards of monitoring during anaesthesia and recovery 2015. *Anaesthesia* 2016;71:85–93. (bit.ly/2Z1mC74 – accessed 10 April 2019).
2. Capnography: No Trace = Wrong Place. RCoA (bit.ly/RCoACapnography – accessed 10 April 2019).

Communication and the WHO check list

A woman was having category 2 caesarean section under general anaesthesia. The surgical registrar put knife to skin before the patient was anaesthetised.

This horrific story reminds us of the importance of communication. Although no further detail was provided, the facts are quite stark. It is implicit that an effective 'time out' was not performed. Adherence to the key components of the WHO checklist is always important. Modified checklists exist for maternity theatres and truncated versions exist for category 1 caesarean sections. However, this was described as a category 2 section which implies that there would have been adequate time to perform a standard checklist. Communication, as ever, is key.

Internal jugular vein central venous line insertion

There are three cases and the first two are light on detail, but all are useful reminders of the need for care when performing this routine procedure, and for particular vigilance when a large bore line is used.

- **Case 1**: A patient was admitted to critical care in state of intoxication and died following a rapid decline in condition. Post mortem noted a large haematoma on left side of neck around central line insertion site, possibly vascular rupture contributing to death.
- **Case 2**: There were multiple attempts at insertion of subclavian central venous catheter, followed by insertion of internal jugular line. The patient was noted to have possible brachial plexus injury in the days following.
- **Case 3**: A patient reliant on dialysis whose arteriovenous fistula had thrombosed had a right internal jugular dialysis catheter inserted. Patient noted to have episodes of hypotension and reduction in GCS on commencement of dialysis via the catheter. On starting dialysis the following day, the patient suffered cardiac arrest (pulseless electrical activity) and was subsequently transferred to intensive care. Chest x-ray showed new right sided white-out of lung; a chest drain produced bloody fluid. Computerised tomography of the thorax showed iatrogenic injury of anterior wall of right brachiocephalic vein from the catheter. Angioplasty repair was undertaken by interventional radiology and vascular surgery teams. The patient continued treatment in intensive care. It was agreed at a local multidisciplinary meeting that the line did not look misplaced on chest x-ray.

This third case also serves as a reminder that a radiologist's opinion input should be considered if there are any concerns about the placement of a central venous catheter.

Minitracheostomy

A patient underwent percutaneous insertion of minitracheostomy under local anaesthesia and awake sedation; the clinical location is not stated. The procedure was complicated by catastrophic bleeding through the minitracheostomy cannula and unsuccessful resuscitation, including transfusion of seven units of packed red cells, cardiopulmonary resuscitation and surgical exploration in

theatre. Post mortem examination identified several sizeable blood vessels traversing anterior to the cricothyroid junction. Although minitracheostomy is usually straightforward this case demonstrates a potential hazard. In some circumstances, it may be right to consider performing the procedure in a more controlled environment such as an operating theatre.

Drug infusions

A critically unwell patient had a high potassium of 7.0 mmol.l-1 overnight and was prescribed insulin with dextrose to treat this. Shortly after, they became very hypertensive and tachycardic with probable runs of ventricular tachycardia. The patient felt unwell and was vomiting. During preparation for sedation to cardiovert the patient, it was noted that the noradrenaline infusion the patient was receiving was running at 100 ml.hr-1 but that the insulin with dextrose was not running. Noradrenaline was promptly stopped and the insulin and dextrose commenced but by then patient was peri-arrest. Cardiac arrest (pulseless electrical activity) followed and after approximately two cycles of cardiopulmonary resuscitation, return of spontaneous circulation (ROSC) was established. The patient was admitted to intensive care and was eventually discharged home.

At its most basic, this is a reminder of the importance of vigilance, attentiveness and constant situational awareness. There may have been issues related to equipment design or configuration or operator training; it is not clear from the submitted report.

Hearing changes associated with post dural puncture headache

A patient had an uneventful spinal anaesthetic for vaginal hysterectomy but developed post dural puncture headache (PDPH). She underwent a blood patch but the headache re-occurred and she underwent a further blood patch four days later and was then discharged home. She re-presented six days further on complaining of tinnitus, although the headache had gone. An MRI scan and review by ENT and neurology were organised. The consensus is that the ongoing tinnitus is a rare complication of a PDPH following spinal anaesthetic.

Hearing changes have been reported many times in association with spinals and epidurals, both with and without PDPH. It has also been reported in relation to general anaesthesia. In the light of the Montgomery ruling, there remains an interesting discussion to be had about whether or not we should warn of this, even though causation is questionable and controversial.

Unforeseen equipment problems

Shortly after the emergency evening team had taken over an emergency case, a major haemorrhage occurred. During uncontrolled haemorrhage the anaesthetic infusion pumps batteries failed. Concerns had been reported within the department about the battery life of the pumps, which were approaching the end of their life cycle. Supplying power did not allow the pumps to come back to life and so they had to be swapped out. The mess of cabling surrounding the theatre pendant made it hard to understand what was connected to what and to identify where power could be obtained. At the same time, there were problems summoning help. Because a new 'voice over internet protocol' (VOIP) telephone system was being rolled out, there were two phones in theatre, of which only one worked. At a key moment when the team were trying to summon help, time was wasted trying to use a phone that was connected to nothing.

The challenging working environment impaired the function of the team. This story highlights a number of general issues. One is the presence of non-functioning telephones. Whilst this might appear quite benign in routine circumstances, in an emergency, this placed a significant cognitive load on the team. They were overwhelmed with investigating and fixing a basic problem at a time when they needed to focus their attention on directing and delivering anaesthesia. With hindsight, it would have been prudent to mark the new phones as inactive and to brief staff appropriately. Additionally, as VOIP telephone systems become commonplace, organisations need to have plans in place to assure call continuity in the event of network failure. Finally, although there is no suggestion here of an issue, it is worthwhile to remember that taking over a case is a time of potential error. Teams should use systematic methods for handing over care. It may be beneficial for the incoming team to use active enquiry rather than rely on the outgoing team's active handover, as this is a source of potential confirmation bias, a topic raised elsewhere in this publication.

Oral presentations
SALG PATIENT SAFETY CONFERENCE, NOVEMBER, 2018

The SALG Patient Safety Conference took place on 22 November 2018 in Newcastle. The event was opened by Dr Aiden Fowler, the NHS Director of Patient Safety and closed with the awarded prize winners. Please see below for the details of the winners. The 2019 conference will be held in London on 31 October. Further details will follow shortly and will be found on our website at: **www.rcoa.ac.uk/salg**

WINNER – ORAL PRESENTATION

Quality improvement project: development of The Newcastle upon Tyne Hospitals NHS Foundation Trust guideline for the insertion and management of chest drains (adults) incorporating Local Safety Standard (LocSSIP) for pleural procedures

Catherine Phoenix, Northern Deanery
Will Wight, Royal Victoria Infirmary, Newcastle upon Tyne
Dave Cressey, Freeman Road Hospital, Newcastle upon Tyne

In Sept 2015, NHS England published 'National Safety Standards for Invasive procedures'[1] to improve safety during all procedures, including chest drain insertion. It stated that 'Trust Boards have a responsibility to create Local Safety Standards for Invasive procedures (LocSSIPs) and must create standardised documentation for these '. Newcastle upon Tyne NHS Foundation Trust had a pre-existing Chest Drain Insertion Policy written in response to an NPSA Alert in 2008[2]. However, this did not comply with all NHS England's recommendations. There was also no clear, standardised method of documenting chest drain insertion. I therefore decided to undertake a Quality Improvement project to:

1. Update the Trust Chest Drain policy, incorporating a LocSSIP
2. Create a Checklist and Documentation for Pleural Procedures

Initially I worked independently to create preliminary drafts using guidelines from NHS England's document and examples on the NHS Improvements website.[3] I then identified possible stakeholders and emailed drafts to medical and nursing heads of Anaesthesia, Intensive Care, Emergency Care, Cardiothoracic Surgery and Anaesthesia, Acute and General Medicine and Radiology. Comments and help were invited. A Respiratory Physician became a strong champion and in time I was put in touch with the Director of Quality and Effectiveness and a Clinical Director (CD) who was concurrently developing a LocSSIP for other operative procedures. After extensive wider consultation and modification plus brief trial periods in Intensive Care and Respiratory medicine, finalised versions were created.

The policy was then passed through the Trust's Clinical Records Advisory Committee and added to the Trust Intranet. It was discussed (by the above-mentioned CD and Director of Quality and Effectiveness) with CDs at Trust Clinical Policy Group meetings and clinical staff at Clinical Risk Group meetings. Further email dissemination helped raise awareness and the Checklist and Documentation for Pleural Procedures form can be ordered through the Trust's printers.

The new Pleural Procedures policy improves compliance with government requirements and I hope will greatly enhance patient safety through provision of solid guidelines and standardised documentation for pleural procedures and ongoing patient care.

No funding was received for this work.

References

1. NHS England. National Safety Standards for Invasive Procedures (NatSSIPs), 2015. (www.england.nhs.uk/wp-content/uploads/2015/09/natssips-safety-standards.pdf) (accessed 16 August 2018).
2. T Lamont *et al*. Safety Alerts Insertion of chest drains: summary of a safety report from the National Patient Safety Agency. *BMJ* (online); 2009:**339**;b4923. (Accessed 16 August 2018).
3. Examples of Local Safety Standards for Invasive Procedures. *NHS Improvements*, 2016. (https://improvement.nhs.uk/resources/examples-local-safety-standards-invasive-procedures) (accessed 16 August 2018).

SECOND PLACE – ORAL PRESENTATION

RFH Safer Cath Lab

Nat Hills, Bonnie Kyle, Tim Lockie, Kulwant Dhadwal, Marianne Omosilade
Royal Free Hospital

The Royal Free Hospital is a busy North Central London heart attack centre, providing a round the clock primary percutaneous coronary intervention (PPCI) service. A proportion of patients (2.5% in 2015 at RFH[1]) peri-PPCI will require mechanical ventilation to facilitate this.

This is service is provided by intensive care registrars, with consultant support as required. General anaesthesia in remote locations is recognised as a challenging environment for all grades of trainee. Reasons are multi-factorial including frequent trainee rotation, unfamiliarity with equipment or teams and the ergonomics of a remote environment.[2] Trainees of grade ST3 to ST7 are placed in a time-critical scenario, providing emergent anaesthesia for often complex patients. Situational awareness, communication and multi-professional teamwork are human factors that are at the forefront of the work undertaken.

Multi-professional analysis of a serious incident occurring in a ventilated PPCI patient identified several human and environmental factors as contributory. The RFH Safer Cath Lab QIP was launched.

Key interventions:

- morning Interprofessional Cath Lab Team Brief
- anaesthetic Time Out ' incorporated into PPCI pathway
- formal Cath lab induction for new trainees.
- equipment standards in line with GPAS recommendations. [3]

We chose to use 'communication' and 'team working' as a barometer for the success of these interventions through pre and post intervention surveys three months apart (Figure 1).

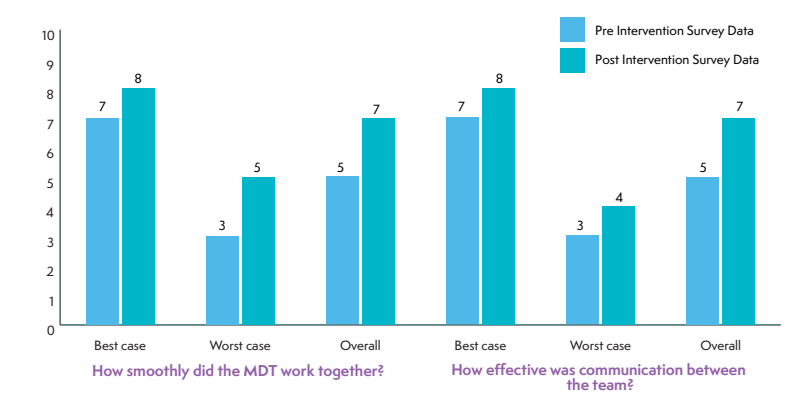

Figure 1 pre and post intervention survey results

Our results suggest these simple interventions led to significant improvements in team-working and communication, even during perceived 'worst-case scenarios ' ie mid PPCI anaesthetic intervention or cardiac arrest. This is supported by anecdotal evidence that team morale, leadership and support for a 'human factors culture' during these pressured scenarios is improved.

The WHO safer surgery checklist has resulted in a global reduction mortality.[4] The RFH Safer Cath Lab project uses a WHO-based emergency checklist and other alterations to daily working patterns to enhance communication, team-working and patient safety for patients undergoing emergency coronary intervention in the Cath Lab. Phase two includes introduction of hot de-brief after difficult cases, multi-professional simulation and performance of audits to assess quality of both anaesthetic time-out and morning team briefs.

References

1. National Institute for Cardiovascular Outcomes Research (NICOR). Percutaneous Coronary Interventions, Annual Public Report 1 January 2015-31 December 2015. 2017. (Accessed 23/8/2018)
2. Anaesthetic Services in Remote Sites. *RCoA* 2014. (www.rcoa.ac.uk/system/files/RemoteSites2014.pdf) (Accessed 23/8/2018).
3. Guidelines for the Provision of Anaesthetic Services (GPAS) 2018. *RCoA* 2018. (www.rcoa.ac.uk/gpas) (Accessed 23/8/2018)
4. Haynes AB, Wiser TG, Berry WR et al. A Surgical Safety Checklist to Reduce Morbidity and Mortality in a Global Population. *New England Journal of Medicine*.

THIRD PLACE

The successful introduction of prefilled suxamethonium syringes to operating theatres at Queen Alexandra Hospital, Portsmouth

Alicja A'Court, Zoe Burton, Sean Elliott
Queen Alexandra Hospital, Portsmouth Hospitals NHS Trust

Errors can result from both incorrect drawing-up or administration of a drug. An important example is a suxamethonium and fentanyl 'syringe swap' drug error resulting in suxamethonium administration to a conscious patient. Suxamethonium is known as 'the drug of disaster' as this scenario can lead to Post Traumatic Stress Disorder (PTSD).[1] Several methods to reduce drug errors have been considered including:

- avoiding distractions during draw-up
- two people checking the drawing up of drugs
- utilising bar-code technology at point of draw-up and again at administration[2]
- preparation and labelling of drug in the hospital pharmacy before delivery to theatre as a prefilled syringe in a bag or box[3].

Following maladministration of suxamethonium to an awake patient at Queen Alexandra Hospital (QAH), suggestions for reducing drug errors were sought from anaesthetists at QAH using a 'Survey Monkey' poll. Prefilled syringes were preferred by the majority[4]. After a long development process an acceptable design was achieved and a Standard Operating Procedure established.

Suxamethonium in 3ml syringes containing 100mg in 2ml are now prepared in the 'Pharmacy Manufacturing Unit' and delivered to theatres for refrigerated storage. Each syringe is labelled indicating its contents and sealed in a red plastic bag carrying a duplicate label (Figure 1). The drug is stable outside the fridge for 33 days. For simplicity, a 1-month expiry date is recorded on the bag. The syringe is left in its bag in the operating theatre. This replaces the previous practice of drawing up a fresh syringe each day. If the drug is not used within the month it is discarded.

Figure 1 Prefilled suxamethonium syringe presented in a red labelled plastic bag.

Prefilled suxamethonium syringes were introduced to QAH >1 year ago. There have since been no cases of suxamethonium maladministration. One unrelated incident involved residual drug being flushed from a cannula dead space. Since the prefilled suxamethonium syringe was introduced, there has been a significant drop in drug wastage and a reduction in use of over 7000 suxamethonium ampoules per annum. This has resulted in an overall cost saving for the trust of approximately £7,000.

If introduced more widely, this initiative could reduce suxamethonium maladministration errors in other trusts, improving patients safety at reduced cost.

References

1. Mackay JH, OConnor K, Cook TM. Drug errors and awake paralysis. Report and findings of the 5th National Audit Project of RCoA and AAGBI 2014;13:111-118.
2. Jelacis S, Bowdle A, Nair BG et al. A system for anaesthesia drug administration using barcode technology: the codonics safe label system and smart anaesthesia manager. *Anesth Analg* 2015; 121(2):410-21.
3. Merry AF, Webster CS, Hannam J *et al*. Multimodal system designed to reduce errors in recording and administration of drugs in anaesthesia: prospective randomised clinical evaluation. *Br Med J* 2011;343:d5543.
4. Burton ZA, King F, Elliott S. Right syringe right drug? Attitudes amongst anaesthetists towards drug handling and drug errors. Poster at GAT Annual Scientific Meeting 2017.

INCIDENT DATA SUMMARY

October – December 2018

Please note: The graphs may not contain all relevant incidents submitted to the NRLS for the given time period due to reporting lag and NRLS processing time. The NRLS team are currently working to modify the SALG data extract to better account for reporting lag and processing time.

Figure 1 – Degree of Harm (actual incidents)

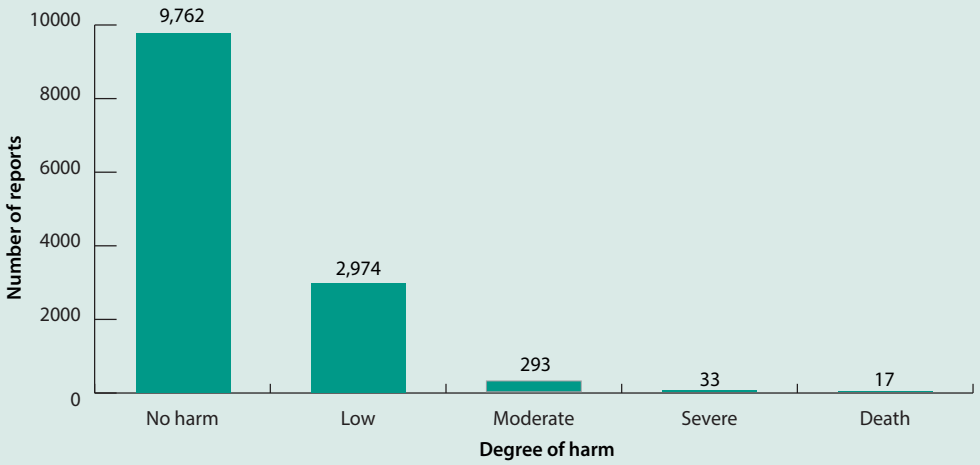

Figure 1 shows the degree of harm incurred by patients within the anaesthetic specialty during the period October-December 2018. 17 deaths were reported though LRMS and none via the anaesthetic eForm.

Figure 2 – Incidents by incident type

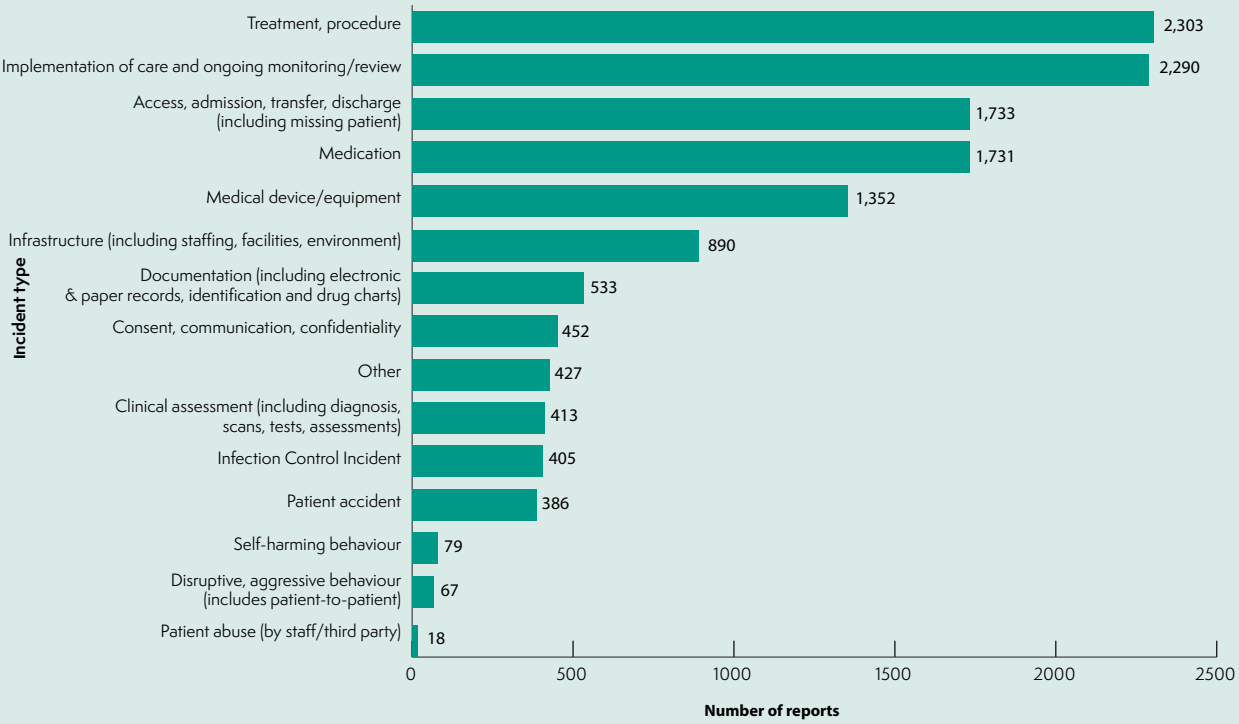

Figure 2 shows the type of incidents that occurred within the anaesthetic specialty that were reported using LRMS or the anaesthetic eForm for the period October-December 2018. The categories were determined at local level.

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Correct as at April 2019