



# PATIENT SAFETY UPDATE

April – June 2016



## PATIENT SAFETY CONFERENCE



The Safe Anaesthesia Liaison Group (SALG) are delighted to host the annual Patient Safety Conference at the Royal College of Physicians, Edinburgh on 30 November 2016.

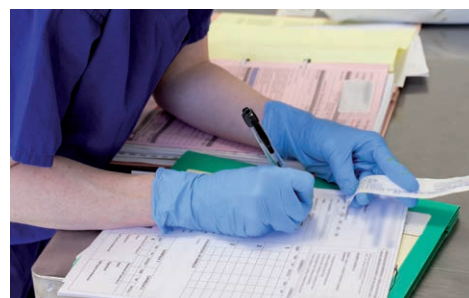
This is a single-day meeting consisting of lectures, each of which is followed by ample time for discussion and networking opportunities. It is intended for doctors engaged in clinical anaesthesia, pain management and intensive care medicine who have an interest in improving patient safety.

Experts will present up-to-date information on a wide range of patient safety related topics, and we are delighted to confirm that the Chief Medical Officer for Scotland, Dr Catherine Calderwood and Shona Robison, MSP, Cabinet Secretary for Health and Sport will both be addressing the conference. The programme for the day is [available here](#). Please see the event page on the [College website](#) for further details.

To book a place on the event, please visit the [event page](#) and click on the **BOOK NOW** button on the top right hand menu. You will be taken to the Event Online Booking system where you simply log in or register to complete the booking process.

### A CALL FOR SAFETY PROJECTS

The SALG website features a [Safety Project of the Month](#). This is space for members of the network and others to share projects that have contributed to patient safety or promoted the patient safety agenda in their hospitals. If you would like to submit a project for the website, please email the patient safety administrator at [SALG@coa.ac.uk](mailto:SALG@coa.ac.uk).



# LEARNING POINTS FROM REPORTED INCIDENTS

## April 2016 – June 2016

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 the 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](mailto:SALG@rcoa.ac.uk).

## ANAPHYLAXIS – NAP6

- *Generalised urticarial rash after urological lubricant containing chlorhexidine applied.*
- *An elderly lady admitted with a fractured neck of femur... BMI 40, history of asthma and frequent reflux and poor exercise tolerance. A spinal was planned... this proved impossible so a general anaesthetic was given. In view of the reflux history a rapid sequence induction was performed (fentanyl, propofol and suxamethonium)... intubation was easy. The lungs were immediately difficult to ventilate, saturations dropped to 75%, blood pressure dropped from 120 / 60 to 60 / 35 and was treated with ephedrine 15 mg... she was given 3 x 100mcg boluses of salbutamol, 500mg aminophylline for the bronchospasm. She responded well and was extubated. There were no other signs of anaphylaxis noted. Tryptases were sent and were raised at 40.5 mg / L and 27.1 mg / L.*
- *Patient suffered a cardiac arrest following anaphylactic episode during induction of anaesthesia.*

NAP6 is collecting prospective data on anaesthesia related anaphylaxis. As outlined in the cases above, clinical presentation can be varied making diagnosis sometimes difficult. NAP6 will provide detail of the range and pattern of presenting signs in anaesthesia related anaphylaxis in UK practice. Guidance on acute management of anaphylaxis can be found on the [AAGBI website](#).

## RESIDUAL DRUGS IN CANNULA

- *A patient was being cared for in recovery after an emergency procedure. The patient had a complex medical history: recent mitral valve replacement, new onset palpitations and paroxysmal AF. The patient was unstable in recovery and required treatment for fast AF... the patient then had a sudden deterioration approximately one minute after intravenous fluids were changed from one cannula to another. The patient was not breathing adequately, became tachycardic and hypertensive and had some abnormal limb movements. The airway was supported and the episode resolved completely after a few minutes. The patient had complete recall for the event... suspect that there was some residual suxamethonium in the cannula used for induction of anaesthesia and that the patient had an inadvertent small bolus when the IV fluids were changed. The cannula that was one with a non-removable extension and two ports.*

A stage one warning was published by NHS Improvement Patient Safety highlighting the serious risk posed by inadvertent injection of residual anaesthesia drugs in intravenous cannulae<sup>1</sup>. The recommendation states that all cannulae and extensions should be flushed before leaving theatre and/or recovery. It is also noted that the risk of residual drugs being present is increased by having multiple cannulae in situ.

1. Stage One: Warning Residual anaesthetic drugs in cannulae and intravenous lines 14 April 2014 NHS England. (<http://bit.ly/114iOrh>).

## MEDICAL DEVICE INTERACTIONS

- *Repeated failure over weeks of anaesthetic oxygen saturation monitoring (Infinity Delta) with a rapid sine wave on monitor, no digital reading displayed. Further investigation revealed an interaction between newly installed LED theatre lighting (Aurinio L120) and the finger probe. Moving the probe away from the LED beam solves the problem.*

Errors in pulse oximeter readouts can be caused by electrical, optical, and mechanical interference. Such interference can be mitigated by reducing movement and by optical and electrical filtration, processes which vary between manufacturers<sup>1</sup>. Commissioners, procurers,



# LEARNING POINTS FROM REPORTED INCIDENTS

installers and users of lights and medical equipment must be aware that LED light sources can interfere significantly and dangerously with oximetry equipment. LED lights are used increasingly in operating theatre lights and also in general, ambient lighting units. The problem therefore may occur in any clinical area including recovery, wards and clinics and not just in operating theatres. Comprehensive local testing must be undertaken to ensure compatibility of new equipment with old and all users must understand this potential source of interference.

1. AC Ralston et al. Potential errors in pulse oximetry III: Effects of interference, dyes, dysshaemoglobins and other pigments. *Anaesthesia* 1991; 4:291-295.

## THROMBOPROPHYLAXIS

- *The patient was transferred with suspicion of pulmonary embolism or acute coronary syndrome... suddenly developed cardiac arrest on mobilization in bed. Previously discussed with cardiologist and reviewed by medical registrar - no PCI or CTPA indicated at the time. No VTE assessment performed since admission to the hospital. No thrombo-prophylaxis given throughout admission (tibial fracture) and noted to have a previous PE.*

Venous thromboembolism affects 1 in 1000 patients in the UK, almost half of these originating in hospital, and it is considered a clinical priority by NHS England. Since the beginning of the National VTE Prevention Programme VTE risk assessments have increased from 46% to over 96%<sup>1</sup>. In England, VTE risk assessment is linked to nationally-mandated Quality Requirements and these in turn are associated with financial consequences. Guidance on assessment is provided by the DoH<sup>2</sup>

1. Venous thromboembolism, NHS England (<http://bit.ly/2ddlGWe>).
2. Risk assessment for venous thromboembolism (VTE) (<http://bit.ly/28RQfNK>).

## SAFE VASCULAR ACCESS

- *CVP line removed from patient. Despite correct technique this caused an air embolus resulting in a stroke... drop in GCS with mixed signs, both right and left weakness. The patient continued to improve on ITU).*
- *Area of very dark necrotic looking skin noted to dorsum of left foot covering significant part of upper aspect of foot. The area had previously had a cannula in situ through which peripheral inotropic drug support had been given. This cannula had been removed.*
- *Inadvertent intra-arterial administration of atracurium into a newly inserted cannula in the back of the hand that subsequently turned out to be in an aberrant radial artery. Nursing staff requested a medical review of the patient's hand as it was becoming mottled / dusky looking with*

*a delayed capillary refill time and had become cool to touch. The ITU registrar reviewed the patient and instructed that the arterial line be removed, which was done immediately by the nursing staff. The registrar then did an ultrasound scan which showed that the radial artery appeared to be thrombosed... unable to visualise the ulnar artery... there was a good brachial artery visualised.*

- *Left hand dusky fingers with arterial line in left radial artery. Arterial line removed. Doctors aware and had documented slightly mottled hand two days earlier. Patient has low platelets.*
- *Local case review: Patient has MOF and ?vasculitis. Arterial line was removed and placed in right brachial however concerns raised over right hand led to line being removed and patient now managed without arterial line. Fingers on left hand now necrotic and partially dead. Vascular team involved. Limb observations documented on ICU obs chart. Decision made to keep line and review when fingers noted to be dusky but platelets were 10. Line then removed when fingers worsened. Since then hand has become necrotic in areas.*

Comprehensive guidelines for safe vascular access were published this year by the AAGBI. Serious complications like limb ischaemia occurs in <1% of cases<sup>1</sup>.

1. A Bodenham et al. Association of Anaesthetists of Great Britain and Ireland: Safe vascular access 2016. *Anaesthesia* 2016; 71 (5):573-585 (<http://bit.ly/2dtSRbP>).

## BREATHING SYSTEMS – CONNECTIONS AND CONFIGURATIONS

- *The patient had a tracheostomy in situ and was put on to high flow CPAP ventilation. The tubing circuit was incorrectly set up by the staff nurse at the bed side. When connected the patient was unable to breath out. His lungs became hyper-inflated which caused a cardiac arrest and the patient died.*
- *ICU trainee identified a disconnection from a non invasive ventilator through alarms. The patient was noted to be bradycardic and bradypnoeic. The saturation probe had fallen off the patient's finger. At this time, the nurse was attending another patient. When the doctor was preparing to ventilate the patient manually, the patient went into cardiac arrest.*

Checking the anaesthetic breathing system is the primary responsibility of the anaesthetist, as stated in the AAGBI guidance. In addition, the anaesthetist should not use equipment that they have not personally checked<sup>1</sup>. If there is no time or opportunity to check an anaesthetic machine, a self-inflating bag and unidirectional valve should be used until a check has been completed.

# LEARNING POINTS FROM REPORTED INCIDENTS

A stage one patient safety alert highlights patient monitoring, staff education and variation in equipment used as major contributory factors in patient fatalities with non-invasive ventilation<sup>2</sup>.

1. A Hartle et al. Association of Anaesthetists of Great Britain and Ireland: Checking Anaesthetic Equipment 2012 *Anaesthesia* 2012;67:6:660-668. (<http://bit.ly/1sRK9Gb>).
2. Patient Safety Alert - Stage One: Warning Risk of severe harm and death from unintentional interruption of non-invasive ventilation, NHS England. (<http://bit.ly/2du0iLo>).

## MAJOR HAEMORRHAGE PROTOCOL

➤ *Emergency department called for 10 units of red cells. The major haemorrhage protocol was not confirmed at this point. Emergency O negative blood declined when told that it would take 22 minutes before we had a group on the patient. Asked for a written request and when it was received rang ED again to ask if it was definitely required. Staff looking after patient said that patient was being tested for AAA and that they would ring me in five minutes and let me know about the units. No phone call came. Rang again and was told by another member of staff that patient was a confirmed AAA and that 'I think they want to initiate the MHP'. Asked Emergency Department which theatre patient had been taken to.*

The management of major haemorrhage has changed significantly in recent years and all hospitals now have protocols for its effective management. The underpinning principles are: recognition and communication. The NPSA released a rapid response report in 2010<sup>1</sup>. The Joint United Kingdom (UK) Blood Transfusion and Tissue Transplantation Services Professional Advisor Committee<sup>2</sup> and the AAGBI have produced clinical guidelines<sup>3</sup>.

1. Rapid Response Report NPSA/2010/017. The transfusion of blood and blood components in an emergency. NHS England, 2010 (<http://bit.ly/2dgQlwK>).
2. Handbook of transfusion medicine 2013. Edited by D Norfolk Published by TSO (<http://bit.ly/2dtTsKo>).
3. D Thomas et al. Association of Anaesthetists of Great Britain and Ireland. Blood transfusion and the anaesthetist: management of massive haemorrhage *Anaesthesia* 2010; 65 (11):1153 -1161. (<http://bit.ly/1WBlkdj>).

## NAP4

➤ *On call for ITU when fast bleeped to the unit at 18.25. On my arrival patient being bag mask ventilated and was told as issues with tracheostomy tube ? blockage and unable to pass the suction catheter. Noticed patient was pale hence asked to confirm if a pulse was present. Confirmed absence of carotid pulse... commenced cardiopulmonary resuscitation... tried bag mask ventilation via the tracheostomy tube in the neck, no movement of chest. Tried passing catheter into the*

*tracheostomy tube unable to pass catheter. Bleeding from the tube. Attempted oral intubation under direct laryngoscopy, unable to visualise the cord, blood all around the cords. Suctioning done. Fast bleeped theatre second on call for help. In the interim LMA inserted and ventilating through the LMA. Theatre second on call anaesthetist arrived immediately, tried inserting bougie through the tracheostomy tube again, unsuccessful. Blood pouring out through the tracheostomy tube. The LMA was removed and tubed the patient orally. Tracheostomy tube then removed by staff and pressure applied on the neck. Patient had 10 cycles of CPR (3 PEA arrest and 7 asystolic arrests). Patient died.*

In the April – June 2014 edition, the Patient Safety Update featured a case of difficult tracheostomy tube insertion in ICM. The accompanying narrative directed readers to the NAP4<sup>1</sup> report and to [The National Tracheostomy Safety Project \(NTSP\)](#), part of the [Global Tracheostomy Collaboration](#) which aims to improve the management of patients with tracheostomies. The timely report from NCEPOD<sup>2</sup> on quality of care for patients with tracheostomies described current practice and went on to make recommendations for the multidisciplinary organisation of care, tube insertion and on-going care, as well as complications, adverse events and outcomes.

NAP4<sup>1</sup> recommended that if there were issues with tracheostomies in ICU, advanced airway skills were likely to be required to resolve these problems. There should be clear lines of communication to escalate airway problems to people with advanced airway skills. Late complications of tracheostomy include haemorrhage.

1. NAP4 Major Complication of airway management in the UK 2011. (<http://bit.ly/1N1LG4b>).
2. On the Right Trach? A review of the care received by patients who underwent a tracheostomy. A report by the [National Confidential Enquiry into Patient Outcome and Death](#) 2014.

## HANDOVER

➤ *Patient with uncontrolled MRSA bacteraemia undergoing source control /abscess drainage procedure. In recovery patient was confused, hypotensive, peripherally shut down, with no saturation picking up, pulling off oxygen mask and hypoxic. ABG revealed metabolic acidosis with lactate of 6 and hypoxia. Patient was not handed over by a doctor. Analgesia also inadequate.*

Safe, effective and timely patient care is facilitated by appropriate communication. The Surgical Never Events Task Force report recommended the development of national standards pertaining to operating department practice. The National Safety standards for Invasive Procedures (NatSSIPs) were published in September 2015. Section 4.5

# LEARNING POINTS FROM REPORTED INCIDENTS

of these relate entirely to safe handover<sup>1</sup>. The Royal College of Physicians have designed a handover toolkit along with a description of the need and best practice<sup>2</sup>. Although the toolkit is not directly transferable to anaesthesia practice it does contain some useful ideas. NHS England have produced a quality improvement template for development of safe handover procedures.<sup>3</sup>

1. NHS England. National Surgical Safety Standards for Invasive Procedures (NatSSIPs).
2. Acute care toolkit 1: handover. Royal College of Physicians of London. (<http://bit.ly/2cE2TkB>).
3. N Davey, A Cole 2015 Safe communication. Design, implement and measure: A guide to improving transfers of care and handover (<http://bit.ly/2cE5OP4>).

## APPENDIX: INCIDENT DATA SUMMARY

A total of 10,650 anaesthesia-related incidents were reported during the specified time period. Six incidents were reported using the anaesthetic eForm; 1 (17%) of these incidents were reported to the National Reporting and Learning System (NRLS) within one day of occurrence. Three (50%) of the incidents reported to the eForm were reported as 'near miss' (harm was prevented from reaching the patient). 10,694 incidents were reported using Local Risk Management Systems (LRMS); 42 (0.3%) of these incidents were reported within one day and 5,532 (52%) were reported more than 30 days after they had occurred. Of the incidents reported via LRMS, 7886 (74%) 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 Improvement. 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.

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 [www.eforms.nrls.nhs.uk/asbreport](http://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 Improvement. 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.

Figure 1 – Degree of Harm (actual incidents)

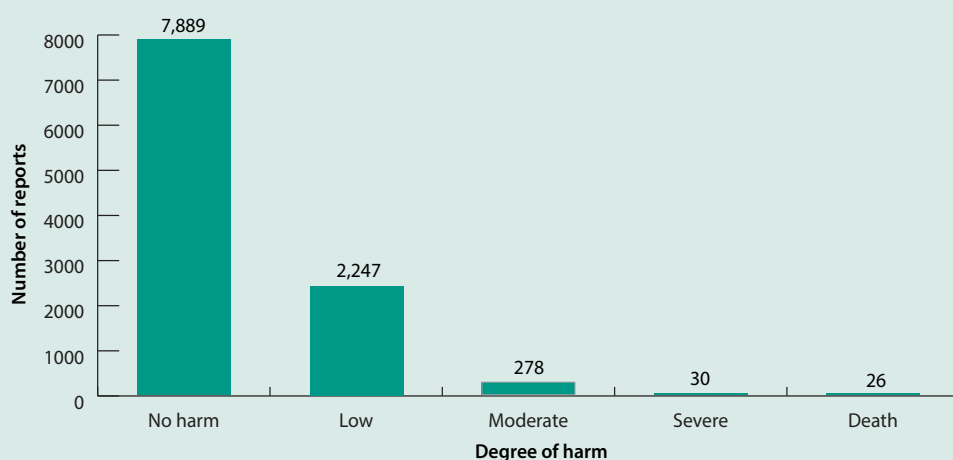


Figure 1 shows the degree of harm incurred by patients within the anaesthetic speciality during the period April – June 2016. 26 deaths were reported though LRMS and none via the anaesthetic eForm.

# INCIDENT DATA SUMMARY

April–June 2016

Figure 2 – Incident types

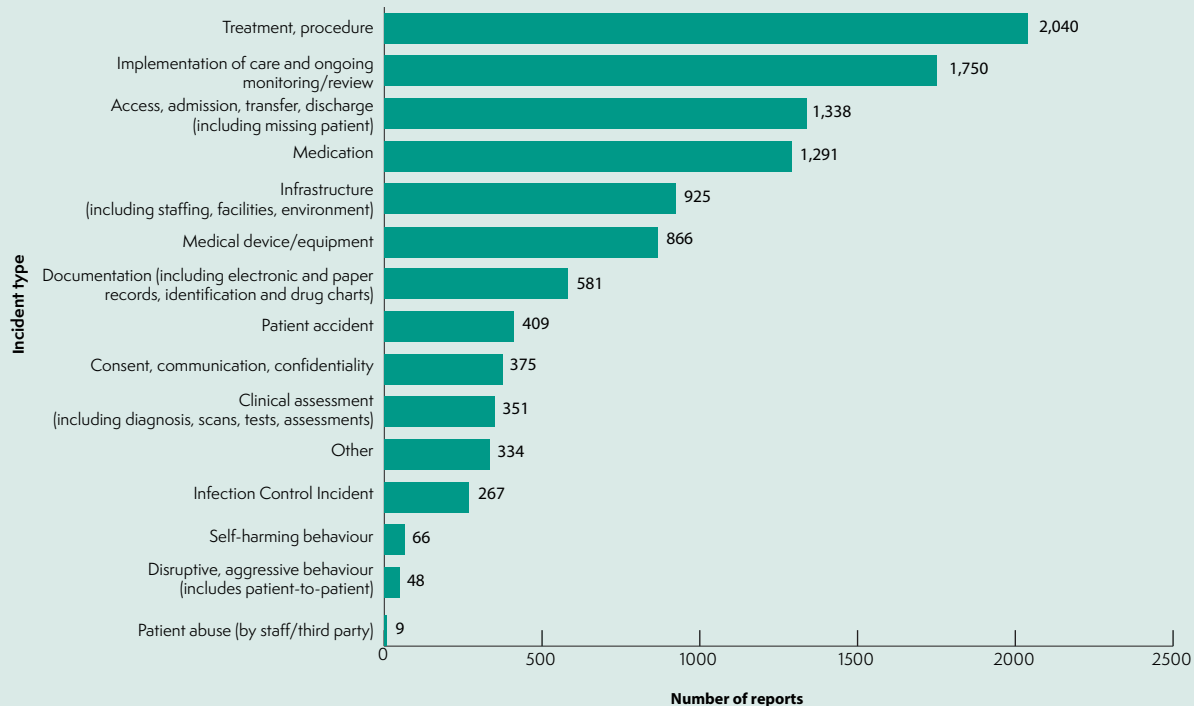


Figure 2 shows the type of incidents that occurred within the anaesthetic specialty that were reported using LRMS or the anaesthetic eForm for the period April – June 2016. The categories were determined at local level.

