



PATIENT SAFETY UPDATE

July–September 2023



The SALG Patient Safety Update turns 13 this year, so we at SALG felt that it might be a good time to review the way that it is produced and make some changes that we hope will serve to improve its effectiveness and reach.

The new development process uses the expertise of topic experts that we have recruited through the relevant specialty societies and other professional bodies, asking them to look at cases that fall within their topic area. By doing this we expect that they will provide both relevant information in relation to the lessons that can be learned and a link to feed this back to their specialist societies to allow for distribution of the issues arising from the data.

There has also been a fundamental change at NHS England in relation to the way that data are collected. The new Patient Safety Incident Response Framework (PSIRF) provides a framework for improving the quality of investigations/reporting to more effectively identify and implement the systems-related changes that need to take place to effectively respond to patient safety issues. We hope that this new framework will provide more focused learning and will allow us to more easily identify relevant and helpful lessons from within the data.

Included in this update, alongside the usual review of incidents, are other items that SALG has considered relevant to patient safety including lessons for NHS Trusts/Boards, identified by various sources, including NHS England, HSSIB and the Coroners Court.

We hope that you find the new format informative and useful. Feedback, as ever, is very welcome so please do feel free to contact SALG using our email address: admin@salg.ac.uk if you have any questions or comments to make.

Acetone in the anaesthetic room – time for a change

Through its core work to review recorded patient safety events the NHSE National Patient Safety Team identified a risk involving a LASA (Look Alike Sound Alike) error involving acetone and sodium citrate.

The incident involved inadvertent ingestion of acetone instead of Sodium Citrate whilst a patient was being prepared for Caesarean birth. The error was immediately recognised, and the acetone removed from the patient's stomach (via NG tube).

Bottles of acetone and sodium citrate are both brown in colour and of comparable size. Acetone has traditionally been kept in anaesthetic rooms/operating theatres to remove nail varnish allowing accurate oxygen saturation monitoring.

This issue was discussed with SALG in October 2023 and whilst only one incident relating to this particular LASA error was reported it was acknowledged that potential for the error to be repeated remains, particularly in emergency situations. There was discussion around potential unintended consequences of removing acetone altogether. Although there are conflicting views, the evidence suggests that the risks to the patient of nail varnish/ gels interfering with saturation readings by pulse oximetry are outweighed in the theatre environment by the risks of inadvertent oral administration of acetone/nail varnish removal solution. In conclusion SALG has decided to recommend departments of anaesthesia should remove acetone from anaesthetic rooms.

Resources

1. Chan, E; Chan, MM; Chan, MM. [Pulse Oximetry: Understanding its basic principles facilitates appreciation of its limitations](#). *Respir Med*. 2013 Jun; 107(6): 789-799.
2. Coté CJ *et al*. [The effect of nail polish on pulse oximetry](#). *Anesth Analg*. 1988 Jul;67(7):683-6. PMID: 3382042.
3. Aggarwal, AN *et al*. [Impact of fingernail polish on pulse oximetry measurements: A systematic review](#). *Resp Care*. 2023 Sept; 68(9): 1271-1280.

HSSIB Reports

SALG would like to highlight the following reports, based on HSSIB investigations, that contain recommendations relevant to anaesthetists and departments of anaesthesia:

Advanced Airway Management in Patients With a Known Complex Disease

This [recent report](#) concerns advanced airway management of a patient with a known complex disease. Please do take the time to read this.

The recommendations require key stakeholders to act collaboratively to produce a framework for managing patients with an anticipated difficult airway. The RCoA and the Association of Anaesthetists are collaborating with DAS to do this.

At a local level home messages include:

- Please make sure your department is signed up to the DAS difficult airway database¹ if you haven't already.
- Use this report as well as RCoA's GPAS chapter for head and neck surgery² to push for access to video laryngoscopy, high flow nasal oxygen therapy and e-FONA equipment as well as other kit needed for advanced airway management. Another safety

observation suggests that video laryngoscopy should be used more widely to increase experience.

- Use this report as evidence for the need to have time to train in advanced airway skills e.g. e-FONA for all anaesthetists, ODPs. This should be both task-based and critical incident training. The discussion on whether this should be mandated has re-surfaced, but individuals and organisations can begin this work without a mandate.
- When dealing with a case of this type, ensure that there are open communication lines with ENT colleagues so that they are aware of the patient, and are available to assist if required.

Resources

1. Difficult Airway Society. [DAS Airway Alert Card and Difficult Airway Database](#).
2. Royal College of Anaesthetists. Guidelines for the Provision of Anaesthesia Services, [Chapter 12: Guidelines for the Provision of Anaesthesia Services for ENT, Oral Maxillofacial and Dental surgery 2024](#).

NHS Workforce and Patient Safety

Investigation report: Temporary staff – involvement in patient safety investigations

This [report](#) recommends that hospitals consider the following questions, contained in the report to interrogate how effectively they involve temporary staff in patient safety investigations:

- How do you ensure that temporary staff are aware of how to report patient safety incidents?
- If an incident takes place, how do you ensure that temporary staff are able to record it?
- How do you engage temporary staff in a learning response?
- Do you have processes in place so you can conduct interviews with temporary staff?
- Can you work with employment agencies to create agreed methods of including temporary staff in learning responses through your contractual arrangements?
- How do you ensure that learning is fed back to those staff involved, including temporary staff?

New two-page quick summary of NatSSIPs launched

CPOC has now launched a [two-page quick summary of the National Safety Standards of Invasive Procedures \(NatSSIPs\)](#). This is an aide memoire for anyone undertaking interventional procedures and the teams that support them. Please [share and link](#).

Reports from the coroner

Death related to CO2 monitor not working

This case involved a patient who died after suffering a cardiac arrest following elective bariatric surgery at a private hospital.

[Two days postoperatively] the patient developed abdominal pain. Although a major anastomotic leak was ruled out on CT scanning, but symptoms were indicative of SIRS (Systemic Inflammation Response Syndrome). The patient also had bi-basal atelectasis and/or consolidation of the lungs. Blood results, taken three days post operatively showed that the patient was in acute renal failure, and not compliant with oxygen administration, and there was a rapid deterioration in the evening of that day. A plan was made to intubate, ventilate, and insert a central line overnight at the independent hospital while awaiting a bed at the local NHS hospital. However, intubation started it proved extremely difficult and the airway was lost. Front of neck airway access was attempted via cricothyroidotomy, but successful access could not be confirmed as there was no EtCO2 tubing attached to the circuit being used in the emergency. The lack of a reassuring carbon dioxide waveform on the main monitor caused the anaesthetist to think that the tube was incorrectly sited. The patient then continued into cardiac arrest from which they could not be resuscitated, and died as a result.

The above details are included in the record of inquest, which noted the medical causes of death as: 1 (a) Hypoxia during emergency intubation procedure, (b) post-operative stage 3 acute kidney injury, systemic inflammatory response syndrome and respiratory failure, (c) laparoscopic sleeve gastrectomy for obesity and 2. Hypertensive heart disease, obstructive sleep apnoea:

Commentary

According to the judgement, the tube was correctly sited, but due to the lack of a trace on the monitor, it was incorrectly diagnosed as being oesophageal intubation.

This is a rare but catastrophic example of when 'No Trace' did not indicate 'Wrong place'.¹ This case highlights the critical importance of machine checking. The Association's guidance states that the capnograph should be checked before use. Capnography should be present on all cardiac arrest trolleys.²

Resources

1. Royal College of Anaesthetists. [Capnography: No Trace, Wrong Place](#).
2. Association of Anaesthetists. [Checking anaesthetic equipment](#), 2012.

Use of Aintree intubating catheter for supplemental oxygenation

Airway exchange catheters (AECs) can be used as a guide over which a tracheal tube can be passed, in a similar way to a bougie. Their use is associated with a high intubation success rate. Most of the morbidity is caused by barotrauma associated with their use as a means of oxygenation.

Readers are referred to 2 reports (listed below): The Sheriff's report into Mr Gordon Ewing and one where oxygenation via these long hollow catheters was a contributory factor to the patient's death.

Commentary

Insufflating oxygen through AECs with a 15mm connector should only be done in extremis and using a high-pressure source (jet) ventilation (with an associated Luer lock connector) should be avoided altogether.

The Difficult Airway Society guidelines for the management of tracheal extubation, also essential reading, list the use of AECs as an advanced technique where due diligence is needed.

Departments are further encouraged to deliver MDT training for airway procedures (eg e-FONA, unrecognised oesophageal intubation, and advanced airway kit). These cases lend support to this.

Resources

1. Scottish Courts and Tribunals. [Inquiry under the fatal accidents and inquiries \(Scotland\) Act 1976 into the sudden death of Gordon Ewing](#). 2010 FAI 15
2. Courts and Tribunals Judiciary. [Ian Jacka: Prevention of future deaths report](#), 2023. Ref 2023-0519.
3. Difficult Airway Society. [Guidelines for the management of tracheal intubation](#). *Anaesthesia*, 2012 Mar; 67(3): 318-340

Review of Incidents

Following is a review of incidents that have been identified from those reported to the NHS in England and Wales in the period from 1 July and 30 September 2023.

Neurological Monitoring Associated with spinal epidural anaesthesia

Following vascular surgery under spinal-epidural anaesthetic, there was no return of any sensation or motor function in the lower limbs (Bromage score 3) within 4 hours. The block was not monitored in recovery and although ward staff raised concerns, there was a delay in review and a significant delay in undertaking a MR scan (more than 10 hours). The MR scan confirmed a suspected hematomyelia (haemorrhage occurring within the spinal cord) and the patient suffered permanent neurological sequelae.

Commentary

This case highlights the need for careful monitoring of patients for block regression following spinal epidural anaesthesia, as recommended by the Association of Anaesthetists¹ Units should have an SOP for providing access to rapid MRI 24/7 to prevent delays in diagnosis, with its attendant risks for patient safety.

Resources

1. Association of Anaesthetists. [Safety guideline: neurological monitoring associated with obstetric neuraxial block](#), 2020.

Airway incidents

Case 1: Peri-arrest call to ward. Patient was vomiting and aspirating and was hypoxic on 15L via a non-rebreathing mask. Proceeded to VF Arrest. During the subsequent 2 shocks and ~6min CPR, continued to ...vomit. It took > 5minutes to find a laryngoscope and endotracheal tube, which were not on the crash trolley. Cardiac Resynchronisation Therapy (CRT) bag was present, however CRT nurse assisting in CPR/shocks, took further time to open all the bag and find appropriate equipment. During this time delay patient further aspirated and took over 5 minutes to gain equipment to intubate.

Case 2: Cardiac arrest call received for an inpatient. On arrival of the anaesthetic team, patient was agitated, short of breath with marked facial flushing. Already had a nasopharyngeal airway. Struggling to breathe. Medical on-call team present. Oxygen saturations were low, and Oxygen given via face mask. The patient had been admitted under ENT with supra/epiglottitis. The primary survey suggested upper airway obstruction. Medics sited IV cannula, took blood samples including blood gas. Patient was in extreme distress and holding throat struggling to breath. Also required multiple people to hold them to secure IV access. Although the anaesthetic team were aware of the need for immediate airway support, there was no front of neck access kit or scalpel for emergency tracheostomy available leading to delay. Patient lost cardiac output and chest compressions commenced immediately after which intubation was undertaken. ROSC achieved after 1 cycle + adrenaline. Patient transferred to ICU.

Background information

Patient had been admitted to [emergency department] earlier that day where a diagnosis of? Laryngitis, ?supraglottic infection made. ENT team reviewed the patient who had refused fiberoptic nasendoscopy. CT scans of neck and thorax were reported as showing oedema of the supraglottic structures, with mild narrowing of the adjacent airways. Of note there was a significant time span between admission to A/E and the arrest call, during which continual assessments had been made.

Commentary

Both these cases highlight the need to check emergency equipment before use.

In addition to daily and weekly checks, resuscitation trolleys should be checked after each use. There should also be regular training and reminders to staff about where the trolley is kept. Opening of drawers to allow familiarisation of kit is also to be encouraged. Consideration should be given to better use of dividers, signage labels and possibly use of pictures, to guide staff in emergent situations.

DAS recommends the following:

E-FONA kit: The location of eFONA equipment should be standardised and clearly sign posted in every area where airway management is undertaken, including on wards where head and neck patients are cared for. The guideline gives suggestions for equipment and prompt cards to be included in eFONA packs.¹

Although both patients were successfully intubated, patients with upper airway pathology can be tricky to manage – it's an ever changing, dynamic situation.

This requires:

- Repeated and early MDT assessment (ENT, Anaesthesia) – ENT must be alerted early if they are normally off-site.
- Constant monitoring in an appropriate place e.g. HDU
- Planning in advance for emergency care should deterioration occur.
- Availability of equipment: e.g. Difficult Airway trolley (including eFONA kit, Fibreoptic scope) in apocopate areas.

MDT training, which doesn't need to be high fidelity, is to be encouraged for critical events. This can be task specific or even delivered as talk-through simulation. The College has a flash cards team training resource, available on its website.²

Resources

1. [Difficult Airway Society 2015 guidelines for management of unanticipated difficult intubation in adults](#). *British Journal of Anaesthesia*.
2. Royal College of Anaesthetists. [Flash card team training](#).

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