Department of Health

From Caroline Dinenage MP
Minister of State for Care

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Your Ref: DLR/LG/30523

Our Ref: PFD-1118948

Mr David Roberts
HM Senior Coroner – Cumbria
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27 MAR 2018

Dear Mr Roberts,

Thank you for your letter of 5 February to the Secretary of State about the death of Mrs Sharon Rose Grierson. I am responding as Minister with responsibility for hospital care and patient safety.

I was extremely saddened to read of the circumstances surrounding Mrs Grierson's death. Please pass my condolences to her family and loved ones. I can only imagine how difficult a time this must be for them.

Your report raises several areas of concern which I address below. Although not mentioned in your report, I understand my officials received clarification that you also wish consideration be given as to whether undetected oesophageal intubation should be introduced as a 'Never Event' given the apparent effectiveness of capnography. My response will also address this point.

I am aware that similar concerns have featured in a recent Regulation 28 report, namely that issued by Her Majesty's Assistant Coroner for Cambridgeshire and Peterborough following the inquest into the death of Mr Peter Saint, available at https://www.judiciary.gov.uk/publications/peter-saint/. Mr Saint sadly died in notably similar circumstances where the significance of capnography readings were mistaken. Clinicians thought the absence of a proper CO2 end tidal wave was explained by the patient being in cardiac arrest, while it can be accounted for by oesophageal intubation and not cardiac arrest, unless there are exceptional circumstances or technical fault.

That report was issued to the Royal College of Anaesthetists, among others, and my officials have liaised with the Royal College on this reply.

The use of capnography is widespread in the NHS. The Royal College's Guidelines for the Provision of Anaesthetic Services (GPAS) set the national standards for anaesthetic care across the service. The Guidelines recommend the absolute need to use capnography for any patient with a tube, supraglottic airway device or having deep sedation, wherever they are (GPAS ref 5.2.39 + 41) and reference the AAGBI's Standards of Monitoring 2015 which states that, *capnography monitoring is essential at all times in patients with tracheal tubes, supraglottic airway devices and those who are deeply sedated.*

The Royal College runs an accreditation process, Anaesthesia Clinical Services Accreditation where accreditation is awarded against the standards derived from the Guidelines. Further, trainee anaesthetists are taught the essential role of capnography to recognise and treat immediate complications of induction, including a misplaced tube.

I am advised that since the introduction of the widespread use of capnography, failure to recognise tracheal tube misplacement is extremely unusual.

However, a report published by the Royal College of Anaesthetists and the Difficult Airway Society in 2011 (*Major Complications of Airway Management in the UK, available at www.rcoa.ac.uk/node/4211*), commonly known as NAP4, raised the issue of misinterpretation of capnography in the face of situations such as peri-arrest or cardiac arrest.

NAP4 is clear that a flat capnograph indicates lack of ventilation of the lungs: the tube is either not in the trachea or the airway is completely obstructed, and that *...this applies equally in cardiac arrest as CPR leads to an attenuated but visible expired carbon dioxide trace.* NAP4 recommended the training of all clinical staff include interpretation of capnography and recognition of the abnormal (but not flat) capnography trace during low cardiac output states and during CPR.

The Royal College, the Association of Anaesthetists of Great Britain and Ireland (AAGBI) and the Difficult Airway Society (DAS) have raised the following concern: Despite the emphasis placed upon the continuing presence of exhaled carbon dioxide during resuscitation from cardiac arrest in resources such as NAP4 and the Advanced Life Support programme (run by the Resuscitation Council UK), there are still clinicians holding senior positions in anaesthesia in the NHS who are unaware of this important fact.

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In the response to the Regulation 28 report issued in late 2017 following the Inquest into the death of Mr Peter Saint, I am advised that the Royal College, the AAGBI and the DAS agreed to take the following action:

- bringing this to the attention of all trainees in anaesthesia in the UK, to all Fellows and members of the Royal College, to all members of the AAGBI and all members of the DAS – and thereby to the overwhelming majority of practising anaesthetists in the NHS – the publication of an article on this subject in the Patient Safety Update published quarterly by the Safe Anaesthesia Liaison Group, highlighting the issue in a Safety Matters article in Anaesthesia News and in the DAS newsletter;
- bringing this to the attention of the Royal College and DAS Airway Leads that are present in every NHS trust at a national Airway Leads meeting on 15 March 2018 and inviting feedback on areas for improving training; and
- asking those charged with providing the Royal College's online educational programme (e-learning for Anaesthesia) to consider highlighting this issue in sessions on tracheal intubation, capnography and resuscitation.

Alongside these actions is the proposed new Never Event for undetected oesophageal intubation. Never Events are defined as Serious Incidents that are wholly preventable because guidance or safety recommendations that provide strong systemic protective barriers are available at a national level, and should have been implemented by all healthcare providers.

It is important to note that undetected oesophageal intubation did not feature as a Never Event in the framework that was in place at the time of Mrs Grierson's death. As you may be aware, the *Never Events Framework* and list of Never Events were revised and published on 1 February 2018. A new Never Event proposed as part of this consultation was 'undetected oesophageal intubation'.

I am advised by the Royal College that while there is a strong systemic barrier to failure to use capnography (AAGBI, *Standards of monitoring during anaesthesia and recovery* 2015), there is not a strong systemic barrier to prevent misinterpretation of the capnography waveform.

NHS Improvement is therefore working with relevant national organisations, including the Royal College, the AAGBI and the British Association of Paediatric Nephrology (the Renal Association) to develop the national guidance required to support this proposed Never Event.

NHSI will consider the best routes to share this guidance, once developed, as well as introducing the Never Event. I hope this clarification is helpful.
Turning to your comments in the report around dissemination of good practice and the importance of simulation-based education, I would like to reassure you that much is being done in this area.

The Royal College strongly supports such education, running a regular programme of training in 'non-technical skills' and a working group providing guidance on simulation of clinical crises. The requirement for human factors training is included in the Royal College's exam curricula and its Guidelines for the Provision of Anaesthesia Services. In addition, Anaesthesia Clinical Services Accreditation standards include the requirement for regular multidisciplinary team training.

Perioperative emergencies, which should include crisis training, features on the Royal College's Continuing Professional Development (CPD) matrix which is used to assess continuing professional development for revalidation for consultants. For anaesthetic trainees, in several schools of anaesthesia, simulation training is a mandatory annual requirement in order to pass the 'Annual Review of Competence Progression'. The Royal College's CPD matrix includes recommendations that all staff needing revalidation have education on emergency management and resuscitation as well as education on human factors in anaesthetic practice.

The Royal College has taken the following steps to support the NHS in this area:

- consideration of the creation of guidance on how departments of anaesthesia can introduce regular crisis simulation for operating theatre teams;
- working with the AAGBI to promote regular multi-disciplinary crisis simulation through the forthcoming publication of the Quick Reference Handbook, a series of national guidance documents on the management of emergency situations in anaesthetic practice; and
- working with the DAS which has set up an expert working group looking specifically at human factors in airway management to address the non-technical aspects in the management of tracheal intubation and difficult airways.

More generally, Health Education England (HEE) advises that simulation-based education is available nationally, though in varying amounts and to varying degrees of success on a multi-professional and inter-disciplinary basis. There are pockets of excellence across the country and HEE is hoping to harness and share these examples.

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A strategy to enable access and better delivery across the country was initiated by HEE in September 2017. This aims to encourage the provision of simulation-based education through the sharing of best practice, consistency of approach and delivery and promoting equity of access and value for money across the range of learners in health and social care. Due to the different demographics across the country, simulation-based education needs to be locally led and delivered (i.e. through the multi-professional Postgraduate Deans and directors in each local area). Simulation is used across many professions, and is becoming increasingly utilised as its strengths in providing safe practice for both patients and learners alike become more recognised. It is predominantly utilised in postgraduate medical training for trainee doctors, dentistry and nursing. However, it is becoming increasingly utilised in multi-disciplinary scenarios - particularly involving simulated patients, which will include a range of users - from medical to social-care practitioners.

HEE is engaged with the Nursing and Midwifery Council and other healthcare professionals and learning establishments to see how there could be a unified approach to simulation-based education in the future and how the implementation of the HEE strategy might be best utilised.

You may be aware that in the North East region, a Faculty of Patient Safety was established some three years ago in order to support a region-wide collaborative, multi-professional approach to simulation, which has been noted to be good practice by the General Medical Council. The North Cumbria University Hospitals NHS Trust is a member.

With regard to centres of excellence, all anaesthetic centres that have simulation centres should be able to provide crisis training. All hospitals with anaesthetic trainees are connected to 'schools of anaesthesia' that help manage trainee rotations, training, education and pastoral care.

North Cumbria is part of the Northern School of Anaesthesia and Intensive Care Medicine (www.nsaicm.com/about/) which includes Newcastle, Gateshead, North Tees and Northumbria Hospital trusts. All four of these trusts have simulation facilities and form the North East Simulation Network (northeastsimulation.co.uk/).

NHS Improvement views these centres as 'expert centres' where knowledge on crisis situations and human factor training can be disseminated.

Finally, with regard to the regrettable circumstances around Mrs Grierson's death – I am advised that the Trust has in place an action plan that includes measures to ensure there are clear departmental guidelines based on the DAS's guidance; and ensure that all relevant staff will undergo emergency scenario training and simulation, including human factors training for difficult airway management in emergency situations.

I am further advised the Trust will be developing emergency simulation training more generally and measures will be taken to strengthen leadership in emergency situations.

Learning lessons where things have gone wrong is essential to ensuring the NHS provides safe, high quality care and I am encouraged to see the Trust taking these steps.

I am mindful that you issued a Regulation 28 report in January 2017, following the conclusion of inquests into the deaths of Ms Amanda Coulthard and Mr Michael Parke involving the misplacement of nasogastric tubes. As you may know, the Care Quality Commission (CQC) conducted a responsive unannounced inspection into nasogastric tubing at the Trust in July 2017 to assess the safety of current practices and progress in delivering the action plan identified in response to the concerns you raised. I am advised that inspection also included consideration of the incident involving Mrs Grierson and that CQC was assured that the Trust was taking appropriate action.

The CQC continues to monitor the Trust, alongside its commissioners.

I hope this reply is helpful. Thank you for bringing the circumstances of Mrs Grierson's death to our attention.

CAROLINE DINENAGE MP
MINISTER OF STATE FOR CARE

cc: Mr Sean Horstead, HM Assistant Coroner for Cambridgeshire and Peterborough