

## **“Safety while we watch- what should Patient Safety Culture in Anaesthesiology look like?”**

“To err is human” may well be true but the duty of medicine obliges us all to resist this idiom becoming true for patients. Is “to err is human” an acceptable standard in the modern practice of anaesthesia? I would argue yes and the following will explain why. When the Institute of Medicine released “To Err is Human: Building a Safer Health System” in the US and showed that between 4,400 and 98,000 deaths per year may have been attributed to medical error. It caused quite a stir and peaked interest in the area of medical error<sup>1</sup>. In the UK The National Audit Project 4 looked at 188 cases of major airway events resulting in complication and concluded that human factors were involved in every case<sup>2</sup>. The science of human factors is a new and complex field, most extensively studied in aviation. Human factors in medicine are defined as “enhancing clinical performance through an understanding of the effects of teamwork, tasks, equipment, workspace, culture and organisation on human behaviour and abilities and application of that knowledge in clinical settings”<sup>3</sup>. It is undeniable that the specialty of anaesthesia, so heavily reliant on teamwork, communication, and a diverse spectrum of complicated equipment and procedures, must embrace the study of human factors to improve the safety and outcomes of our patients.

Pilots are well acquainted with the science of human factors and is often lauded as the safest mode of travel protected by checklists and protocols. Toff in 2010 highlighted how this style of training and professional practice overlaps hugely in medicine, particularly in anaesthesia<sup>4</sup>. The adoption of standardised procedural checklists, simulation training and promotion of human factors in clinical practice has become very palpable in anaesthesia over the recent years.<sup>4</sup>

A vocal and stand-out advocate for this sea-change in attitudes to human factors in medicine is former commercial airline pilot Martin Bromley. “The Bromley Case” is a widely known tragedy where human factors translated into gross negligence and the avoidable death of Martin’s wife Elaine at the age of 37. In 2005 Elaine Bromley presented for a routine endoscopic sinus surgery and septoplasty in the UK. This soon became a difficult intubation case. Eventually a “can’t intubate, can’t ventilate” case unfolded, a situation dreaded by anaesthetists. There were multiple human factors at play. Poor situational awareness lay at the crux of the case. Three senior doctors remained hyper-focused on repeated trials of intubation resulting in prolonged hypoxia. Better situational awareness was demonstrated by nursing staff who provided the front of neck access trolley. This was eclipsed by poor communication. Failure to speak up, poor time keeping and poor leadership were to the fore. The operation was abandoned, Elaine was eventually transferred to ICU where she passed away two days later due to cerebral damage sustained during this period of hypoxia.

In an independent review of the case Professor Michael Harmer concluded that the errors in care related fully to poor management of the can’t intubate, cant ventilate situation due to poor decision making, loss of situational awareness, and poor communication among different staff present.<sup>5</sup>

Similar themes of the Bromley case are evident in the death of the first president of the United States George Washington in 1788, a comparison also noted by the author Abou-Foul<sup>6</sup>. He discusses the clinical situation in which three well respected presidential physicians attended President Washington before his death. Two revered and experienced physicians,

aged 70 and 52 respectively, were assisted by the younger Dr Elisha Dick aged 32. Suspecting acute epiglottitis, Dr Dick had recognised the acute loss of airway patency and suggested and prepared for emergency front of neck access, a radical procedure at the time used in Europe but a novel procedure in America. The senior physicians vetoed this proposal, instead persisting with bloodletting, blistering and enemas<sup>6</sup>.

Abou-Foul analysed the human factors at play and similarly concluded poor situation awareness and hierarchical obstruction contributing to failings in the care of President Washington. Poor leadership was also identified with a leadership approach centred around seniority and not skillset and competency. This environment may also have inhibited Dr Dick protesting or suggesting that his seniors were performing inappropriate treatment.

Although over 200 years apart, the uncanny similarities in these cases are plain to see; human factors playing a significant role in the untimely death of both patients. Two hundred years later the study of these human factors is gaining traction. In 2018 Jones et al completed a systematic review on how human factors could prevent complications in anaesthesia and commented on the importance of communication, teamwork, situational awareness and human error<sup>7</sup>. Key findings of the review included deconstructing the hierarchy, ensuring adequate communication including team briefings pre routine anaesthetic and pre emergency. The importance of clear communication and leadership in critical situations, the benefits of the use of checklist in reducing burden such as WHO surgical safety checklist<sup>8</sup> are described. Finally the importance of individual and team situational awareness is highlighted.

Building on the deepening appreciation for the study and relevance of human factors in medicine and anaesthesia, we must translate this learning into an enhanced culture of safety for every patient, every time. Promising examples of integration of these principles into current practice include quality improvement and simulation training represented in the HSE Model of Care for Anaesthesiology<sup>9</sup> and the College of Anaesthesiologists Ireland roadmap 2019-2024.<sup>10</sup>

To conclude this brief exploration of human factors in anaesthesia and their influence on patient safety culture, I boldly declare that it is essential we accept the idiom “to err is human”. Accepting this fact is the first step in arming ourselves against our own flawed nature; for we are forewarned of our human shortcomings, and knowing this, can endeavour to protect our patients against the negative impact of human factors and minimise the scope for error. This sentiment echoes that of Liam Donaldson former Chief Medical Officer in the UK,

*“to err is human, to cover up is unforgivable, and to fail to learn is inexcusable”*<sup>11,7</sup>

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