How organisational culture can improve the safety of anaesthesia care

James French BSc MBBS MAS FANZCA

Anaesthetist, Department of Anaesthesia and Pain Management, Canberra Health Services, Canberra, Australia

Dr French is a paediatric anaesthetist and head of anaesthesia at Calvary John James Hospital, Canberra. He is a clinical lecturer at the Australian National University. James has an interest in systems of care and the impact of organisational culture on efforts to improve perioperative patient safety. He completed his master's degree in patient safety and healthcare quality at Johns Hopkins University. James and Kathleen have previously co-authored *Patient safety: what's culture got to do with it?*, Medical Journal of Australia InSight, 2022.

Kathleen Sutcliffe PhD MN BA BS

Bloomberg Distinguished Professor, Johns Hopkins University, Baltimore, U.S.A.

Professor Sutcliffe is a Bloomberg Distinguished Professor with appointments in the Carey Business School, the School of Medicine (Anesthesia and Critical Care Medicine), the School of Nursing, the Bloomberg School of Public Health, and the Armstrong Institute for Patient Safety and Quality. Her research program has been devoted to investigating how organisations and their members cope with uncertainty and how organisations can be designed to be more reliable and resilient. Her research has appeared widely in management and healthcare journals, and she has co-authored seven books, most recently *Still Not Safe: Patient Safety and the Middle Managing of American Medicine*, Oxford University Press, 2020.

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INTRODUCTION

Patients are often harmed by medical care. It has been well recognised and documented for several decades that large numbers of hospitalised patients are harmed by care they receive.[1-3] A recent meta-analysis of 70 studies found that iatrogenic patient harm occurs in 12 per cent of hospital admissions, the prevalence is higher in medical specialties such as intensive care and surgery, and more than half the events of harm are preventable.[4]

The approach to keeping patients safe was transformed in 1999 following the landmark *To Err is Human* report[5] that generated the visceral metaphor of a daily jumbo-jet crash for quantifying iatrogenic mortality in the US. The call for open and transparent recognition of patient harm events to enable learning opportunities and a comprehensive approach to developing systematic care processes was subsequently promulgated in synchrony with awareness of the need for cultural reform. Australia was an early adopter of the new approach. The Australian Council for Safety and Quality in Healthcare was formed in 2000 with one of the priorities of the national action plan being, *redesigning systems and creating a culture of safety within healthcare organisations.*[6]

Frustratingly, despite enormous investment of focus and resources to address patient harm, numerous reviews have found there is little evidence of substantial improvement and the pertinence of a need for safety culture is a recurring theme.[7-10] Where incremental reductions in adverse outcomes are observed[11] the results are a reminder of the scale of the problem, the challenges yet to be met, and the personal impact for patients suffering iatrogenic injury.[12] Research of stagnating safety performance and refractory causes of patient harm continue to draw attention to culture change as an essential priority for future progress.[13,14] However, it is rarely acknowledged that healthcare's understanding of culture is shallow and misguided, demonstrating no real appreciation of its complexity and resistance to change. Referring to the concept of culture as something to be managed, an organisational property that can be measured and adjusted at will, is erroneous.[15]

The significance of organisational culture to anaesthesia care deserves to be prominently acknowledged. It is a central pillar supporting any endeavour to improve the coherence and effectiveness of group problem solving. Culture influences how we assess risk, how we perceive and respond to events, and how we approach the prospect of change. The Anesthesia Patient Safety Foundation list of the top 10 patient safety priorities currently allocates first place to *a culture of safety.*[16] Coherently, future significant advances in reducing perioperative patient harm have been predicted to be attained with a cultural shift toward prioritising teamwork and co-ordination to enable organising for high reliability, rather than with technical innovation or individual developments (see figure 1).[17,18]

Figure 1. Three waves of innovation in patient safety
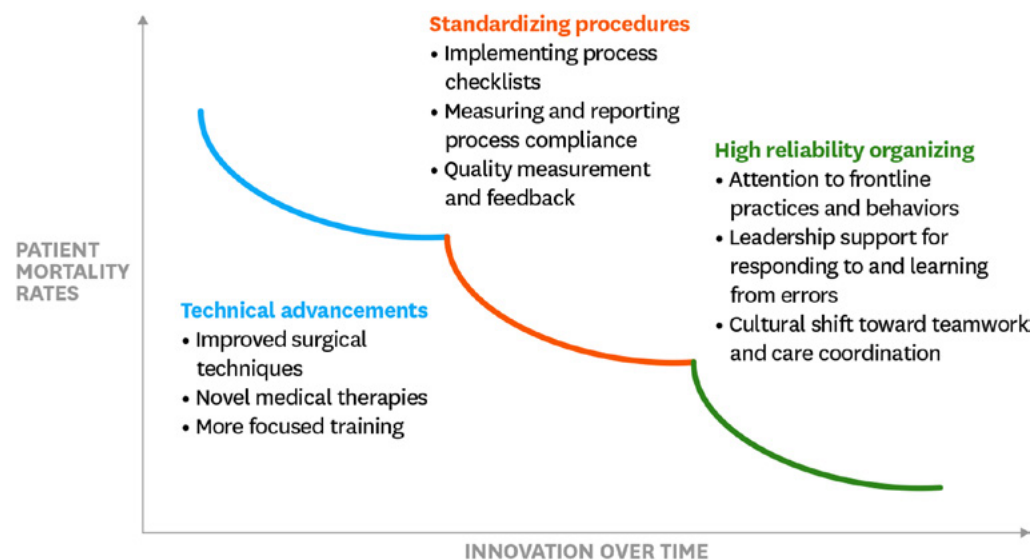
This review will describe the nature of organisational culture in healthcare, how it can influence the safety of perioperative care, and approaches for developing a culture of patient safety.

WHAT IS ORGANISATIONAL CULTURE?

Culture can be thought of as the foundation of the social order that we live in and the rules we abide by – a shared system of coercive influence that both enables and constrains our behaviour. Culture helps people work together cohesively by creating a sense of identity for a shared understanding and commitment to purpose. It is an essential aspect of collective effort in bringing together large numbers of people and giving them a sufficient similarity of approach, outlook, and priorities to enable them to achieve collaborative responses to problems.[19]

Edgar Schein[20] explains that what we often think of as organisational culture is just the most visible manifestations of underlying shared values, beliefs, and assumptions. Organisational culture can be considered at 3 levels:

Level 1 **Artefacts** – Visible manifestations of culture (also known as "how we do things around here"): the physical layout and style of services, dress codes, staff rostering and reporting arrangements, usual processes of care (for example, ANZCA standards of practice),[21] performance acknowledgement rewards and ceremonies. Artefacts can be explicitly taught and consciously supported with objective knowledge. The most superficial level of culture is easy to observe but very difficult to interpret without understanding deeper levels.

Level 2 **Espoused values** – Overtly stated core principles about the organisation's philosophy, vision, or purpose. Organisational principles can be used to rationalise and justify behaviours, priorities, and choices; distinguishing "right" from "wrong" and judging what behaviours deserve to be rewarded or reprimanded. ANZCA values are expressed by the statement of purpose: *To serve our communities by leading high quality care in anaesthesia, perioperative and pain medicine, optimising health and reducing the burden of pain.*[22]

Level 3 **Underlying basic assumptions** – Deeply held beliefs that are taken for granted and unchallenged. Basic assumptions are "known" but are not discussed or documented. They are implicitly learned and unconsciously held. The core of organisational culture manifests as thoughts, perceptions, and feelings. Individuals are likely to be unaware of the deeper foundations of their immersive culture and deciphering its characterisation requires anthropological techniques of observation and interview.

Culture evolves within an organisation as a group works together to solve problems of external demands and internal tasks. As solutions are developed, the shared experience gradually facilitates synchronisation of individual perceptions and attitudes. If the solutions consistently work well enough to be considered valid, they are taught to new group members as the correct way to act, perceive, think, and feel. As the way continues to work it becomes taken for granted as *the* way and people forget that at one time the successful solutions had to be learnt, and that they evolved in a specific context. The essence of culture is this pattern of shared basic assumptions – automatic, unconscious, and taken for granted.

Culture is an abstract concept and understanding it requires an appreciation that superficial manifestations of behaviour and espoused values are integrated into a coherent whole with deeper basic assumptions. The iceberg analogy illustrates that only a fraction of cultural aspects is observable, while most is hidden and difficult for outsiders or new members to interpret.[23]

Figure 2. The cultural iceberg
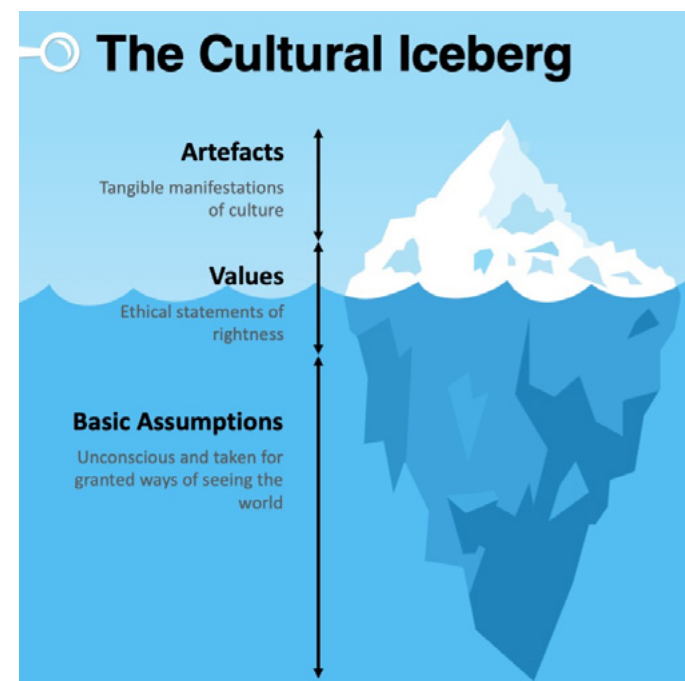
The power of culture to enable or constrain behaviour lies in the cognitive stability and comfort of a shared "mental map". Coherent views and aligned social support can be deeply satisfying when considering what deserves our attention, what events mean, and how to react and respond emotionally to various situations. Evolutionary biology describes the survival advantage conveyed by the innate human propensity to conform to the culture of our birth – the human mind is hardwired to fit in.[24] The underlying basic assumptions are deeply held and tend to defy change so the process of challenging or examining cultural attributes can provoke anxiety and defensiveness.[25]

Culture permeates every level of an organisation, but it is not monolithic and can vary widely. Some cultural attributes could be widespread and stable, whereas others might be shared only in subgroups, or held only tentatively. Healthcare organisations are notoriously varied, fractured by specialty, occupational groupings, and professional hierarchies. Cultural divergence can impose significant challenges on opportunities for collaboration due to conflicting assumptions and varying perspectives to approaching problems – doctors may find themselves in disagreement with managers despite sharing a common purpose of aspiring to improve the quality and safety of care.[26] Differences, however, are not necessarily bad and can be a useful resource to provide a diversity of perspectives and interpretations of emerging problems.[27]

A strong culture is often considered a positive attribute for an organisation but correlation of strength with effectiveness is not straightforward. Strength reflects a high level of consensus around agreed core values and can be enhanced by belief in the rightness or moral superiority of an organisation's purpose.[28] Cultural

strength is also a function of group stability, and the duration and intensity of shared experience. Stable teams tend to develop a strong culture over time as repeated shared experience reinforces and normalises behaviour. Team stability is partly explained by the attraction-selection-attrition model.[29] People are drawn to organisations with characteristics similar to their own; organisations are more likely to select individuals who seem to "fit in"; and over time those who don't fit in tend to leave. Culture then becomes a self-reinforcing pattern that grows increasingly resistant to change and external influences. A strong culture can reduce organisational flexibility and adaptability to new problems. Attempts to innovate may be met with resistance or incredulity if they are perceived as being incongruent with present assumptions.[30]

Culture can be used by organisations to guide and influence individual behaviour. Charles Perrow described third-order controls[31] as control over the premise (the underlying basic assumptions) of decision making. First-order controls such as direct orders, supervision, rules, and policies are conventional methods appropriate for low-complexity industries or an unskilled workforce. Second-order controls such as standard operating procedures and specialisation can legitimise individual worker discretion by reducing available options while enabling autonomy. Leaders can establish third-order control over the premise of decision making by moulding the underlying basic assumptions with consistent predictable attention to reinforcing the consequences of particular behaviours. Control through culture, although hard to achieve, is necessary in complex decentralised systems and organisations, and especially when work is nonroutine, less analysable, and uncertain, as it is for many professional disciplines, such as healthcare.[27] Medical specialist training incorporates centralised oversight of culture to establish a shared set of core values and learned assumptions, before autonomous individuals are decentralised into a variety of clinical settings. Culture creates a homogenous set of assumptions and decision premises which maintains compliance without the need for direct oversight or surveillance, and, importantly, preserves individual capacity for interpretation, improvisation, and unique action to manage complexity and uncertainty.[32]

SAFETY CULTURE

The concept of safety culture as a specific entity became prominent in the 1980s and was first given legitimacy by the International Atomic Energy Agency report on the Chernobyl nuclear accident.[33] Nuclear regulatory bodies describe safety culture as the core values and behaviours resulting from a collective commitment by leaders and individuals to emphasise safety over competing goals.[34] Organisations with a positive safety culture are characterised by: communication founded on mutual trust, shared perceptions of the importance of safety, and confidence in the effectiveness of preventative measures.[35]

Safety culture in healthcare is defined as the pattern of individual and organisational behaviour, based on shared beliefs and values, that continuously seeks to minimise patient harm that may result from the process of care delivery.[36] The most frequently cited dimensions of safety culture in healthcare research are: leadership commitment to safety, open communication founded on trust, organisational learning, a non-punitive approach to adverse event reporting and analysis, teamwork, and shared belief in the importance of safety.[37]

CULTURE AND PATIENT SAFETY – ARE PATIENTS AT RISK IN THE OPERATING THEATRE?

Many anaesthetists would reject, and potentially be offended by, the suggestion that patients might be harmed by their care. But culture is a way of seeing, or also not seeing, and can lead to significant blind spots on important issues.[19] Estimated anaesthesia-related mortality in Australia is reassuringly low (1:57,125 anaesthetics)[38] but scarcity of rare events does not necessarily equate to a safe and reliable system of care. Rare events are not a valid method for assessing quality of hospital care[39] as there is no correlation between rare events and other safety indicators.[40] The proportion of hospital deaths that are preventable is small and a focus on causes of mortality may distract from examining the impact of pervasive systematic problems.[41]

Patient safety in anaesthesia can be thought of as the sum total of many small things done well.[42] Even so, most accidents and failures do not result from a single cause or the actions of a single individual, small incidents often link together and expand.[27] Adverse outcomes often arise from a confluence of intersecting factors rather than sequential, linear "domino effects" and the increasing complexity of medical care makes causation more difficult to anticipate and prevent. The challenge of reaching agreement on what incidents or processes should be measured, or even defining what constitutes an anaesthetic complication, should not obscure the reality that the operating theatre represents a hazardous environment for patients.[43]

INCIDENT REPORTING – A COMPLEX SOCIOTECHNICAL PHENOMENON

Quantifying patient harm is difficult as the approach to incident reporting varies widely between healthcare systems. Perioperative mortality, for example, is legislated for mandatory reporting in NSW to the special committee investigating deaths under anaesthesia (SCIDUA),[44] but may be considered for voluntary reporting in other jurisdictions. It has been estimated that adverse events causing serious harm occur 10-20-fold more often than lethal events[45] and non-routine events during anaesthesia (any aspect of clinical care perceived as a deviation from optimal care) have been shown to occur commonly and are often associated with patient harm.[46] Hence, there is a wealth of information from which to potentially derive lessons for improving the safety of patient care, but data collection requires an effective incident reporting system. Despite the mandatory accreditation requirement for all Australian hospitals to utilise incident reporting as a tool for organisational learning, it is recognised that only a small fraction of incidents are reported.[47]

Persistent barriers to voluntary reporting are based on the complex sociocultural approach to adverse events.[48,49] Reporting practices are founded on deep-seated views and beliefs based on individual experience, group interactions, and behavioural norms. A culture of blame, and fear of personal repercussions, may legitimately motivate against reporting. Peer reporting can be inhibited by loyalty, or a sense that a culture of "dobbing" could rebound. There is also systematic bias of reporting as nurses are more likely than doctors to make a notification.[50] Although the limitations of data collection preclude voluntary incident reporting systems being used to measure event incidence or to compare safety performance, the process can provide valuable insights for identifying risk and stimulating in-depth analysis to generate meaningful safety improvements. Large systems such as the web-based anaesthetic incident reporting system (webAIRS),[51] which now has over 10,000 reports, can potentially identify rare or emerging risks by collating data from multiple sites. Furthermore, implementing an effective incident reporting system can, of itself, improve the culture of patient safety by conveying that the organisation prioritises safety and is prepared to change based on frontline feedback. The ultimate benefit of incident reporting systems could be enabling the long-term evolution of cultural change to the organisational approach to risk and patient safety.[52]

NORMALISATION OF DEVIANCE

Clinicians have traditionally placed high value on the measurement of, and response to, events of substantive clinical significance. But, in the same way as soft signs of clinical deterioration may indicate the need for prompt intervention to prevent imminent patient collapse, less clinically significant events of patient harm could be weak signals indicating a need for systematic review to improve the safety and reliability of processes of care. The description of reliability as a *dynamic non-event*[32] reflects the need for constant organisational change to maintain stable outcomes, and the invisibility of successful preventative measures. Safety is defined and measured more by its absence than its presence.[53] When nothing has gone notably wrong it can be difficult to imagine what could have, or to be inspired to implement change. Organising for high reliability is a process, rather than an achievement, and a preoccupation with the prospect of failure is one of the hallmarks of a successful approach.[54] Embedding practices for high reliability in an organisation requires establishing cultural foundations to value the premise of continually monitoring and responding to weak signals, and to believe in the effectiveness of systematic interventions to avoid an event potentially causing significant patient harm.[55]

Anaesthetists have reason to be cautious about complacency with our enviable patient safety record. High standards of care attained with decades of multidisciplinary collaboration could be undone by shifting priorities and increasing tolerance of unsafe actions. Patients are presenting for surgery at increasing age[56] and frailty, with greater associated risk of adverse outcomes and the need for additional resources.[57] Pressure to rationalise resources and efficiently utilise operating theatre time may conflict with anaesthetic concerns, and compromise preferences that can be difficult to justify in the absence of a catastrophic event to reference.

Anaesthetists exhibit a wide range of tolerances for proceeding in situations of suboptimal conditions, even where guidelines are clear that a case should absolutely not go ahead, and the decision is often justified by the belief that their actions reflect a wider professional consensus.[58] The gradual acceptance of incremental erosion of standards – normalisation of deviance – was first described in reference to the NASA space shuttle Challenger disaster.[59] In that instance, the insidious development of a culture that accepted departure from engineering standards was reinforced by a lack of bad outcomes. Inaction did not lead to negative consequences and the collective insensitivity to deviation diminished the value of opposing views to the extent that the warnings of engineers were ignored; refusal to approve the fateful Challenger launch was overruled. Correlations to clinical practice could include examples such as failing to correctly perform time-out procedures, routinely turning off alarms or ignoring safety alerts.[60] A strong culture of patient safety is an important buffer against the pressure of conflicting priorities (such as increased efficiency, reduced staffing, or compromised access to non-clinical or educational opportunities) leading to normalisation of deviation in anaesthesia and potentially catastrophic outcomes.[61]

SAFETY CULTURE ALIGNS WITH CLINICAL OUTCOMES – THE EVIDENCE

Culture affects behaviour, attitudes and cognition and it is logical that a culture of safety would lead to good patient outcomes. Evidence to support a link is evolving but, as yet, benefit is not conclusively shown.[27] A recent meta-analysis found no randomised controlled trials but a consistently positive association in 62 heterogenous articles examining culture and outcomes. The authors concluded that the evidence supports activities that promote positive culture to enhance outcomes.[62]

Understanding the nature of the association between organisational culture and outcomes requires a nuanced appreciation of the research. The study of culture is rooted in the science of anthropology, where research is predominantly qualitative. Surveys such as the Hospital Survey on Patient Safety Culture 2.0[63] that provide quantitative data are limited to measuring safety *climate* – superficial manifestations representing a snapshot in time of individual perceptions of the organisational approach to safety. The challenge of summarising complex cultural phenomena as a numerical score to display a direct association with changing patient outcomes that are similarly complex and difficult to measure may continue to defy attaining level 1 evidence. Furthermore, the nature of system level reform necessary to address cultural issues creates incompatibility with randomisation and controlled study design; research is better suited to observational methodology.[64] It is also recognised that the relationship between organisational culture scores and clinical outcomes is likely to be inherently self-reinforcing; past performance is as likely to shape local culture as culture is to shape healthcare performance. Virtuous circles of high performance leading to high expectations may be seen, as may spirals into decline when poor performance leads to demoralisation and resignation.[65]

Perioperative care is a particularly complex environment with multiple interdependent autonomous individuals contributing to the process. Significant healthcare improvement can be difficult to achieve with isolated interventions and a multitude of independent projects can paradoxically introduce new risks by undermining standardisation and co-ordination. As such, patient safety improvement is more likely to be effective with an integrated approach targeting safety management systems.[66] However, co-ordinating systemic organisational solutions requires multidisciplinary collaboration and a cultural shift to redirect the prevailing narrative from the primacy of individual accountability to a focus on the value of collective activity.[67]

Therefore, while research examining the association between safety culture and patient outcomes evolves, a lack of conclusive evidence should not be a barrier to recognising the effect of culture on processes of care and acting to implement co-ordinated approaches to address systemic issues. Anaesthesia previously became orders of magnitude safer with increased awareness of risk and the introduction of critical incident investigation techniques to examine preventable mishaps.[68] Importing new approaches from other high-risk industries, and the subsequent implementation of human factors engineering, was not impeded by inadequate data, but was applied with consideration to how the solutions made sense in a clinical context.[15]

HOW TO IMPROVE ORGANISATIONAL SAFETY CULTURE

The deep and complex nature of culture defies change with superficial or isolated interventions. Vogus, Sutcliffe, and Weick developed the *enable, enact, elaborate* conceptual framework[69] for understanding an organisational approach to active, purposeful safety culture improvement.

Enable – Leaders enable a safety culture by credibly and consistently communicating their expectations about safety and safe performance, and by recognising and rewarding employees who act in accordance with these expectations. Coherent commitment to safety is reflected by investment in policies, procedures, equipment, and personnel to create a safety infrastructure. Leaders collect and disseminate safety information within a robust safety management information system. They set the tone at the top and make it understood that everybody is responsible for safety. When leaders are credible and communicate and act consistently, individuals begin to develop consistent expectations about what is important, and safe behavioural norms can emerge.

Enact – Shaping safety culture is as much a bottom-up process as it is top-down. People across the organisation collectively enact – put into practice – the commitment to safety. Throughout the organisation, systems and processes that enable people to communicate about potential problems, errors, and risks are in place. This means that people are willing and able to speak up about safety concerns, despite potential costs of doing so. In their day-to-day activities, people are encouraged to be mindful of problems and are preoccupied with risk, particularly when these activities are complex and non-routine. The organisation is collectively vigilant about safety. If there is discrepancy between espoused and enacted priorities (differences in declared organisational policies and informal practice), employees make sense of the overall pattern of signals and discern the underlying organisational values, beliefs, and assumptions.[70]

Enacting recurring organising processes and actively shaping culture are crucial. They work together to overcome inertia and complacency and avoid the practical drift away from safe practice. The common thread in safe cultures is intelligent wariness and the commitment and motivation to enact daily behaviours and activities that increase mindfulness and keep complacency at bay.

Elaborate – The organisation and its units regularly and continuously elaborate its safety culture by reflecting on safety performance and attempting to learn from it. People reflect on causes of incidents, both large and small, in a number of ways, both formal and informal. Employees demonstrate the capability to learn in real time, reflecting on events as they unfold and quickly trying to derive lessons for the future. Moreover, leaders stress organisational learning, taking actions to improve safety infrastructure based on notable past incidents and building into operations opportunities for continuous improvements to policies and procedures.

The sum effect of safety culture in an organisation is a collective mindfulness of the ubiquitous nature of risk and the constant potential for unexpected events. Patient safety is derived from a shared situational awareness that facilitates implementation of systems put in place to minimise the risk and potential impact of harm, and to promptly recognise and effectively manage clinical deterioration.

ORGANISATIONAL CULTURE CAN IMPROVE PERIOPERATIVE PATIENT SAFETY – THE CHECKLIST EXAMPLE

The pervasive nature of cultural influence may manifest throughout an organisation so the potential effect on processes and outcomes is broad. The impact of safety culture on the successful implementation of perioperative checklists is an illustrative example.

The first formal use of checklists was by Boeing in 1935 following the fatal crash of a prototype bomber. The cause was found to be simple human error as the experienced and diligent flight crew launched without releasing a catch that locked all flight controls. It was determined that the technological complexity of advanced aircraft exceeded the reliability of human cognitive performance.[71] While checklists are universal in modern aviation, the introduction was not initially accepted with consensus or enthusiasm. The process was considered particularly useful for inexperienced pilots flying new and complicated aircraft during the Second World War but flying "by the book" was rejected by experienced pilots who preferred their own routines and disliked military discipline.[72] The gradually increasing utilisation of checklists corresponded with decades of cultural evolution to appreciate the value of standardised protocols to the systematic approach to safe flight.

Checklists in healthcare can significantly reduce errors in surgery and using them routinely can result in greater efficiency, consistency, and safety[73] but they have not penetrated medicine to the same degree as other high-risk industries. The difference is partly explained by healthcare's inadequate appreciation of the challenge of checklist implementation and the importance of a supportive safety culture.

The first demonstration in healthcare of effective widespread implementation of a checklist to improve outcomes was the Keystone project initiated at Johns Hopkins University Hospital.[74] The landmark program virtually eliminated central line associated blood stream infections in 103 Michigan intensive care units. The success was widely misunderstood and misrepresented as being due to the introduction of a simple 5-item checklist[75] but the undertaking was better described as a complex cultural and organisational change effort.[76]

The project featured obligatory organisational commitment for each participating unit including: support of executive management, committed medical and nursing team leaders partnered with local infection-control practitioners, an education program teaching the science of safety and the evidence base for each intervention, audit and reporting of infection rates and investigation of any cases, empowerment of nursing staff to speak up if the checklist was not followed, and regular conference calls and meetings for support and mentoring. Local teams were encouraged to customise the checklist to suit their own culture. The checklists themselves were just one component of a comprehensive program to change the culture of the ICUs. The authors caution that "just tell the workers to use checklists" is, quite simply, the wrong conclusion to draw from the study – *when we begin to believe and act on the notion that safety is simple and inexpensive, that all it requires is a checklist, we abandon any serious attempt to achieve safer, higher quality care.*[76]

The surgical safety checklist (SSC) was developed by the World Health Organisation and the Harvard School of Public Health to promote evidence-based practices for reducing preventable surgical complications. The SSC objective is not merely to check that essential processes have been attended to, but to encourage teamwork and facilitate effective communication. It has been shown to impressively reduce perioperative mortality[77,78] and complications[79] but the checklist, as with any clinical intervention, will only be as effective as its implementation.[80] Improvement in surgical outcomes is inconsistent[81] as implementation is varied.[82,83] Successful implementation correlates with team engagement,[84] effective teamwork,[85] and safety culture.[86] Outcomes have been shown to improve in proportion to the degree of checklist implementation, displaying a

positive "dose-response" effect.[87] Disparate outcomes from the standardised checklist introduction reflect the varying underlying organisational cultural factors that determine how the initiative is accepted and integrated into existing organisational workflow.

It has been argued that utilisation of checklists and other safety processes adopted from high-risk industries can only work if unimpeded by barriers of traditional specialist autonomy and discretion.[88] Checklist implementation can be hindered by historical beliefs linking performance and accountability to individual autonomy. A cultural change to reduce hierarchy gradients and encourage constructive dissent could be perceived as a loss of status to specialist doctors unaccustomed to being challenged. Avoiding patient harm requires a degree of humility to accept the premise of collaborative teamwork and willing information exchange. A culture of safety would view acceptance of checklists as cognitive aids, and participation in team processes, as a sign of strength; whereas failing to use them could be regarded as a weakness and perhaps reckless.[89] Effective implementation of checklists is not an individual endeavour, but it does require individuals to adapt to a changing safety culture. That, in turn, requires organisational leadership to understand and demonstrate commitment to the priority of patient safety.[90]

The importance of patient safety culture for successful checklist implementation was demonstrated by the state-wide hospital collaborative in South Carolina. Introduction of a voluntary checklist-based surgical safety program consisted of a comprehensive, multidisciplinary 12-step process. After 3 years, stratified 30-day mortality outcomes showed a reduction from 3.38% to 2.84% for hospitals that completed all 12 steps, compared with an increase from 3.50% to 3.71% for those that did not.[91] Hospitals completing the program had significantly higher levels of executive and physician engagement, and more teamwork training and support.[92] It appears that checklists do not perform well as an isolated intervention but can function effectively as a component of a comprehensive systematic program to improve perioperative care.[93]

Initial enthusiasm and naivety have given way to recognition that benefit to patient outcomes is not inherent to the introduction of a checklist. Improved quality and safety of patient care can be expressed with a checklist-based program when the perioperative team is properly trained and supported by an organisation with a strong safety culture.

CONCLUSION

Since the Anesthesia Patient Safety Foundation introduced the term *patient safety* to describe the modern approach to avoiding iatrogenic harm, anaesthetists have been at the forefront of the field; collaborating with safety experts to implement novel approaches originating from other industries. The challenge of identifying and managing perioperative hazards in an increasingly complex healthcare system is beyond the means of individuals – patient safety is a collective activity with sociocultural implications. To continue as patient safety leaders, anaesthetists must recognise the broad, pervasive influence of organisational culture on the ability of individuals to effectively work together with a common purpose. Understanding the science of patient safety, in the same way as we understand the basic sciences of physiology and pharmacology, is a foundation for enabling collaboration with systematic solutions to safer patient care.[94,95]

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