World Journal of Emergency Surgery https://doi.org/10.1186/s13017-026-00723-w

Article in Press

Accountability in emergency surgery: moving beyond blame toward high reliability: a WSES-JMESE position paper

Received: 15 March 2026

Accepted: 10 August 2026

Published online: 25 August 2026

Cite this article as: De Simone B., Kasongo L., Abu-Zidan F.M. *et al.* Accountability in emergency surgery: moving beyond blame toward high reliability: a WSES-JMESE position paper. *World J Emerg Surg* (2026). https://doi.org/10.1186/s13017-026-00723-w

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Accountability in Emergency Surgery: Moving Beyond Blame Toward High Reliability. A WSES-JMESE Position Paper

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Abstract

Background

Emergency surgery is characterized by clinical uncertainty, time pressure, evolving information, physiological instability, and substantial variability in available resources. In this setting, adverse outcomes may occur despite timely and appropriate care and should not automatically be interpreted as evidence of professional failure. Nevertheless, surgeons may be exposed to retrospective, outcome-driven, and overly individualized attribution of blame when the complexity of the original decisional environment is insufficiently considered. A structured framework is therefore needed to support fair, proportionate, and learning-oriented accountability in emergency surgical practice.

Methods

This evidence-informed position paper was developed through a structured multidisciplinary review of literature from patient-safety science, cognitive psychology, medical ethics, health-systems research, surgical professionalism, and high-reliability organization theory, complemented by iterative expert discussion within the World Society of Emergency Surgery–Journal of Medical and Surgical Errors working group. The literature was synthesized narratively to identify the principal contextual, cognitive, ethical, professional, and organizational domains relevant to fair accountability and adverse-event review in emergency surgery. The resulting statements were framed as ungraded evidence-informed Good Practice Statements according to the GRADE framework rather than clinical practice recommendations based on comparative effectiveness evidence.

Results

The synthesis identified seven interrelated principles for fair accountability in emergency surgery: contextual proportionality; distinction between accountability and blame; mitigation of hindsight, outcome, and attribution bias; recognition of distributed responsibility across individuals, teams, and systems; protection of professional integrity; procedural fairness and institutional responsibility; and application of high-reliability principles. Particular attention is given to the dynamic and time-dependent nature of emergency surgical decision-making, the incomplete representation of clinical reasoning in contemporaneous documentation, the limitations of population-based scoring systems and benchmarks, and the influence of resource availability on feasible treatment options. These principles were integrated into a structured framework for adverse-event review aimed at supporting proportionate analysis of adverse

outcomes and avoiding premature attribution of individual blame when harm reflects interacting clinical, cognitive, team-level, and system-level factors.

Conclusions

Accountability in emergency surgery should evaluate decisions according to the information, physiological condition, reasonable alternatives, and resources available at the time of care. Contextualization should not eliminate individual responsibility; rather, it should make responsibility attribution more accurate, proportionate, and fair. A bias-aware, procedurally fair, and high-reliability approach can protect surgeons from premature, punitive, outcome-driven blame while preserving legitimate accountability for unsafe practice, reckless conduct, or misconduct. Such a framework may strengthen patient safety, professional integrity, organizational learning, and public trust.

Keywords

Emergency surgery; Accountability; Blame culture; Cognitive bias; Patient safety; Moral injury; High reliability; Morbidity and mortality review

Abbreviations

WSES: World Society of Emergency Surgery

JMESE: Journal of Medical and Surgical Errors

Background

Complications in emergency surgery are frequent, often severe, and not infrequently fatal. In high-risk procedures such as emergency laparotomy, major complication rates may exceed 50%, while overall postoperative morbidity varies widely according to disease severity, physiological instability, and case mix. In-hospital mortality also remains substantial, and in large emergency general surgery cohorts a considerable proportion of patients experience one or more adverse events during their hospital course [1–3]. These figures reflect the intrinsic risk profile of emergency surgery rather than, by themselves, evidence of inadequate care.

Emergency surgery encompasses resuscitative trauma interventions, acute abdominal catastrophes, and urgent operations performed in unstable or rapidly deteriorating patients. Unlike elective surgery, decision-making in this setting occurs under compressed timelines, incomplete or evolving information, physiological derangement, and variable system readiness [4]. Under such conditions, adverse outcomes may occur despite appropriate, timely, and technically sound care.

For this reason, complications in emergency surgery should be understood as probabilistic events arising within high-risk clinical environments, not as automatic indicators of professional failure. Yet retrospective evaluation processes do not always adequately account for this complexity. When deterministic interpretations are applied to probabilistic clinical scenarios, harm may be too readily conflated with fault, and context-sensitive decisions may be reconstructed as preventable individual failures.

Rigorous accountability remains essential in emergency surgery. High-risk interventions, invasive procedures, and time-critical decisions require transparent and scientifically grounded review. However, accountability loses legitimacy when retrospective judgment disregards contextual risk, cognitive constraints, and system-level determinants. Fair evaluation requires proportionality between the decisional environment in which care was delivered and the standards subsequently applied in review.

Emergency surgical practice is also embedded within broader organizational frameworks shaped by regulatory oversight, performance metrics, financial constraints, medico-legal exposure, and reputational pressures. These forces do not necessarily imply institutional bad faith, but they may influence how adverse events are interpreted and how responsibility is attributed. Structural variability adds further complexity: what is realistically achievable in a well-resourced tertiary referral center may differ substantially from what is feasible in resource-limited, understaffed, or crisis-affected settings. Scientifically sound evaluation must therefore account for what was realistically possible within a given system at a given time.

At the same time, contextual and systemic analysis must not be misused to dilute individual responsibility. Clear technical incompetence, reckless conduct, and preventable deviation from professional standards remain indefensible. The challenge is not whether accountability should exist, but how it should be exercised without methodological distortion, premature punitive attribution, or bias-driven attribution.

Although relevant evidence exists across patient safety science, cognitive psychology, medical ethics, and high reliability theory, these domains are often discussed separately. A coherent framework specifically addressing fair accountability in emergency surgery remains insufficiently defined.

This evidence-informed position paper addresses that gap by proposing a structured framework for adverse-event evaluation in emergency surgery grounded in contextual proportionality, bias-

aware review, distributed responsibility, procedural fairness, and high reliability principles. The proposed framework is intended not to shield surgeons from legitimate professional accountability, but to protect them from premature, punitive, and outcome-driven blame. Our aim is to support rigorous accountability while preserving patient safety, professional integrity, and the learning capacity of emergency surgical systems.

Methods

This evidence-informed position paper was developed through a structured multidisciplinary review of the literature and an iterative expert consensus process within the international World Society of Emergency Surgery (WSES)–Journal of Medical and Surgical Errors (JMESE) working group.

The project was aligned with the mission of JMESE to promote a non-punitive, scientifically grounded, and learning-oriented approach to medical and surgical errors. During a dedicated WSES–JMESE workshop held at the WSES Congress 2025 in Türkiye, expert emergency surgeons discussed the specific challenges of adverse-event review, accountability, blame, and professional responsibility in emergency surgery. The workshop helped identify the practical and ethical questions requiring structured analysis and refine the conceptual focus of the project. It was not designed or analyzed as primary qualitative research; rather, it served as an expert consultation and agenda-setting process. Given the exploratory and multidisciplinary nature of the topic, the evidence-synthesis process was informed, where applicable, by the PRISMA Extension for Scoping Reviews (PRISMA-ScR), but the work was not designed as a systematic review of intervention effectiveness [5].

A structured PubMed/MEDLINE search was conducted for publications from January 2010 to March 2026 and was complemented by targeted searches of Embase, Web of Science, and PsycINFO to identify literature not primarily indexed in biomedical databases, particularly in patient safety, cognitive psychology, medical ethics, and organizational science. The search addressed predefined thematic domains relevant to accountability in emergency surgery: patient-safety science and adverse-event analysis; cognitive bias and decision-making under uncertainty; moral distress and moral injury in surgery; high-reliability organization theory; ethical and institutional accountability frameworks; procedural fairness; resource constraints; and the

distinction between human error, recurrent poor performance, reckless conduct, and professional misconduct.

These domains were selected a priori by the steering group on the basis of established patient-safety, ethical, cognitive, and organizational frameworks; the mission and scope of JMESE; the issues raised during the WSES–JMESE workshop; and the distinctive characteristics of emergency surgery, including time pressure, evolving information, physiological instability, incomplete documentation of real-time decision-making, and variability in available resources.

Empirical quantitative and qualitative studies, reviews, ethical analyses, conceptual publications, professional frameworks, and relevant organizational documents were considered when they contributed to understanding responsibility attribution, adverse-event review, blame, procedural fairness, professional accountability, or system accountability in emergency surgery or comparable high-risk clinical settings. Because this is a relatively new and insufficiently investigated field, the available literature was heterogeneous and consisted largely of observational, qualitative, ethical, and conceptual evidence.

The initial literature search, article selection, and evidence mapping were conducted by two researchers. The identified sources and their interpretation were subsequently reviewed by the multidisciplinary working group. Members were invited to identify relevant omissions, challenge the interpretation of the evidence, and propose additional literature. The evidence was analyzed through a framework-based narrative thematic synthesis. Predefined domains provided the initial analytical structure, while recurrent concepts emerging from the literature, workshop discussion, and expert review were grouped, refined, and integrated into the final conceptual framework.

Draft position statements and supporting rationales were circulated electronically to all members of the working group. Participants critically reviewed their scientific basis, wording, ethical implications, balance, and practical applicability. Statements were revised in response to written comments and redistributed through successive rounds until no substantive objections remained. No Delphi methodology, anonymous voting, numerical scoring system, or predefined quantitative consensus threshold was used. Consensus was defined as collective approval of the

final wording after iterative review, and the final statements and complete manuscript were approved by all authors.

Conventional GRADE certainty-of-evidence ratings were not applied because the statements do not address comparative clinical-effectiveness questions and are not intended as disease-specific clinical recommendations. Instead, the statements were framed as ungraded evidence-informed Good Practice Statements, consistent with GRADE guidance on the development of Good Practice Statements [6]. This approach was considered appropriate because the statements articulate principles of good professional and institutional practice for adverse-event review and accountability in emergency surgery, rather than recommendations about a specific clinical intervention.

Each statement was required to be clear, actionable, necessary for practice, supported by an explicit rationale, and expected to have a favourable balance of consequences if implemented. The rationale for each statement integrated empirical evidence where available with ethical reasoning, patient-safety science, cognitive psychology, organizational theory, high-reliability principles, and multidisciplinary expert judgment.

Table 1 summarizes the final conceptual domains and the principal risks of distortion in emergency surgical accountability. Table 2 presents the position statements developed to operationalize the proposed framework.

Table 1. Conceptual framework for fair accountability in emergency surgery

Core domain	Main source of distortion or risk	Implication for accountability	Structured response
Contextual proportionality	Oversimplification of high-risk, time-constrained decision-making	Adverse events may be misread as professional failure without adequate consideration of disease severity, physiological instability, time pressure, and resource constraints	Adverse events should be evaluated through structured morbidity and mortality review, with explicit consideration of the clinical and systemic context in which care was delivered

Accountability distinguished from blame	Reduction of complex events to linear narratives of individual fault	Accountability becomes punitive rather than analytical, discouraging transparency and learning	Accountability processes should remain contextualized, analytical, and distinct from blame
Bias-aware retrospective review	Hindsight, outcome, and attribution bias in retrospective judgment	Decisions made under uncertainty may be reconstructed as predictable or preventable after the outcome is known	Review processes should explicitly mitigate hindsight, outcome, and attribution bias through structured, chronological, context-based analysis
Distributed responsibility	Overattribution of outcomes to the final decision-maker	Responsibility may be personalized despite the role of teams, communication, protocols, staffing, and organizational constraints	Evaluation should integrate individual, team-level, and system-level contributors to outcome
Professional integrity and moral sustainability	Moral distress, moral injury, defensive culture, and erosion of psychological safety	Punitive or reputationally driven responses may damage clinicians, suppress reporting, and weaken learning systems	Professional integrity should be protected as a structural condition for safe, sustainable, and learning-oriented surgical practice
Procedural fairness and institutional responsibility	Reputational, legal, administrative, or organizational pressures influencing review	Responsibility attribution may become reactive, symbolic, or methodologically distorted	Institutional responses should be guided by procedural fairness, transparency, and independence from reputational pressure

Deterministic evaluation of probabilistic events	Epistemological misalignment between probabilistic clinical reasoning and deterministic external review models	Multifactorial complications may be reframed as singular preventable failures	Accountability frameworks should explicitly integrate contextual risk stratification, cognitive limitations, and system-level constraints
High reliability as operational framework	Fragmented or inconsistent review processes lacking shared safety architecture	Accountability remains reactive, uneven, and weakly connected to system learning	High reliability principles should provide the operational framework for fair, proportionate, and learning-oriented accountability

Table 2. Final position statements and implementation implications for fair accountability in emergency surgery

Section	Domain	Final position statement
1	Contextual proportionality in emergency surgery	Adverse events in emergency surgery should be evaluated through structured morbidity and mortality review, explicitly accounting for the clinical and systemic context in which care was delivered, including disease severity, physiological instability, time pressure, and resource constraints.
2	Accountability distinguished from blame	Professional accountability in emergency surgery must remain contextualized, analytical, and distinct from blame.
3	Cognitive bias and the limits of retrospective judgment	Retrospective evaluation of emergency surgical decisions must explicitly mitigate hindsight, outcome, and attribution bias.

4	Distributed responsibility in emergency surgery	Responsibility in emergency surgery is distributed across individuals, teams, and systems and must be evaluated accordingly.
5	Moral distress, moral injury, and professional well-being	Protection of professional integrity is an essential component of safe, sustainable, and learning-oriented surgical systems.
6	Procedural fairness and institutional responsibility	Institutional responses to adverse events must be guided by procedural fairness, transparency, and independence from reputational pressure.
7	High reliability as the structural framework for emergency surgical accountability	High reliability principles provide the operational framework for fair and proportionate accountability in emergency surgery.
Cross-cutting implication	Education and cultural development	Implementation of this framework requires training in cognitive debiasing, ethical reasoning, team-based decision-making, structured morbidity and mortality review, and high reliability principles within residency programs, continuing professional development, and scientific society initiatives.

Results

1. Contextual proportionality in emergency surgery

Statement 1. Adverse events in emergency surgery should be evaluated through structured morbidity and mortality review, explicitly accounting for the clinical and systemic context in which care was delivered, including disease severity, physiological instability, time pressure, and resource constraints.

Emergency surgery operates at the limits of clinical uncertainty. Decisions are frequently made under severe time pressure, with incomplete or evolving diagnostic information, and in patients presenting with major physiological instability [5,7]. Unlike elective surgery, emergency practice often unfolds within compressed timelines that limit multidisciplinary deliberation, preoperative optimization, and the opportunity to reassess options before intervention. In many cases, decisive

action must be taken by a single surgeon working within constrained institutional, logistical, and human-resource conditions [8].

Emergency surgery should therefore not be understood as a uniform procedural category, but as a field of practice spanning heterogeneous, high-acuity scenarios that require cognitive agility, technical breadth, and adaptive leadership under uncertainty [4]. A hypotensive trauma patient with active hemorrhage represents a decisional environment fundamentally different from urgent but hemodynamically stable conditions such as acute appendicitis or acute cholecystitis. Although all fall within the broad spectrum of emergency surgery, they differ substantially in diagnostic time, cognitive load, available expertise, system readiness, and deliberative capacity. Recognizing this spectrum is essential to any fair evaluation of performance and outcomes.

Within this context, variability in clinical decision-making is expected and often unavoidable. More than one management strategy may remain clinically defensible within accepted professional standards [9]. Emergency settings may also impose constraints that are less typical of elective practice, including limited personnel availability, restricted operating-room access, delayed imaging or interventional radiology, blood product constraints, ICU capacity limitations, or resource scarcity. These realities shape decision pathways and must be incorporated into adverse-event review [8].

Emergency surgical decisions should also be reconstructed as a chronological sequence of adaptive judgments rather than as a single isolated choice. Initial plans are often formulated before all diagnostic, physiological, and logistical information is available, and they may appropriately change as new data emerge, resuscitation succeeds or fails, operative findings modify the presumed diagnosis, or critical resources become available or unavailable. The medical record may capture the final decision without fully documenting the uncertainty, alternatives considered, intermediate physiological changes, or reasons for modifying the original plan. Retrospective morbidity and mortality review should therefore assess each step according to what was known, uncertain, reasonably inferable, and realistically actionable at that specific moment [10,11].

Adverse outcomes and complications should therefore trigger structured, context-sensitive analysis rather than automatic attribution of individual professional failure. Meaningful review requires recognition of the intrinsic risk profile of emergency surgery, including patient-related factors such as physiological instability, comorbidity, frailty, and premorbid reserve; disease-

related factors such as advanced pathology, sepsis, hemorrhage, contamination, and diagnostic uncertainty; and system-related constraints such as time pressure, limited preoperative optimization, staffing variability, and resource availability [12].

In this setting, prognostic and severity scoring systems may support contextual risk stratification, but they should not be used as deterministic measures of preventability or individual responsibility. These tools may incompletely capture the duration and trajectory of physiological derangement, frailty, medication effects, evolving organ dysfunction, response to resuscitation, and the speed of clinical deterioration. Literature-based outcomes and institutional benchmarks should likewise be interpreted in relation to case mix, referral pathways, local expertise, and the resources actually available at the time of care. Scoring systems and benchmarks can inform retrospective review, but they cannot replace context-sensitive analysis of what was clinically reasonable and realistically feasible within the required time frame [13].

2. Accountability distinguished from blame

Statement 2. Professional accountability in emergency surgery must remain contextualized, analytical, and distinct from blame.

Professional accountability is a cornerstone of medical ethics and patient safety. It entails the obligation to explain and justify clinical decisions in relation to accepted standards, available evidence, professional duties, and the context in which care was delivered. Accountability also includes the responsibility to disclose harm, participate in review, learn from adverse events, and support corrective action when deficiencies are identified. However, accountability becomes counterproductive when it is conflated with blame [14,15].

Blame-oriented approaches tend to compress complex clinical processes into linear narratives of individual fault. This reductionism discourages transparency, fosters defensive medicine, weakens psychological safety, and limits learning from adverse events and unexpected clinical circumstances [16]. In emergency surgery, where decisions are shaped by uncertainty, time pressure, evolving information, and contextual constraints, retrospective personalization of outcomes risks distorting both causality and fairness [17].

Classical analyses of surgical error have consistently shown that adverse events rarely arise from isolated incompetence alone. More often, harm emerges from interacting contributory factors, including patient severity, disease progression, system vulnerabilities, communication failures, cognitive overload, team dynamics, and environmental constraints. Foundational work by

Krizek, together with subsequent system-based safety models informed by Deming's principles of quality improvement, emphasized that preventable harm frequently reflects latent system weaknesses and process failures, rather than solely individual misconduct [18].

Disciplinary responses focused exclusively on individuals, without examining system design and contributory conditions, have repeatedly failed to prevent recurrence. By contrast, structured multidisciplinary review can promote distributed expertise, shared situational awareness, and collective responsibility. Evidence from multidisciplinary care models suggests that coordinated decision-making may improve reliability and reduce error propagation, particularly when teams are able to identify vulnerabilities before they recur as patient harm [19,20].

A fair accountability framework must therefore examine how decisions were made, what information was available at the time, which constraints influenced action, and how patient factors, team performance, system conditions, and individual conduct interacted to produce the outcome. The central question should not be simply who was involved, but whether the decisions and actions taken were clinically defensible, professionally responsible, and realistically feasible within the circumstances in which care was delivered.

This distinction does not weaken individual responsibility. Physicians carry medical, ethical, and legal duties, including the obligation to maintain competence, act with integrity, seek help when appropriate, and adhere to accepted professional standards. Clear technical incompetence, reckless conduct, dishonesty, abandonment, recurrent unsafe practice, or preventable deviation from accepted standards remain indefensible. Fair accountability requires differentiation between unavoidable disease-related risk, human error, system-level contributors, at-risk behaviour, recurrent poor performance, and misconduct. Without this distinction, responsibility attribution risks becoming punitive rather than analytical, and blame may replace learning without improving patient safety [21,22].

3. Cognitive bias and the limits of retrospective judgment

Statement 3. Retrospective evaluation of emergency surgical decisions must explicitly mitigate hindsight, outcome, and attribution bias.

Cognitive biases are systematic and predictable deviations from judgment that arise when clinicians use heuristics to make decisions under uncertainty. In clinical medicine, these biases are not aberrations or signs of incompetence; they are intrinsic features of human cognition, particularly when decisions must be made under pressure [23,24].

Biases relevant to adverse-event review include information-processing biases, such as anchoring, availability, and confirmation bias; outcome-related biases, including hindsight and outcome bias; and attribution biases, which shape how responsibility is assigned after harm has occurred. Hindsight and outcome bias are particularly problematic in surgical audit, morbidity and mortality review, and medico-legal evaluation. Once an adverse outcome is known, the preceding clinical course may be reconstructed as more predictable than it actually was. Information unavailable at the time of decision-making may be unconsciously incorporated into retrospective judgment, creating an illusion of clarity, inevitability, and preventability [20,25,26]. In emergency surgery, these distortions are amplified by time pressure, physiological instability, incomplete data, and the frequent need to act before full deliberation is possible. Clinical reasoning in this environment often depends on rapid pattern recognition and heuristic processing. Apprenticeship-based training helps surgeons develop internal cognitive scripts that allow decisive action when delay would itself increase risk. Under acute constraints, intuitive or Type 1 reasoning is not inherently inferior; it may be adaptive and, at times, lifesaving [27]. At the same time, high cognitive load, stress, multitasking, and limited resources may reduce working memory capacity and increase vulnerability to error, as described by cognitive load theory [28].

These cognitive realities are directly relevant to morbidity and mortality review. Retrospective evaluation that does not account for them risks transforming complex, probabilistic decisions into simplified narratives of individual fault. Clinical uncertainty is replaced by artificial certainty, and the probabilistic nature of acute care is reframed as deterministic failure [29,30]. Variability in clinical judgment should also not be equated with error. Empirical evidence shows that different surgeons may reasonably adopt different management strategies within accepted professional standards, and that many so-called judgment errors occur in patients who do not experience adverse outcomes [26]. In areas where prospective evidence is limited and more than one defensible strategy exists, post hoc reliance on expert opinion, especially when shaped by knowledge of the outcome, may amplify bias rather than clarify causality.

For these reasons, adverse-event review should incorporate explicit safeguards designed to reduce cognitive distortion. Patient-safety literature supports structured, system-oriented morbidity and mortality review processes that reconstruct events chronologically, assess decisions according to the information available at the time, explicitly identify contextual

constraints, and consider alternative reasonable options within prevailing standards of care [31–33].

Facilitated or moderated morbidity and mortality discussions may improve analytical rigor and reduce hierarchical or outcome-driven distortions by maintaining attention on system factors, cognitive processes, and decision pathways rather than prematurely personalizing responsibility. When feasible, initial case summaries that reconstruct the decisional pathway before explicit disclosure of the final outcome may further attenuate outcome bias and support more accurate assessment of clinical reasoning.

Such approaches are consistent with contemporary patient-safety science and high-reliability principles. Recognizing cognitive bias in adverse-event review is not an excuse for error, but a methodological requirement for fair and scientifically sound accountability. Without contextual risk assessment and bias-aware analysis, adverse outcomes may be too easily reframed as preventable failures, reinforcing punitive narratives rather than advancing learning [34,35].

4. Distributed responsibility in emergency surgery

Statement 4. Responsibility in emergency surgery is distributed across individuals, teams, and systems and must be evaluated accordingly.

Emergency and general surgery are inherently team-based disciplines. In acute settings, however, operative authority often rests with a single surgeon who carries formal responsibility for the final decision. This structural reality is important, but it must be distinguished from the broader determinants of outcome.

Although a decision may be attributed to an individual clinician, surgical outcomes are shaped by multiple interacting factors, including multidisciplinary communication, team hierarchy, institutional protocols, staffing patterns, resource availability, and organizational culture [36]. Patient-safety research has consistently shown that adverse events in complex systems rarely arise from isolated acts alone, but from interactions between individual actions and latent system vulnerabilities, including communication failures, workload pressure, and structural constraints [18].

Individual agency in emergency surgery is real, but it is exercised within organizational conditions that shape both decisional latitude and operational feasibility. Even when one surgeon is the final decision-maker, that surgeon acts within a system that determines the information available, the time for reflection, the cognitive load involved, the support accessible, and the

options that can realistically be pursued. System constraints do not eliminate individual responsibility; however, they condition how decisions are made and must therefore be incorporated into any fair evaluation [37,38].

Shared decision-making adds a further layer of complexity. In elective and oncologic surgery, it is rightly emphasized as a cornerstone of patient-centered care, and evidence shows variability in both surgeon and patient preferences [39–41]. In emergency settings, however, traditional shared decision-making models may be limited by time pressure, physiological instability, impaired patient capacity, uncertainty about prognosis, and the urgency of intervention. Retrospectively applying elective-care standards of deliberation to time-critical emergency decisions risks misrepresenting the clinical environment in which those decisions were made. This misalignment may distort evaluation and contribute to moral distress among clinicians.

A rigorous assessment of adverse outcomes must therefore integrate individual, team-level, and system-level perspectives. Responsibility in emergency surgery is neither exclusively personal nor entirely institutional; it is distributed. This does not mean that responsibility is diluted or that no one is accountable. Rather, it means that review should identify how patient factors, disease severity, clinical judgment, team communication, available resources, institutional processes, and professional conduct interacted to produce the outcome. Contemporary safety science supports this model of distributed accountability, and medico-legal reasoning in complex cases is increasingly incorporating system-level contributory analysis alongside individual acts [42].

5. Moral distress, moral Injury, and professional well-being

Statement 5. Protection of professional integrity is an essential component of safe, sustainable, and learning-oriented surgical systems.

Beyond clinical and legal consequences, adverse outcomes may profoundly affect surgeons' moral and psychological well-being. Moral distress arises when clinicians are constrained from acting in accordance with their professional values, whereas moral injury refers to the cumulative psychological harm that may follow repeated exposure to ethically injurious events [43,44]. Emergency surgeons operate at the intersection of uncertainty, urgency, and irreversible intervention. The invasive nature of surgery, the immediacy of life-and-death decisions, and the direct responsibility assumed in the surgical relationship with patients create a particularly intense form of moral exposure [45]. When outcomes are unfavorable, the resulting burden may be deeply personal, enduring, and difficult to separate from professional identity.

Empirical evidence indicates a substantial prevalence of moral distress among surgeons, often associated with pressure to perform interventions of questionable benefit, unclear goals of care, resource constraints, or institutional expectations that conflict with clinical judgment [46–48]. In emergency settings, where time for deliberation is limited and uncertainty is intrinsic, these pressures may be further amplified.

Moral injury may become particularly acute when reputational harm, isolation, or punitive responses precede structured and scientifically grounded review. When the presumption of professional good faith is replaced by immediate suspicion, the evaluative process shifts from learning toward accusation. Such environments may foster defensive medicine, discourage open reporting, weaken psychological safety, accelerate burnout, and contribute to attrition from high-risk disciplines [49].

This is not solely a matter of individual well-being. It is also a patient-safety issue. High-reliability environments depend on psychological safety, procedural fairness, trust in evaluative processes, and confidence that adverse events will be examined before responsibility is attributed. A culture that humiliates before it analyzes ultimately weakens its own capacity to learn.

Addressing moral distress and moral injury therefore requires more than resilience training or individual coping strategies. It demands institutional commitment to transparent review, methodological rigor, separation of quality improvement from reputational management, and protection of procedural fairness [50].

Professional integrity is not a privilege granted to clinicians, but a structural condition for safe practice. Systems that erode moral integrity in the name of accountability may ultimately weaken both patient safety and professional sustainability.

6. Procedural fairness and institutional responsibility

Statement 6. Institutional responses to adverse events must be guided by procedural fairness, transparency, and independence from reputational pressure.

Healthcare systems operate within complex organizational, legal, financial, and reputational environments. They are therefore not immune to hierarchical pressures, institutional tensions, or conflicts of interest. In this context, conflicts of interest should be understood broadly, encompassing not only financial incentives but also organizational, reputational, legal, and

career-related interests that may consciously or unconsciously influence how adverse events are interpreted and how responsibility is attributed [51–53].

A related ethical tension is dual loyalty, which arises when clinicians must navigate competing obligations toward individual patients, professional standards, colleagues, and institutions whose priorities may not always fully align. Dual loyalty does not imply misconduct; rather, it reflects a structural feature of contemporary healthcare systems. However, when institutional interests intersect with adverse events, particularly in high-visibility cases, attribution of responsibility may be influenced by pressures extending beyond strict clinical analysis [51].

In such environments, the central risk is not necessarily overt injustice, but methodological distortion. Institutional responses may become reactive, reputationally protective, or prematurely focused on individual attribution before a structured review has been completed. This can compromise both fairness and accuracy, especially when complex clinical events are reduced to simplified narratives of personal failure.

For this reason, ethical restraint, transparency, and procedural rigor must guide institutional responses to adverse events. In the absence of evidence of negligence, reckless conduct, dishonesty, or intentional misconduct, the presumption of professional good faith should precede formal attribution of blame. This presumption should not prevent investigation; rather, it should ensure that investigation occurs before reputational or disciplinary conclusions are reached.

Emergency surgical decision-making frequently lies at the intersection of evidence-based medicine and experience-informed judgment. Although evidence-based medicine remains the aspirational standard, emergency contexts are often characterized by incomplete evidence, limited time, rapidly evolving physiology, and constrained therapeutic options. Under such conditions, reliance on expert judgment, tacit knowledge, and experiential reasoning may be unavoidable. Ethical tension arises when decisions made within constrained, experience-informed settings are retrospectively judged against idealized evidence-based standards without acknowledging the uncertainty and practical limitations present at the time [54–57].

Institutional responsibility does not negate individual accountability. Rather, it requires organizations to create conditions in which fair analysis, learning, professional integrity, and patient safety can coexist. Institutional responses to adverse events should therefore prioritize structured review, methodological rigor, transparency, protection from conflicts of interest, and system improvement. Premature punitive narratives may satisfy an immediate demand for

attribution, but they risk undermining trust, discouraging disclosure, weakening learning, and obscuring the very system vulnerabilities that must be corrected.

6.1 Deterministic evaluation of probabilistic events

In emergency surgical systems, complications are not anomalous events, but probabilistic clinical occurrences arising within high-risk environments [58]. They emerge from the interaction of disease severity, patient physiology, frailty, time constraints, resource availability, team performance, and human decision-making under uncertainty.

Evaluative frameworks outside the clinical domain, particularly administrative, legal, regulatory, or performance-based models, may be structurally poorly suited to capture the probabilistic and time-dependent nature of emergency surgical decision-making. These frameworks often rely on linear causal assumptions, retrospective completeness of information, and metric-driven interpretations that may not reflect the uncertainty, instability, and constrained feasibility inherent to acute surgical care. This divergence represents more than institutional pressure; it reflects an epistemological misalignment. Clinical reasoning in emergency surgery is probabilistic, context-dependent, and continuously updated as information evolves, whereas external evaluation mechanisms may apply deterministic lenses to outcomes generated under uncertainty and systemic complexity [59].

When probabilistic medicine is assessed through deterministic frameworks, oversimplification becomes likely. Context-bound decisions may be retrospectively reframed as preventable individual failures, and multifactorial events may be reduced to singular attributions of responsibility. Such distortion does not necessarily arise from bad faith, but from the application of interpretive models that are poorly aligned with the clinical reality of emergency surgery.

A scientifically valid accountability framework must therefore explicitly integrate contextual risk stratification, cognitive limitations, time-dependent decision-making, and system-level constraints. Without these safeguards, responsibility attribution may become methodologically flawed when the standards used to judge the event fail to reflect the probabilistic environment in which the event occurred.

7. High reliability as the structural framework for emergency surgical accountability

Statement 7. High reliability principles provide the operational framework for fair and proportionate accountability in emergency surgery.

Emergency surgery is practiced in environments defined by uncertainty, urgency, physiological instability, and the potential for catastrophic harm. In such settings, accountability cannot rely solely on retrospective individual judgment. It must be embedded within a system capable of maintaining reliability under stress, recognizing weak signals, adapting to rapidly changing conditions, and learning from adverse events without reducing them to simplified narratives of individual failure.

High Reliability Organization (HRO) principles, originally developed in industries such as aviation and nuclear energy, offer both a conceptual and operational foundation for safety in high-risk domains. High reliability does not eliminate error. Rather, it supports systems that anticipate failure, detect early warning signals, respond adaptively under pressure, and learn without distortion. The five core principles of high reliability, preoccupation with failure, reluctance to simplify, sensitivity to operations, commitment to resilience, and deference to expertise, align closely with the structural demands of emergency surgical practice [60].

The relevance of these principles to emergency surgery is not merely theoretical. Reluctance to simplify directly counters hindsight bias, outcome bias, and narrative compression in adverse-event review. Sensitivity to operations requires attention to real-time constraints, including patient instability, staffing, operating-room access, blood product availability, interventional radiology, ICU capacity, and institutional readiness. Deference to expertise supports distributed clinical reasoning and team-based judgment, particularly when the most relevant expertise may come from those closest to the evolving clinical situation. Commitment to resilience strengthens the capacity to adapt when plans must change under acute stress.

Within a high-reliability framework, adverse events are examined through structured differentiation between unavoidable harm, human error, at-risk behaviour, system-constrained performance, recurrent poor performance, reckless conduct, and misconduct. This differentiation allows responses to remain proportionate and fair. Learning and system redesign may be appropriate when harm reflects latent conditions or constrained feasibility; coaching, supervision, or remediation may be required when repeated performance concerns emerge; and formal escalation remains necessary when conduct is reckless, dishonest, intentionally harmful, or persistently unsafe despite feedback and support. Accountability therefore becomes methodologically grounded, context-sensitive, and learning-oriented rather than reactive, symbolic, or reputationally driven [61,62].

The contribution of this framework is not the invention of new high-reliability or Just Culture principles, but their explicit translation into emergency surgical accountability. Emergency surgery requires a specialty-specific model because it is practiced in non-elective, time-critical, resource-variable, and only partially controllable settings, involving unselected patients with evolving physiology and limited opportunity for optimization or deliberation. General patient-safety principles must therefore be operationalized in a way that reflects the real decisional ecology of emergency surgery.

High reliability provides the structural framework through which contextual proportionality, cognitive bias awareness, distributed responsibility, procedural fairness, and professional accountability can be translated into practice. Without such a framework, adverse-event analysis risks reverting to personalization, reputational reflexes, and deterministic reconstruction of probabilistic events. With it, accountability and system resilience become mutually reinforcing rather than antagonistic. Moving beyond blame is not a concession to error, but a structural necessity for safe, fair, and sustainable emergency surgical care.

Discussion

Contribution of the framework, balance, and limitations

This position paper contributes to the literature by bringing together patient-safety science, cognitive psychology, medical ethics, high-reliability principles, and surgical professionalism into a framework specifically focused on emergency surgery. Its aim is not to redefine accountability or to replace established Just Culture models, but to apply and operationalize these principles in a field where adverse outcomes are frequent, decisions are time-critical, patients are unselected, physiology is often unstable, and the clinical environment is only partially controllable.

A major strength of this work is that it addresses a clinically important but still underexamined dimension of emergency surgical practice: how adverse outcomes should be evaluated without conflating accountability with punitive blame. Although direct empirical evidence specifically evaluating accountability processes in emergency surgery remains limited, broader surgical literature supports the concern that blame-oriented, poorly standardized, or fear-driven review cultures may undermine reporting, disclosure, professional well-being, and organizational learning [63-66].

Surgical adverse events are frequent, but they are not synonymous with error, negligence, or preventable harm. Disclosure literature emphasizes that many adverse events are not preventable, while many errors do not result in harm. Nevertheless, surgeons may face specific barriers to transparent disclosure and reporting, including shame, reputational concern, fear of litigation, uncertainty regarding preventability, team-based diffusion of responsibility, and the traditional culture of surgical morbidity and mortality review [63]. Empirical studies of surgical adverse-event disclosure and intraoperative adverse-event reporting reinforce these concerns. Surgeons may disclose the occurrence and clinical consequences of an adverse event, but less consistently discuss preventability, apology, or how recurrence could be prevented [64]. Prospective data comparing surgeon self-reporting with operative report review have shown substantial underreporting of intraoperative adverse events, particularly lower-severity events [65]. These findings suggest that limited transparency is not necessarily explained by lack of professional integrity or unwillingness to be accountable, but may also reflect unclear definitions, variable perceived clinical significance, medicolegal anxiety, and the absence of standardized, psychologically safe reporting systems.

The consequences of adverse events extend beyond the patient outcome and the technical episode itself. Intraoperative adverse events have been associated with increased postoperative morbidity and mortality, longer length of stay, readmissions, higher costs, and emotional consequences for surgeons [67; 68]. Recent evidence on second victim syndrome in surgeons shows high rates of anxiety, guilt, sadness, sleep disturbance, reduced confidence, burnout, and possible attrition after adverse events [66]. These consequences do not reduce the need for accountability. Rather, they indicate that accountability processes must be structured in a way that is fair, psychologically safe, and capable of supporting both patient safety and professional sustainability.

Experience from high-reliability organizations further supports this approach. Safety-critical industries such as aviation and space exploration have progressively moved from reactive blame-oriented responses toward proactive safety cultures based on reporting, system analysis, psychological safety, learning, and engagement [69]. Contemporary surgical literature similarly calls for morbidity and mortality conferences to evolve from retrospective attribution of blame toward structured, multidisciplinary, system-informed learning [70]. The proposed framework is therefore not intended to soften accountability, but to make it more accurate: distinguishing

unavoidable harm, human error, at-risk behaviour, system-constrained performance, recurrent poor performance, reckless conduct, and misconduct.

A necessary counterpoint is that contextual and system-informed accountability frameworks may be misinterpreted as diluting individual responsibility. This is not the intent of the present position paper. Contextualization is not exoneration; it is the prerequisite for proportionate accountability. A fair review process should protect surgeons from premature, punitive, outcome-driven blame, but it should not protect any clinician from legitimate scrutiny when patterns of unsafe practice, recurrent poor judgment, disruptive behaviour, reckless conduct, or misconduct are present.

This distinction is supported by surgical and patient-safety literature. Whittemore emphasized that the patient-safety movement, while appropriately focused on system improvement, should not allow the pendulum to move so far toward system failure that individual accountability is lost [71]. Reason's model of organizational accidents recognizes latent system conditions, but the "sharp end" of care may still involve active individual failure: in practice, harm often results from an interaction between patient factors, system vulnerabilities, team dynamics, and individual conduct [71;72].

Empirical evidence also supports the relevance of professional behaviour to patient safety. Cooper et al. found that patients whose surgeons had higher numbers of coworker reports describing unprofessional behaviour in the preceding 36 months had higher rates of postoperative surgical or medical complications than patients whose surgeons had no such reports [73]. More recent data from the Coworker Concern Observation Reporting System showed that most physicians never received coworker reports, whereas a small proportion demonstrated repeated patterns of professionalism concerns; surgeons were more likely than nonprocedural physicians to receive such reports and to show repeated patterns [74]. These findings support a pattern-based approach to accountability: isolated adverse outcomes should not be equated with poor practice, but recurrent concerns, especially when associated with communication failures, disregard for safety processes, poor responsibility, integrity concerns, or unsafe care, require structured institutional attention.

At the same time, unsafe practice cannot be understood solely as individual misconduct. Unsafe routines in the operating room may persist because of organizational pressure, professional boundaries, tacit workarounds, diffusion of responsibility, and migration of everyday practice

beyond formal safety rules [75]. This reinforces the need for review processes that examine why unsafe behaviour occurred, why it persisted, whether it reflected a system-constrained workaround, and whether previous opportunities for feedback, support, remediation, or escalation were missed.

Accordingly, systems thinking and professional accountability should be considered complementary rather than opposed. A high-reliability review process should distinguish unavoidable harm, human error, at-risk behaviour, system-constrained performance, recurrent poor performance, reckless conduct, and misconduct. Learning and system redesign may be appropriate for unavoidable harm or system-constrained performance; coaching, supervision, remediation, or monitoring may be required for recurrent at-risk behaviour or performance concerns; and formal escalation may be necessary when conduct is reckless, dishonest, intentionally harmful, or persistently unsafe despite feedback and support. In this sense, collective accountability does not remove individual responsibility; rather, it clarifies the responsibilities of clinicians, teams, and institutions for transparency, disclosure, prevention of recurrence, patient advocacy, and professional remediation when required [76].

The proposed framework does not claim to replace or reinvent established Just Culture, patient-safety, or high-reliability principles. Concepts such as systems thinking, proportionality, procedural fairness, distinction between human error and misconduct, and learning-oriented review are already well established in patient-safety literature. The contribution of this position paper lies in explicitly claiming the need to apply and operationalize these principles within emergency surgery, a high-risk field practiced in non-elective, time-critical, resource-variable, and only partially controllable settings.

Emergency surgery differs from elective and highly protocolized care because it involves unselected patients, often presenting with severe disease, physiological instability, sepsis, hemorrhage, frailty, comorbidity, delayed presentation, incomplete diagnostic information, and limited opportunity for preoperative optimization or multidisciplinary deliberation. Operative findings may substantially modify the plan, and decisions may need to be revised as new information becomes available. These real-time judgments are often incompletely documented, creating a gap between the complexity of decision-making at the bedside or in the operating room and the simplified record available for retrospective review.

For this reason, general patient-safety principles require specialty-specific translation before they can be meaningfully applied to emergency surgical accountability. The proposed model integrates contextual proportionality, dynamic decision-making, cognitive and hindsight bias, resource-dependent feasibility, distributed responsibility, professional good faith, and the distinction between unavoidable harm, human error, at-risk behaviour, system-constrained performance, recurrent poor performance, reckless conduct, and misconduct. Its purpose is not to soften accountability, but to make it more accurate, fair, and useful for patient safety in the specific environment of emergency surgery.

The main limitation of this work is the heterogeneity of the available evidence. The topic lies at the intersection of emergency surgery, patient safety, cognitive psychology, professional ethics, organizational behaviour, and institutional accountability; therefore, the supporting literature includes empirical studies, qualitative research, conceptual frameworks, ethical analyses, and organizational models rather than randomized or comparative clinical-effectiveness evidence. A distinction should therefore be made between empirical observations and normative implications. Empirical literature can describe adverse-event patterns, cognitive biases, reporting cultures, professional distress, unsafe practice routines, and organizational contributors to harm. However, principles such as procedural fairness, proportionality, presumption of professional good faith, collective accountability, and institutional responsibility address how accountability processes ought to be conducted.

For this reason, the statements should be interpreted as ungraded evidence-informed Good Practice Statements, consistent with GRADE guidance, rather than clinical practice recommendations derived from comparative effectiveness evidence [6]. They are grounded in available literature and multidisciplinary expert judgment, but their purpose is to define standards of fair professional and institutional conduct rather than to prescribe specific clinical interventions.

A further limitation is that formal Delphi methodology, structured voting, or RAND/UCLA appropriateness methods were not used. However, the statements were developed through structured literature review, expert consultation, iterative written revision, and collective approval by the multidisciplinary WSES–JMESE working group. Future research should evaluate how structured, bias-aware, and system-informed accountability frameworks affect

reporting behaviour, M&M quality, clinician well-being, patient safety, professional remediation, and institutional learning in emergency surgical settings.

Conclusions

Emergency surgery requires an accountability framework that is scientifically grounded, context-sensitive, bias-aware, system-informed, and ethically proportionate. This position paper proposes such a framework by integrating contextual risk recognition, cognitive science, distributed responsibility, procedural fairness, and high-reliability principles.

The central message is that fair accountability should protect surgeons from premature, punitive, outcome-driven blame, but not from legitimate responsibility when recurrent unsafe practice, reckless conduct, or misconduct are present. Contextualization is therefore not exoneration; it is the methodological prerequisite for proportionate accountability.

Moving beyond blame is not a concession to error, but a structural necessity for safe, sustainable, and trustworthy emergency surgical care. To translate this framework into practice, educational and cultural development are required. Training in cognitive debiasing, ethical reasoning, team-based decision-making, structured morbidity and mortality review, disclosure, professionalism, and high-reliability principles should become part of residency curricula, continuing professional development, institutional quality-improvement programs, and scientific society initiatives.

Only through fair, methodologically rigorous, and high-reliability evaluation processes can emergency surgical systems preserve public trust, protect professional integrity, sustain learning, and genuinely improve patient outcomes.

Declarations

Acknowledgements

Not applicable

Authors' contributions

BDS conceived the project, coordinated the literature review process, and drafted the initial version of the paper. The literature screening was conducted by two researchers. All authors contributed to the interpretation of the evidence, refinement of the conceptual domains, development and revision of the position statements, critical revision of the manuscript for important intellectual content, and approval of the final version.

Availability of data and materials

Data sharing is not applicable to this article as no datasets were generated or analysed during the current study

Clinical trial number

not applicable.

Financial support and sponsorship

Not applicable

Conflicts of interest

The authors declare that there are no conflicts of interest.

Ethics approval and consent to participate

Not applicable

Consent for publication

Not applicable

References

1. Mullen MG, Michaels AD, Mehaffey JH, Guidry CA, Turrentine FE, Hedrick TL, Friel CM. Risk Associated With Complications and Mortality After Urgent Surgery vs Elective and Emergency Surgery: Implications for Defining "Quality" and Reporting Outcomes for Urgent Surgery. JAMA Surg. 2017 Aug 1;152(8):768-774. doi: 10.1001/jamasurg.2017.0918. PMID: 28492821; PMCID: PMC5710495.
2. Kassahun, W.T., Babel, J. & Mehdorn, M. Assessing differences in surgical outcomes following emergency abdominal exploration for complications of elective surgery and high-risk primary emergencies. Sci Rep 12, 1349 (2022). https://doi.org/10.1038/s41598-022-05326-4
3. Hatchimonji JS, Swendiman RA, Kaufman EJ, Scantling D, Passman JE, Yang W, Kit Delgado M, Holena DN. Multiple Complications in Emergency Surgery : Identifying Risk Factors for Failure-to-Rescue. Am Surg. 2020 Jul;86(7):787-795. doi: 10.1177/0003134820934400. Epub 2020 Jul 10. PMID: 32683944.
4. Catena, F., Biffl, W., De Simone, B. et al. Emergency general surgeons: the special forces of general surgery (the “navy seals paradigm”). World J Emerg Surg 15, 11 (2020). https://doi.org/10.1186/s13017-020-0293-7

5. Andrea C. Tricco, Erin Lillie, Wasifa Zarin, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med.2018;169:467-473. [Epub 4 September 2018]. doi:10.7326/M18-0850].
6. Omar Dewidar, Elie A. Akl, Gian Paolo Morgano, et al. GRADE Guidance: Update on Developing Good Practice Statements in Guidelines. Ann Intern Med.2026;179:430-439. [Epub 20 January 2026]. doi:10.7326/ANNALS-25-00431
7. Catena, F., Moore, E.E. World Journal of Emergency Surgery (WJES), World Society of Emergency Surgery (WSES) and the role of emergency surgery in the world. World J Emerg Surg 2, 3 (2007). https://doi.org/10.1186/1749-7922-2-3
8. Catena, F., Moore, E.E. Emergency surgery, acute care surgery and the boulevard of broken dreams. World J Emerg Surg 4, 4 (2009). https://doi.org/10.1186/1749-7922-4-4
9. De Simone B, Agnoletti V, Abu-Zidan FM, Biffl WL, Moore EE, Chouillard E, Coccolini F, Sartelli M, Podda M, Di Saverio S, Kaafarani H, Balogh ZJ, Bala M, Leppäniemi AK, Kirkpatrick AW, Pikoulis E, Rasa K, Rosato C, Sawyer R, Ansaloni L, de'Angelis N, Damaskos D, Stahel PF, Kluger Y, Coimbra R; ORSA Collaborative; Catena F. The Operating Room management for emergency Surgical Activity (ORSA) study: a WSES international survey. Updates Surg. 2024 Apr;76(2):687-698. doi: 10.1007/s13304-023-01668-4. Epub 2024 Jan 8. PMID: 38190080.
10. Reale C, Salwei ME, Militello LG, Weinger MB, Burden A, Sushereba C, Torsher LC, Andreae MH, Gaba DM, McIvor WR, Banerjee A, Slagle J, Anders S. Decision-Making During High-Risk Events: A Systematic Literature Review. J Cogn Eng Decis Mak. 2023 Jun;17(2):188-212. doi: 10.1177/15553434221147415. Epub 2023 Jan 17. PMID: 37823061; PMCID: PMC10564111.
11. Campbell G, Watters DA. Making decisions in emergency surgery. ANZ J Surg. 2013 Jun;83(6):429-33. doi: 10.1111/ans.12193. Epub 2013 May 8. PMID: 23656408.
12. Schuler K, Jung IC, Zerlik M, Hahn W, Sedlmayr M, Sedlmayr B. Context factors in clinical decision-making: a scoping review. BMC Med Inform Decis Mak. 2025 Mar 17;25(1):133. doi: 10.1186/s12911-025-02965-1. PMID: 40098142; PMCID: PMC11912758.]
13. Patel RH, Boster J. Medical Error Prevention and Root Cause Analysis. [Updated 2025 Dec 9]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK570638/

14. Schooling CM, Jones HE. Emerg Themes Epidemiol. 2018;15:10. doi:10.1186/s12982-018-0080-z; Zhang Z, et al. Ann Transl Med. 2017;5:436. doi:10.21037/atm.2017.08.22
15. Hickson GB, Moore IN, Pichert JW, Benegas M. Balancing systems and individual accountability in a safety culture. In: Berman S, ed. From Front Office to Front Line: Essential Issues for Health Care Leaders. 2nd ed. Chicago, IL: Joint Commission Resources International; 2012:1-35
16. Di Saverio S, Tugnoli G, Catena F, Birindelli A, Coniglio C, Gordini G. Surgeon accountability for patient safety in the Acute Care Surgery paradigm: a critical appraisal and need of having a focused knowledge of the patient and a specific subspecialty experience. Patient Saf Surg. 2015 Nov 13;9:38. doi: 10.1186/s13037-015-0084-3. PMID: 26568771; PMCID: PMC4644281.
17. Catino, M. Blame culture and defensive medicine. Cogn Tech Work 11, 245–253 (2009). https://doi.org/10.1007/s10111-009-0130-y
18. Yusof ANM, Razali HYH. Moving Away from the Blame Culture: The Way Forward to Manage Medical Errors. Malays J Med Sci. 2024 Dec;31(6):126-132. doi: 10.21315/mjms2024.31.6.10. Epub 2024 Dec 31. PMID: 39830101; PMCID: PMC11740813.
19. Krizek TJ. Surgical error: Ethical issues of adverse events. Arch Surg. 2000;135(11):1359–1366.
20. De Simone B. Learning from medical and surgical errors: a new global insight for patient safety. J Med Surg Errors. 2024;1(1).
21. Tversky A, Kahneman D. Judgment under uncertainty: Heuristics and biases. Science. 1974;185:1124–1131.
22. Korylchuk, N., Pelykh, V., Nemyrovych, Y., Didyk, N., & Martsyniak, S. (2024). Challenges and benefits of a multidisciplinary approach to treatment in clinical medicine. Journal of Pioneering Medical Sciences, 13, 1-9
23. Berardi R, Morgese F, Rinaldi S, Torniai M, Mentrasti G, Scortichini L, Giampieri R. Benefits and Limitations of a Multidisciplinary Approach in Cancer Patient Management. Cancer Manag Res. 2020;12:9363-9374; https://doi.org/10.2147/CMAR.S220976

24. Kassirer JP, Kopelman RI. Cognitive errors in diagnosis: instantiation, classification, and consequences. Am J Med. 1989 Apr;86(4):433-41. doi: 10.1016/0002-9343(89)90342-2. PMID: 2648823
25. Croskerry P. From mindless to mindful practice--cognitive bias and clinical decision making. N Engl J Med. 2013 Jun 27;368(26):2445-8. doi: 10.1056/NEJMp1303712. PMID: 23802513.
26. Kahneman D. Thinking, Fast and Slow. Farrar, Straus and Giroux; 2011.
27. Marsh KM, Turrentine FE, Jin R, et al. Judgment errors in surgical care. J Am Coll Surg. 2024;238(5):874–879.
28. Rifat Latifi. Surgical Decision-Making.Evidence and Beyond. Springer Cham. Published: 02 January 2025. https://doi.org/10.1007/978-3-031-67391-7
29. Kirkpatrick AW, McKee JL, Barrett R, Couperus K, Wachs J. Considering human cognitive architecture in stressful medical prehospital interventions might benefit care providers. Can J Surg. 2023;66(6):E522-E34.
30. Moskowitz AJ, Kuipers BJ, Kassirer JP. Dealing with uncertainty, risks, and tradeoffs in clinical decisions. A cognitive science approach. Ann Intern Med. 1988 Mar;108(3):435-49. doi: 10.7326/0003-4819-108-3-435. PMID: 3277516.
31. Nendaz M, Perrier A. Diagnostic errors and flaws in clinical reasoning: mechanisms and prevention in practice. Swiss Med Wkly. 2012 Oct 23;142:w13706. doi: 10.4414/smw.2012.13706. PMID: 23135902.
32. de Vos MS, Verhagen MJ, Hamming JF. The Morbidity and Mortality Conference: A Century-Old Practice with Ongoing Potential for Future Improvement. Eur J Pediatr Surg. 2023 Apr;33(2):114-119. doi: 10.1055/s-0043-1760836. Epub 2023 Jan 31. PMID: 36720246; PMCID: PMC10023258.
33. Campbell WB. Surgical morbidity and mortality meetings. Ann R Coll Surg Engl. 1988 Nov;70(6):363-5. PMID: 3207327; PMCID: PMC2498614.
34. Beaulieu-Jones BR, Wilson S, Howard DS, et al. Defining a High-Quality and Effective Morbidity and Mortality Conference: A Systematic Review. JAMA Surg. 2023;158(12):1336–1343. doi:10.1001/jamasurg.2023.4672

35. Hammond MEH, Stehlik J, Drakos SG, Kfoury AG. Bias in Medicine: Lessons Learned and Mitigation Strategies. JACC Basic Transl Sci. 2021 Jan 25;6(1):78-85. doi: 10.1016/j.jacbts.2020.07.012. PMID: 33532668; PMCID: PMC7838049.
36. Prakash, S., Sladek, R. M., & Schuwirth, L. (2019). Interventions to improve diagnostic decision making: A systematic review and meta-analysis on reflective strategies. Medical Teacher, 41(5), 517–524. https://doi.org/10.1080/0142159X.2018.1497786
37. Lambe KA, O'Reilly G, Kelly BD, Curristan S. Dual-process cognitive interventions to enhance diagnostic reasoning: a systematic review. BMJ Qual Saf. 2016 Oct;25(10):808-20. doi: 10.1136/bmjqs-2015-004417. Epub 2016 Feb 12. PMID: 26873253
38. Phillips-Wren, G., & Adya, M. (2020). Decision making under stress: the role of information overload, time pressure, complexity, and uncertainty. Journal of Decision Systems, 29(sup1), 213–225. https://doi.org/10.1080/12460125.2020.1768680
39. Sophie Wright, Alena Denisova. "It's a terrible choice to make but also a necessary one": Exploring player experiences with moral decision making mechanics in video games. Computers in Human Behavior, Volume 161, 2024, 108424, ISSN 0747-5632, https://doi.org/10.1016/j.chb.2024.108424
40. Shinkunas LA, Klipowicz CJ, Carlisle EM. Shared decision making in surgery: a scoping review of patient and surgeon preferences. BMC Med Inform Decis Mak. 2020 Aug 12;20(1):190. doi: 10.1186/s12911-020-01211-0. PMID: 32787950; PMCID: PMC7424662.
41. de Mik SML, Stubenrouch FE, Balm R, Ubbink DT. Systematic review of shared decision-making in surgery. Br J Surg. 2018 Dec;105(13):1721-1730. doi: 10.1002/bjs.11009. Epub 2018 Oct 25. PMID: 30357815; PMCID: PMC6282808
42. Niburski K, Guadagno E, Abbasgholizadeh-Rahimi S, Poenaru D. Shared Decision Making in Surgery: A Meta-Analysis of Existing Literature. Patient. 2020 Dec;13(6):667-681. doi: 10.1007/s40271-020-00443-6. PMID: 32880820
43. Øyri SF, Wiig S, Tjomsland O. Influence of external assessment on quality and safety in surgery: a qualitative study of surgeons' perspectives. BMJ Open Qual. 2024 May 8;13(2):e002672. doi: 10.1136/bmjoq-2023-002672. PMID: 38724111; PMCID: PMC11086481.
44. Rabin S, Kika N, Lamb D, Murphy D, Am Stevelink S, Williamson V, Wessely S, Greenberg N. Moral Injuries in Healthcare Workers: What Causes Them and What to Do

About Them? J Healthc Leadersh. 2023 Aug 16;15:153-160. doi: 10.2147/JHL.S396659. PMID: 37605753; PMCID: PMC10440078

45. VanderWeele TJ, Wortham JS, Carey LB, Case BW, Cowden RG, Duffee C, Jackson-Meyer K, Lu F, Mattson SA, Padgett RN, Peteet JR, Rutledge J, Symons X and Koenig HG (2025) Moral trauma, moral distress, moral injury, and moral injury disorder: definitions and assessments. Front. Psychol. 16:1422441. doi: 10.3389/fpsyg.2025.1422441
46. Char S, Prager K, Dugdale L, Fischkoff K. Surgeon perspectives on ethical dilemmas. J Am Coll Surg. 2023;237(5):751–761; Spaulding SL, Fischkoff K. Regret as a moral psychological experience in surgery. AMA J Ethics. 2025;27(3):E222–E226.
47. Mackel CE, Alterman RL, Buss MK, et al. Moral distress and moral injury among attending neurosurgeons. Neurosurgery. 2022;91(1):59–65
48. Spaulding SL, Fischkoff K. Regret as a moral psychological experience in surgery. AMA J Ethics. 2025;27(3):E222–E226.
49. Zimmermann CJ, Taylor LJ, Tucholka JL, et al. Factors promoting nonbeneficial surgery and moral distress. Ann Surg. 2022;276(1):94–100.
50. Dean W, Morris D, Manzur MK, Talbot S. Moral Injury in Health Care: A Unified Definition and its Relationship to Burnout. Fed Pract. 2024 Apr;41(4):104-107. doi: 10.12788/fp.0467. Epub 2024 Apr 15. PMID: 39399281; PMCID: PMC11468615.
51. Molendijk T. Addressing moral injury in practice: suggestions for organisational, political and societal interventions. Eur J Psychotraumatol. 2025 Dec;16(1):2541485. doi: 10.1080/20008066.2025.2541485. Epub 2025 Aug 25. PMID: 40853676; PMCID: PMC12379690.]
52. Gramma R, Hanganu B, Arnaut O, Ioan BG. Potential Conflicts of Interest Arising from Dualism of Loyalty Imposed on Employees of Medical Institutions-Findings and Tools for Ethics Management. Medicina (Kaunas). 2023 Sep 4;59(9):1598. doi: 10.3390/medicina59091598. PMID: 37763717; PMCID: PMC10536397.https://doi.org/10.3390/medicina59091598
53. Jegan R, Rose A, Dierickx K. Institutional financial incentives in healthcare: a review of normative considerations. BMC Med Ethics. 2025 Jul 10;26(1):92. doi: 10.1186/s12910-025-01252-y. PMID: 40640793; PMCID: PMC12247344.

54. Haring M, Freigang F, Amelung V, Gersch M. What can healthcare systems learn from looking at tensions in innovation processes? A systematic literature review. BMC Health Serv Res. 2022 Oct 28;22(1):1299. doi: 10.1186/s12913-022-08626-7. PMID: 36307839; PMCID: PMC9617372.
55. Hansson SO, Fröding B. Ethical conflicts in patient-centred care. Clinical Ethics. 2020;16(2):55-66. doi:10.1177/1477750920962356
56. Stirrat GM. Ethics and evidence based surgery. J Med Ethics. 2004 Apr;30(2):160-5. doi: 10.1136/jme.2003.007054. PMID: 15082810; PMCID: PMC1733841.
57. Burger I, Sugarman J, Goodman SN. Ethical issues in evidence-based surgery. Surg Clin North Am. 2006 Feb;86(1):151-68, x. doi: 10.1016/j.suc.2005.10.003. PMID: 16442426.
58. Charan, Gopal Singh; Kalia, Raman; Dular, Sunil Kumar; Kumar, Rajesh; Kaur, Kiranpreet. Challenges faced by doctors and nurses in the emergency department: An integrated review. Journal of Education and Health Promotion 14(1):2, January 2025. | DOI: 10.4103/jehp.jehp_462_24
59. Parmar D, Patel N, Kenneth-Ogah C, Yazdouni S, Desai C, Raveshia D, Patel R. Root causes of surgical never-events: a systematic review. Patient Saf Surg. 2026 Jan 8;20(1):3. doi: 10.1186/s13037-025-00474-8. PMID: 41507935; PMCID: PMC12857047.
60. Eddy DM. Probabilistic reasoning in clinical medicine: Problems and opportunities. In: Kahneman D, Slovic P, Tversky A, eds. Judgment under Uncertainty: Heuristics and Biases. Cambridge University Press; 1982:249-267
61. Murray JS, Baghdadi A, Dannenberg W, Crews P, Walsh ND. The Role of High Reliability Organization Foundational Practices in Building a Culture of Safety. Fed Pract. 2024 Jul;41(7):214-221. doi: 10.12788/fp.0486. Epub 2024 Jul 15. PMID: 39411076; PMCID: PMC11473027
62. Kumah A. Adverse event reporting and patient safety: the role of a just culture. Front Health Serv. 2025 Aug 20;5:1581516. doi: 10.3389/frhs.2025.1581516. PMID: 40910122; PMCID: PMC12405316
63. Lipira LE, Gallagher TH. Disclosure of adverse events and errors in surgical care: challenges and strategies for improvement. World J Surg. 2014 Jul;38(7):1614-21. doi: 10.1007/s00268-014-2564-5. PMID: 24763441.

64. Elwy AR, Itani KM, Bokhour BG, Mueller NM, Glickman ME, Zhao S, Rosen AK, Lynge D, Perkal M, Brotschi EA, Sanchez VM, Gallagher TH. Surgeons' Disclosures of Clinical Adverse Events. JAMA Surg. 2016 Nov 1;151(11):1015-1021. doi: 10.1001/jamasurg.2016.1787. PMID: 27438083.
65. Peponis T, Baekgaard JS, Bohnen JD, Han K, Lee J, Saillant N, Fagenholz P, King DR, Velmahos GC, Kaafarani HMA. Are surgeons reluctant to accurately report intraoperative adverse events? A prospective study of 1,989 patients. Surgery. 2018 Sep;164(3):525-529. doi: 10.1016/j.surg.2018.04.035. Epub 2018 Jun 24. PMID: 29945783.
66. Bryan J, Ketley A, Cavanagh K, Bisset C, Moug S, Wyld L, Morgan J. Second victim syndrome in surgeons: systematic review and meta-analysis of the impact of adverse events on surgeons. Br J Surg. 2025 Dec 24;113(1):znaf258. doi: 10.1093/bjs/znaf258. PMID: 41499327; PMCID: PMC12777971.
67. Mavros MN, Velmahos GC, Larentzakis A, Yeh DD, Fagenholz P, de Moya M, King DR, Lee J, Kaafarani HM. Opening Pandora's box: understanding the nature, patterns, and 30-day outcomes of intraoperative adverse events. Am J Surg. 2014 Oct;208(4):626-31. doi: 10.1016/j.amjsurg.2014.02.014. Epub 2014 May 4. PMID: 24953016.
68. Kawa N, Araji T, Kaafarani H, Adra SW. A narrative review on intraoperative adverse events: risks, prevention, and mitigation. J Surg Res. 2024;295:468–476. doi:10.1016/j.jss.2023.11.045.
69. Al-Gholmy O, Davidson M, Brennan ES, Kerstein R, Brennan PA. Out of this world: can surgery learn from NASA's approach to leadership and safety culture? Ann R Coll Surg Engl. 2026 Jul;108(6):416-420. doi: 10.1308/rcsann.2025.0079. Epub 2025 Nov 11. PMID: 41217237; PMCID: PMC13318460.
70. Torres-Landa S, Farrell TM. Evolution of the Morbidity and Mortality Conference in Surgery: From Codman to Contemporary Practice. Am Surg. 2026 Sep;92(9):2243-2248. doi: 10.1177/00031348261448909. Epub 2026 May 5. PMID: 42084021.
71. Whittemore, A. (2009). The Competent Surgeon: Individual Accountability in the Era of "Systems" Failure. Annals of Surgery, 250(3), 357–362. https://doi.org/10.1097/SLA.0b013e3181b28c93
72. Reason, J. (1997). Managing the Risks of Organizational Accidents (1st ed.). Routledge. https://doi.org/10.4324/9781315543543

73. Cooper WO, Spain DA, Guillamondegui O, Kelz RR, Domenico HJ, Hopkins J, Sullivan P, Moore IN, Pichert JW, Catron TF, Webb LE, Dmochowski RR, Hickson GB. Association of Coworker Reports About Unprofessional Behavior by Surgeons With Surgical Complications in Their Patients. JAMA Surg. 2019 Sep 1;154(9):828-834. doi: 10.1001/jamasurg.2019.1738. PMID: 31215973; PMCID: PMC6585020.
74. Cooper WO, Hickson GB, Dmochowski RR, Domenico HJ, Barr FE, Emory CL, Gilbert J, Hartman GE, Lozon MM, Martinez W, Noland J, Webber SA. Physician Specialty Differences in Unprofessional Behaviors Observed and Reported by Coworkers. JAMA Netw Open. 2024 Jun 3;7(6):e2415331. doi: 10.1001/jamanetworkopen.2024.15331. Erratum in: JAMA Netw Open. 2024 Aug 1;7(8):e2431267. doi: 10.1001/jamanetworkopen.2024.31267. PMID: 38842804; PMCID: PMC11157352.
75. Espin S, Lingard L, Baker GR, Regehr G. Persistence of unsafe practice in everyday work: an exploration of organizational and psychological factors constraining safety in the operating room. Qual Saf Health Care. 2006;15(3):165–170. doi:10.1136/qshc.2005.017475.
76. Bell SK, Delbanco T, Anderson-Shaw L, McDonald TB, Gallagher TH. Accountability for medical error: moving beyond blame to advocacy. Chest. 2011 Aug;140(2):519-526. doi: 10.1378/chest.10-2533. PMID: 21813531.

Legend

Table 1: Conceptual framework for fair accountability in emergency surgery

Table 2: Final position statements and implementation implications for fair accountability in emergency surgery