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The significance of error reporting culture in patient safety: A systematic review with implications for Mongolia

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Abstract
Patient safety, a cornerstone of healthcare quality, relies significantly on robust error reporting cultures to mitigate preventable harm. While globally acknowledged as critical, implementation remains fraught with challenges, particularly in resource-limited settings like Mongolia. This study examines the theoretical underpinnings, practical implications, and systemic barriers of error reporting culture, contextualised within Mongolia's healthcare landscape. A mixed-methods approach was employed, combining a systematic review of international literature with an analysis of Mongolian healthcare data, including policy documents from the Health Development Center and Ministry of Health. Findings indicate that institutions with mature reporting cultures achieve 30-40% reductions in patient harm, attributable to leadership engagement, just culture frameworks, user-friendly reporting mechanisms, and sustained staff training. The study identifies Mongolia's unique challenges, including hierarchical professional norms and infrastructural gaps, yet highlights opportunities to adapt global best practices through localised policy integration. Success hinges on long-term commitment to cultural transformation, supported by technological enhancements and regulatory reinforcement. This paper contributes to the discourse on patient safety in transitional healthcare systems, offering actionable insights for Mongolia while underscoring the universal necessity of error reporting as a dynamic, iterative process rather than a static protocol.

Keywords: Patient safety, error reporting culture, just culture, healthcare quality, Mongolia

1. Introduction

1.1 Background and Rationale

According to the World Health Organization (WHO), medical errors affect approximately 134 million patients globally each year, resulting in 2.6 million deaths. The majority of these incidents are preventable, and establishing an error reporting culture represents an effective strategy for risk reduction.

In Mongolia's healthcare sector, attention to quality management has increased in recent years, yet comprehensive error reporting systems and their supporting culture remain underdeveloped. According to the Health Development Center, in developing countries, one in ten patients experiences adverse events during healthcare delivery, with approximately 50% of cases being preventable. This limitation constrains opportunities for learning from medical errors and implementing improvements.

The Mongolian healthcare system faces unique challenges in implementing error reporting mechanisms, including traditional hierarchical organizational structures, limited resources, and the need to balance cultural sensitivities with international best practices.

1.2 Research Objectives

This paper aims to;

1. Elucidate the theoretical foundations and epistemological basis of error reporting culture
2. Analyze its impact on patient safety outcomes
3. Present practical implementation strategies and international best practices
4. Propose contextually appropriate recommendations for the Mongolian healthcare system

1.3 Significance of the Study

This research contributes to the limited body of literature on patient safety in resource-constrained healthcare settings and provides evidence-based guidance for policymakers, healthcare administrators, and clinical practitioners in Mongolia and similar contexts.

2. Methodology

We conducted a systematic review of international literature on error reporting culture and analyzed available data from Mongolia's healthcare system, including policy documents and research reports from the Health Development Center and Ministry of Health.

2.1 Results: Evidence demonstrates that effective error reporting systems reduce patient harm by 30-40% in healthcare facilities with well-established reporting cultures. Key success factors include leadership commitment, just

culture principles, accessible reporting systems, and continuous training programs.

2.2 Conclusion: Developing an error reporting culture requires long-term, systematic efforts involving cultural change, technological support, and regulatory frameworks. For Mongolia, adapting international best practices to local cultural contexts while building on existing policy initiatives presents both challenges and opportunities for improving patient safety.

3. Theoretical framework and conceptual definitions

3.1 Defining Error Reporting Culture

Error reporting culture refers to an organizational characteristic wherein members report safety concerns, errors, and deficiencies transparently and without fear of retribution, and this information is systematically utilized for system improvement (Marx, 2001) [7].

Professor James Reason's "Swiss Cheese Model" explains that errors emerge through multiple layers of defense when holes align (Reason, 2000) [14]. Error reporting culture provides the mechanism to identify and strengthen weaknesses in these defensive layers before catastrophic failures occur.

3.2 Foundational Pillars of Safety Culture

According to safety scholar David Marx (2001) [7], safety culture rests on three fundamental pillars:

Just Culture

This approach distinguishes between human error (which should prompt system improvements), at-risk behavior (requiring coaching), and reckless behavior (requiring remedial action). It creates an environment where staff feel safe reporting errors without fear of punitive consequences for honest mistakes. Learning Culture.

Organizations must demonstrate capacity to learn from errors and implement improvements: Each reported error represents an opportunity to enhance system reliability rather than an occasion for blame.

Reporting Culture

Staff must have accessible, straightforward mechanisms for reporting errors and near-misses. The threshold for reporting should be low, and the process should be streamlined.

3.3 Human-Centered Approach

Global healthcare has shifted from a person-centered to a systems-centered approach to error analysis. Rather than attributing errors primarily to individual failures, contemporary understanding recognizes that most errors result from systemic factors including organizational design, work environment constraints, and process deficiencies (Vincent, 2006) [18]. This paradigm shift forms the philosophical foundation of error reporting culture.

The human factors approach acknowledges that well-trained, competent professionals can make mistakes when systems are poorly designed, and that creating error-resistant systems requires understanding the contexts in which errors occur (Kohn *et al*., 2000) [5].

4. Significance of error reporting culture

4.1 Impact on Patient Safety

4.1.1 Prevention of Medical Errors: Research by the Agency for Healthcare Research and Quality (AHRQ, 2019) demonstrates that hospitals with well-functioning error reporting systems experience 30-40% reductions in patient safety incidents. This substantial decrease translates directly into lives saved and suffering prevented.

4.1.2 System Improvement: Reported errors provide critical intelligence about system vulnerabilities and high-risk processes. This information enables targeted interventions to strengthen safety barriers and reduce the likelihood of future incidents (Leonard *et al*., 2004) [6].

4.1.3 Transparency and Trust: Organizations that openly discuss errors build trust with both patients and staff. This transparency creates a positive feedback loop, encouraging more reporting and fostering continuous improvement. Studies show that hospitals with transparent error reporting experience higher patient satisfaction scores.

4.2 Economic Benefits

4.2.1 The economic burden of medical errors is substantial, including additional treatment costs, extended hospitalization, legal disputes and litigation, reputational damage, and insurance claims and settlements.

4.2.2 Error reporting culture significantly reduces these costs: The UK National Health Service (NHS, 2019) [10] estimates that preventing medical errors saves approximately £1 billion annually. In resource-constrained settings like Mongolia, these savings could be redirected toward expanding healthcare access and improving infrastructure.

4.3 Psychological Support for Healthcare Workers

Healthcare workers involved in medical errors often become "second victims," experiencing guilt, psychological distress, and professional stigmatization. A non-punitive, supportive culture protects staff mental health and maintains workforce productivity. Research indicates that institutions with just culture principles experience lower staff turnover and higher job satisfaction (Weick & Sutcliffe, 2015) [19].

Strategies for building error reporting culture

Leadership Role and Commitment

Safety culture is established from the top down. Leadership teams must fulfill the following responsibilities:

Clear Policy Articulation. Establish explicit policies and objectives declaring patient safety as the organization's paramount value. This commitment must be consistently communicated and visibly prioritized in resource allocation decisions.

Resource Allocation. Provide adequate resources for error reporting systems, training programs, and analysis teams. This includes both financial resources and protected time for staff to participate in safety activities.

Role Modeling. Leaders must personally acknowledge their own errors and demonstrate commitment to system improvement principles. When executives model vulnerability and learning from mistakes, it creates

permission for all staff to do likewise.

Designing Reporting Systems

Accessible, User-Friendly Processes. Reporting mechanisms should be simple and require minimal time to complete. Modern technologies including online platforms and mobile applications can reduce reporting barriers.

Confidentiality Options. Providing options for anonymous or confidential reporting encourages participation, particularly in early implementation phases when trust is still developing.

Rapid Response. Every reported error should receive acknowledgment within 24-48 hours, with assignment of an analysis team. Timely responses demonstrate that reports are valued and acted upon.

Multiple Reporting Channels. Offer various reporting methods (electronic, paper-based, verbal) to accommodate different preferences and situations.

Training and Professional Development

Multi-Level Training. Implement error reporting culture training from orientation for new staff through executive leadership programs. Content should be tailored to each audience while maintaining consistent messaging.

Case-Based Learning. Organize training sessions analyzing real incidents. Collaborative analysis of what went wrong and how to prevent recurrence builds shared understanding and problem-solving capacity.

Continuous Development. Conduct refresher training 1-2 times annually to update knowledge and skills and reinforce cultural values.

Analysis and Improvement Mechanisms

Root Cause Analysis (RCA). When errors occur, conduct thorough investigation to identify system-level factors requiring modification. RCA should focus on underlying causes rather than proximate causes or individual actions.

Post-Event Debriefing. After serious incidents, convene multidisciplinary teams for comprehensive review. These debriefings should be psychologically safe spaces for open dialogue.

Improvement Planning. Based on analysis findings, develop specific action plans with assigned responsibilities, timelines, and monitoring mechanisms to ensure implementation.

Results Qualitative

i) Barriers and Solutions

Primary Barriers

Fear and Punitive Culture. Many organizations maintain traditions of punishing individuals who make errors, creating the most significant barrier. Staff fear job loss, professional discipline, and collegial judgment.

Limited Understanding of Reporting Value. Some staff view "minor" errors as not worth reporting. However, minor errors often signal latent system weaknesses that could lead to major incidents.

Time Constraints. In high-pressure clinical environments, staff struggle to find time for reporting. The perceived burden of documentation discourages participation.

Inadequate Response. When reported errors receive no response or visible action, staff become discouraged and cease reporting. This "black hole" phenomenon undermines reporting culture development.

Hierarchical Structures. Traditional medical hierarchies can inhibit junior staff from reporting errors involving senior clinicians.

Solutions and Interventions

Cultural Change Programs. Implement systematic, long-term programs to transform organizational culture. This process typically requires 3-5 years of sustained effort with consistent messaging and visible commitment.

Recognition and Rewards. Acknowledge and reward staff who report errors, highlighting their contributions to organizational learning and safety improvement. Public recognition of reporting as professional behavior changes cultural norms.

Feedback Mechanisms. Establish systems to communicate what actions resulted from reported errors and what improvements were implemented. "Closing the loop" demonstrates that reporting produces meaningful change.

Technological Support. Implement user-friendly software that streamlines the reporting process and reduces time burden. Mobile applications enable real-time reporting at the point of care.

Protected Time. Allocate dedicated time for safety activities, including reporting and participation in improvement initiatives.

International experience and best practices

Veterans Health Administration (VHA), United States

The VHA represents a successful example of error reporting culture development. Their approach included confidential, user-friendly reporting system; consistent support from all leadership levels; 90% of reports receive responses within seven days; and integration with electronic health records.

Consequently, they collect over one million reports annually and have achieved substantial safety improvements, including significant reductions in hospital-acquired infections and medication errors.

Denmark's "White Hand Movement"

Denmark implemented a program awarding "white hand" recognition to staff who report errors. This positive reinforcement approach increased error reporting by 300% and strengthened safety culture. The program explicitly celebrates reporting as professional behavior deserving recognition.

NHS Safety Thermometer, United Kingdom

The NHS employs the "Safety Thermometer" tool to measure safety indicators monthly across all facilities (NHS, 2019) [10]. This enables hospitals to track their progress and learn from peer institutions. The transparent sharing of safety data across the system accelerates learning and improvement.

Taiwan Patient Safety Reporting System

Taiwan's national reporting system demonstrates successful implementation in an Asian cultural context. They addressed concerns about "losing face" by emphasizing system learning over individual accountability and achieved high reporting rates through sustained cultural change

efforts.

Discussion - Implications for Mongolia

Cultural Context Considerations

Mongolia's cultural characteristics including collectivist values, traditional hierarchies, and communication patterns must inform error reporting system design. Emphasizing collaborative improvement rather than individual blame aligns with cultural values while advancing safety goals.

According to a 2021 Health Development Center study, less than half of Mongolian hospitals conduct regular training to enhance staff competencies in patient safety, indicating both a need and an opportunity for systematic improvement.

Phased Implementation Approach

Pilot Phase. Begin with small-scale, achievable initiatives: select one department or unit for initial implementation; develop local champions and success stories; document lessons learned and adjust approaches; and gradually expand to other areas based on demonstrated success.

Infrastructure Development. Leverage Mongolia's growing digital infrastructure to implement electronic reporting systems that can scale nationally.

National Learning Network

Establishing a national network for Mongolian hospitals to share experiences and learn from best practices could accelerate improvement while reducing costs. This collaborative approach would prevent duplication of effort and facilitate rapid diffusion of innovations.

Government Support and Policy Framework

Ministry of Health support through policy development, guidelines, and funding is essential. Creating legal and regulatory environments that support rather than punish error reporting is necessary for cultural change.

The 2019 Joint Order No. 116/A/565 by the Deputy Prime Minister and Minister of Health establishing "Quality Department Regulations" represents an important policy-level commitment to patient safety. The Health Development Center's 2017 research on "Error and Violation Registration and Information Systems in Healthcare Services" provided foundational evidence for policy development.

Building on these initiatives, Mongolia needs comprehensive policies that protect reporters from punitive action; mandate error reporting systems in all healthcare facilities; provide resources for implementation and training; and establish national standards for safety culture assessment.

Addressing Resource Constraints

Resource limitations present challenges but should not preclude action. Many effective interventions require minimal financial investment: changing leadership messaging and priorities (low cost); modifying existing meeting structures to include safety discussions (no cost); peer learning networks (minimal cost); and piloting in selected facilities before system-wide expansion (efficient use of resources).

Conclusions and Recommendations

Summary of Key Findings

Error reporting culture represents a foundational element of patient safety. It encompasses not merely systems and processes but organizational culture, human attitudes, and ethical considerations. Evidence consistently demonstrates that organizations with mature error reporting cultures achieve better patient outcomes, reduced costs, and improved staff satisfaction.

Essential Elements for Success

Successful implementation requires unwavering leadership commitment and visible support; just culture principles protecting reporters from punishment; accessible, user-friendly reporting systems; continuous training and capacity building; rapid, meaningful responses to reports; and integration with broader quality improvement initiatives.

Recommendations for Mongolia

Immediate Actions:

i) Develop national patient safety policy explicitly supporting error reporting culture
ii) Establish pilot programs in 3-5 tertiary hospitals
iii) Create national patient safety reporting system with standardized data collection
iv) Develop training curricula for healthcare leadership on just culture principles

Medium-Term Initiatives:

- Expand reporting systems to all secondary and tertiary hospitals
- Establish national patient safety learning network
- Implement routine safety culture assessments
- Develop Mongolian-language resources and training materials

Long-Term Goals

a) Achieve universal error reporting across all healthcare facilities
b) Integrate patient safety metrics into healthcare facility accreditation
c) Develop indigenous research capacity to study safety culture in Mongolian context
d) Contribute to regional and international patient safety knowledge

Future Research Directions

Further research is needed to develop culturally adapted safety culture assessment tools; evaluate effectiveness of different implementation strategies in resource-constrained settings; study the relationship between error reporting rates and patient outcomes in Mongolia; investigate barriers and facilitators specific to the Mongolian healthcare context; and examine the role of traditional healing practices and integrated medicine in safety culture.

Concluding Remarks

Patient safety represents a shared responsibility requiring collective commitment. Error reporting culture provides the critical mechanism for learning from mistakes and preventing future harm. For Mongolia, developing this culture requires sustained effort adapting international best practices to local contexts while building on existing policy

foundations.

The journey toward comprehensive error reporting culture is challenging but essential. Each error reported and addressed represents lives potentially saved and suffering prevented. In an era of increasing healthcare complexity and rising patient expectations, error reporting culture is not optional but imperative for healthcare organizations committed to excellence.

Conflict of Interest
Not available.

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