

# Assessing How Team Culture Shapes Clinical Audit Outcomes In Saudi MOH Healthcare Settings

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**Accepted: 15-08-2023**

**Published: 16-09-2023**

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## Abstract

Clinical audits are essential quality improvement mechanisms in healthcare systems worldwide, yet their effectiveness varies significantly across different institutional contexts. This article examines the critical role that team culture plays in determining clinical audit outcomes within Saudi Arabia's Ministry of Health (MOH) healthcare facilities. Drawing on contemporary implementation science and complexity theory frameworks, this analysis explores how organizational culture, leadership dynamics, and interprofessional relationships influence the translation of audit findings into meaningful quality improvements. The discussion encompasses the unique cultural, organizational, and systemic factors that characterize Saudi Arabia's rapidly evolving healthcare landscape within the context of the Kingdom's Vision 2030 healthcare transformation program. The article concludes with evidence-based recommendations for healthcare leaders and policymakers to foster team cultures that optimize clinical audit effectiveness, ensuring these quality improvement mechanisms fulfill their potential to enhance patient care across Saudi MOH settings.

**Keywords:** Clinical audit, quality improvement, team culture, Saudi healthcare, implementation science, healthcare transformation, organizational behavior, Vision 2030.

## Introduction

Clinical audits represent a cornerstone of healthcare quality improvement initiatives globally, providing structured methodologies for evaluating clinical practices against established standards and identifying areas for improvement (Dixon, 2021). However, the translation of audit findings into meaningful clinical improvements varies substantially across different healthcare settings, with implementation often falling short of expectations (Ivers et al., 2012).

Saudi Arabia's healthcare system is currently undergoing a profound transformation as part of Vision 2030, the Kingdom's ambitious reform program aimed at diversifying its economy and improving public service sectors (Alasiri & Mohammed, 2022). A key component of this transformation is the enhancement of healthcare quality and safety through robust governance mechanisms, including the systematic implementation of clinical audits across Ministry of Health (MOH) facilities (Health Sector Transformation Program, 2020). Despite significant investment in audit infrastructure and capacity building, the impact of these initiatives on clinical outcomes and organizational performance has been variable (Chowdhury et al., 2021).

A growing body of evidence suggests that the effectiveness of clinical audits depends not merely on their technical design and methodological rigor but critically on the cultural context in which they are implemented (Hut-Mossel et al., 2021). Team culture—encompassing shared values, beliefs, attitudes, and behavioral norms—significantly influences how healthcare professionals engage with audit processes, interpret findings, and implement changes (Dixon & Wellsted, 2019). In Saudi Arabia, where healthcare teams operate within a distinctive cultural, religious, and organizational environment, understanding these cultural dynamics becomes essential for optimizing audit outcomes.

This article examines how team culture shapes clinical audit outcomes in Saudi MOH healthcare settings, drawing on contemporary theoretical frameworks from implementation science, complexity theory, and organizational psychology. It analyzes the specific cultural, structural, and systemic factors that influence audit effectiveness within the Saudi context and offers evidence-based recommendations for cultivating team cultures that maximize the value of clinical audits as drivers of healthcare quality improvement.

## **Theoretical Frameworks for Understanding Clinical Audit Implementation**

### **Implementation Science Perspectives**

Implementation science provides valuable frameworks for understanding how evidence-based practices, including clinical audits, are adopted and integrated into routine healthcare delivery. Grol et al. (2013) identify multiple theoretical perspectives that explain implementation processes, ranging from individual cognitive-behavioral theories to organizational and systems approaches. Within Saudi healthcare settings, these diverse perspectives can help explain the variable uptake and impact of clinical audits across different facilities.

Davidoff et al. (2015) emphasize that explicit use of theory can enhance quality improvement initiatives by providing a framework for understanding how and why implementation succeeds or fails. They argue that theory helps "to describe and explain what influences implementation outcomes" and can guide the selection of implementation strategies. In the context of clinical audits, theoretical frameworks can illuminate the mechanisms through which team culture influences audit outcomes and identify potential intervention points for enhancing effectiveness.

The Consolidated Framework for Implementation Research (CFIR) offers a comprehensive structure for examining the multiple factors that influence implementation success, including intervention characteristics, outer setting, inner setting, characteristics of individuals, and implementation process (Springer et al., 2021). Within Saudi MOH settings, this framework helps to situate team culture (part of the inner setting) within the broader context of organizational structures, external policies, and individual provider characteristics that collectively shape audit outcomes.

### **Complexity Science and Systems Thinking**

Traditional linear approaches to understanding healthcare improvement have increasingly given way to complexity science perspectives, which recognize healthcare organizations as complex adaptive systems characterized by multiple interconnected elements, non-linear relationships, and emergent properties (Braithwaite et al., 2018). This perspective is particularly relevant for understanding clinical audit implementation in Saudi healthcare settings, where multiple systemic reforms are occurring simultaneously as part of Vision 2030.

Braithwaite et al. (2018) contrast mechanistic, pipeline models of implementation with complexity-informed approaches that acknowledge the dynamic, interconnected nature of healthcare systems. They argue that "construing healthcare as a complex adaptive system implies that getting evidence into routine practice through a step-by-step model is not feasible" (p. 1). Instead, implementation efforts must account for the dynamic properties of systems and the varying characteristics deeply embedded in social practices.

Applied to clinical audits in Saudi MOH settings, complexity science suggests that audit outcomes cannot be understood solely through analysis of the audit methodology or even team characteristics in isolation. Rather, audit effectiveness emerges from the interactions between multiple system elements, including team culture, leadership approaches, organizational structures, regulatory requirements, and broader societal influences.

### **Models of Quality Improvement Success**

The Model for Understanding Success in Quality (MUSIQ) developed by Kaplan et al. (2013) provides a specific framework for understanding how contextual factors, including team characteristics, influence quality improvement outcomes. The model identifies 25 key contextual factors across multiple levels (microsystem, macrosystem, and external environment) that affect improvement success, with team factors—including team diversity, norms, and relationships—playing a central role.

Dixon-Woods et al. (2011) offer complementary insights through their analysis of the Michigan Intensive Care Unit project, identifying six mechanisms that explain successful quality improvement: isomorphic pressures, resource mobilization, increasing the strength of the evidence base, creating a networked community, reframing the problem as a social problem with a social solution, and using multiple coordinated interventions. These mechanisms provide a framework for understanding how team culture interacts with broader organizational and systemic factors to influence audit outcomes.

Together, these theoretical frameworks provide a foundation for examining how team culture shapes clinical audit outcomes in Saudi MOH healthcare settings, recognizing the complex, multi-level nature of the implementation process and the importance of contextual factors in determining audit effectiveness.

### **Clinical Audit Landscape in Saudi Healthcare**

#### **Evolution of Quality Improvement in Saudi Healthcare**

Saudi Arabia's healthcare system has evolved significantly over recent decades, transitioning from a focus on expanding access to services toward an increasing emphasis on quality and patient safety (Memish et al., 2022). The establishment of the Saudi Central Board for Accreditation of Healthcare Institutions (CBAHI) in 2005 marked a significant milestone in this evolution, introducing standardized quality requirements across healthcare facilities (Alasiri & Mohammed, 2022). The subsequent development of the Saudi Patient Safety Center (SPSC) in 2017 further strengthened the Kingdom's quality infrastructure, providing a centralized mechanism for developing and implementing patient safety initiatives, including clinical audits (Chowdhury et al., 2021).

Vision 2030 has accelerated this focus on quality, positioning healthcare excellence as a central component of the Kingdom's transformation agenda. The Health Sector Transformation Program (2020) explicitly identifies quality improvement as a strategic priority, establishing targets for enhancing clinical outcomes, patient experience, and operational efficiency. Clinical audits are positioned as a key mechanism for measuring progress toward these targets and identifying areas for improvement.

#### **Current Clinical Audit Practices in MOH Settings**

The Saudi MOH has implemented various clinical audit programs across its facilities, ranging from mandatory national audits focused on high-priority clinical areas to local, facility-initiated audits addressing specific quality concerns (Chowdhury et al., 2021). These audits vary in methodology, scope, and implementation approach, reflecting the diverse nature of healthcare services and the evolving quality infrastructure.

National clinical audits in Saudi Arabia focus primarily on high-burden conditions aligned with the country's epidemiological profile, including cardiovascular disease, diabetes, cancer, and maternal-child health (Institute for Health Metrics and Evaluation, 2023). These audits typically follow a standardized methodology, with data collection protocols, analysis frameworks, and reporting templates developed by central MOH departments and disseminated to facilities for implementation.

In addition to these national programs, individual MOH facilities conduct local audits addressing specific quality concerns or clinical priorities. These audits vary considerably in methodological rigor, implementation approach, and follow-up processes, reflecting differences in facility resources, leadership commitment, and quality improvement capacity (Memish et al., 2022).

Despite this expanding audit landscape, challenges persist in maximizing the impact of these initiatives on clinical practice and patient outcomes. A key limitation identified in both international literature and Saudi-specific contexts is the gap between audit data collection and meaningful practice change (Alvarado et al., 2020; Chowdhury et al., 2021). This implementation gap reflects multiple factors, with team culture emerging as a critical determinant of whether audit findings translate into sustained quality improvements.

### **Methodological Frameworks for Clinical Audits**

The methodological rigor of clinical audits in Saudi MOH settings varies, reflecting the evolving nature of quality infrastructure and the diverse capacity of healthcare facilities. The Saudi MOH has increasingly adopted internationally recognized frameworks for clinical audit design and implementation, including methodologies aligned with the Healthcare Quality Improvement Partnership (HQIP) in the UK, which provides detailed guidance on audit design, data collection, analysis, and reporting (Healthcare Quality Improvement Partnership, 2023).

Dixon (2013) proposes standards for the design and conduct of national clinical audits that have influenced audit development in multiple contexts, including Saudi Arabia. These standards emphasize the importance of stakeholder engagement, methodological rigor, transparency, and actionability of findings—principles that are increasingly reflected in Saudi MOH audit programs.

The AGREE II Instrument (AGREE Collaboration, 2017) and AGREE-REX Reporting Checklist (AGREE-REX Research Team, 2019) provide frameworks for evaluating clinical practice guidelines that inform audit standards. These instruments emphasize domains including scope and purpose, stakeholder involvement, rigor of development, clarity of presentation, applicability, and editorial independence—principles that apply equally to the development of clinical audit criteria and standards.

Similarly, the GRADE approach (Schünemann et al., 2013) offers a systematic method for rating the quality of evidence and strength of recommendations, providing a framework for establishing evidence-based audit standards and interpreting findings in light of the underlying evidence quality.

While these methodological frameworks provide valuable guidance for clinical audit design and implementation, their effectiveness ultimately depends on how they are applied within specific organizational contexts. Team culture significantly influences how these frameworks are interpreted, adapted, and implemented, highlighting the importance of understanding the cultural dynamics that shape audit outcomes in Saudi MOH settings.

### **The Role of Team Culture in Clinical Audit Effectiveness**

#### **Defining Team Culture in Healthcare Settings**

Team culture in healthcare settings encompasses the shared values, beliefs, attitudes, and behavioral norms that characterize interprofessional teams (Montgomery et al., 2020). This culture shapes how team members interact, make decisions, respond to challenges, and engage with quality improvement initiatives, including clinical audits. In Saudi MOH facilities, team culture is influenced by multiple factors, including professional training, organizational leadership, regulatory requirements, and broader societal and religious values.

Montgomery et al. (2020) introduce the concept of "team capital" to describe the resources that quality improvement teams can draw upon to achieve their goals. This capital includes not only technical knowledge and skills but also social relationships, communication patterns, and shared understanding of quality improvement methods. Teams with strong team capital demonstrate characteristics including psychological safety, shared purpose, role clarity, and effective boundary-spanning relationships—attributes that significantly influence audit effectiveness.

In Saudi healthcare settings, team culture is additionally shaped by the multicultural nature of the healthcare workforce, with professionals from diverse national, cultural, and educational backgrounds working together in MOH facilities (Chowdhury et al., 2021). This diversity creates both opportunities and challenges for clinical audit implementation, potentially enriching problem-solving approaches while also requiring careful attention to communication patterns and shared understanding of quality improvement methodologies.

### **Cultural Elements That Influence Audit Engagement**

Several specific elements of team culture significantly influence how healthcare professionals engage with clinical audits in Saudi MOH settings:

1. **Attitudes toward measurement and evaluation:** Teams vary in their receptivity to performance measurement and external evaluation, with some embracing these processes as opportunities for learning and improvement, while others perceive them as threatening or punitive (Hut-Mossel et al., 2021). In Saudi healthcare contexts, where quality measurement systems are still evolving, cultivating a positive orientation toward measurement and evaluation is essential for effective audit implementation.
2. **Psychological safety:** Psychological safety—the shared belief that team members can speak up, ask questions, and acknowledge mistakes without fear of negative consequences—significantly influences audit engagement (Dixon & Wellsted, 2019). Teams with high psychological safety are more likely to engage honestly with audit findings, acknowledge areas for improvement, and implement meaningful changes.
3. **Professional hierarchies:** Traditional hierarchical structures within healthcare teams can impede effective audit implementation by limiting open communication and collaborative problem-solving (O'Leary et al., 2019). In Saudi healthcare settings, where hierarchical relationships may be reinforced by cultural norms around authority and deference, addressing these dynamics is crucial for creating environments where all team members can contribute to audit processes.
4. **Improvement orientation:** Teams vary in their orientation toward continuous improvement, with some demonstrating a proactive commitment to enhancing care quality, while others adopt a more reactive stance, focusing primarily on compliance with minimum standards (Mondoux & Shojania, 2019). Cultivating an improvement orientation that goes beyond compliance is essential for maximizing the value of clinical audits.
5. **Collective efficacy:** Teams' shared belief in their ability to implement changes and improve performance—their collective efficacy—significantly influences how they respond to audit findings (Dixon & Wellsted, 2019). Teams with strong collective efficacy are more likely to translate audit recommendations into practice changes, even when faced with implementation challenges.

These cultural elements interact with one another and with broader organizational and systemic factors to shape audit engagement and outcomes. Understanding these interactions is essential for developing effective strategies to enhance audit impact in Saudi MOH settings.

### **Mechanisms Through Which Culture Influences Audit Outcomes**

Team culture influences clinical audit outcomes through multiple mechanisms, operating across the audit cycle from initial design to implementation of recommendations:

1. **Shaping data quality and validity:** Team culture influences the accuracy and completeness of audit data collection, with more engaged teams demonstrating greater commitment to thorough documentation and honest reporting (Alvarado et al., 2020). In Saudi MOH settings, where data systems and documentation practices continue to evolve, team commitment to data quality is particularly important for ensuring valid audit findings.
2. **Influencing interpretation of findings:** Teams interpret audit findings through cultural lenses that shape how they attribute performance gaps, assess their significance, and identify potential solutions (McVey et al., 2021). Teams with a blame-oriented culture may focus on individual failures, while those with a systems perspective recognize the complex factors contributing to performance issues.
3. **Determining responsiveness to recommendations:** Team culture significantly influences whether and how audit recommendations are implemented, with more cohesive, improvement-oriented teams demonstrating greater responsiveness to suggested changes (Dixon, 2021). This responsiveness is mediated by factors including leadership support, resource availability, and competing priorities.
4. **Supporting sustainability of improvements:** Sustainable improvements resulting from clinical audits depend on team culture elements including commitment to continuous improvement, adaptability, and resilience in the face of changing conditions (Keenan, 2023). Teams that integrate improvement into their ongoing practice, rather than treating audits as isolated events, demonstrate more sustained enhancements in care quality.
5. **Facilitating learning and capacity development:** Team culture shapes whether audit experiences contribute to organizational learning and development of quality improvement capacity (O'Leary et al., 2019). Teams with a learning orientation leverage audit processes not only to address specific performance gaps but also to enhance their broader capability for continuous improvement.

Understanding these mechanisms provides insight into how team culture can be leveraged to enhance clinical audit effectiveness in Saudi MOH settings, moving beyond technical aspects of audit design to address the social and cultural factors that determine whether audits drive meaningful improvements in care quality.

## **Saudi-Specific Cultural and Organizational Factors**

### **Influence of Saudi National Culture on Healthcare Teams**

Saudi national culture exerts significant influence on healthcare team dynamics and quality improvement processes, including clinical audits. This influence operates through multiple dimensions, including values related to authority, communication patterns, gender roles, and approaches to uncertainty and change.

Saudi society has traditionally emphasized respect for authority, hierarchical relationships, and collective rather than individual decision-making (Alasiri & Mohammed, 2022). These cultural orientations can influence audit implementation in various ways. Respect for authority may enhance compliance with audit requirements when these are mandated by senior leadership but may also limit open discussion of performance issues or challenges to established practices. Collective decision-making approaches can facilitate team-based quality improvement but may extend timeframes for implementing changes if consensus-building processes are lengthy.

Religious values play a central role in Saudi society and healthcare system, influencing ethical frameworks, patient-provider relationships, and organizational practices (Memish et al., 2022). These values can strengthen commitment to quality improvement as an ethical imperative while also shaping how specific clinical practices are evaluated and improved.

Gender dynamics in Saudi healthcare are evolving, with increasing participation of Saudi women in healthcare professions and leadership roles (Alasiri & Mohammed, 2022). These changing dynamics influence team composition, communication patterns, and collaborative practices, with implications for how teams engage with clinical audit processes.

Understanding these cultural influences is essential for developing culturally appropriate approaches to enhancing audit effectiveness. Rather than viewing cultural factors as barriers to be overcome, effective approaches recognize cultural strengths that can be leveraged to support quality improvement while sensitively addressing aspects of culture that may limit audit impact.

### **MOH Organizational Structures and Leadership Approaches**

The Saudi MOH's organizational structure and leadership approaches significantly influence how clinical audits are implemented and their impact on healthcare quality. The MOH has historically operated as a centralized system, with policies, programs, and quality standards developed at the national level and implemented through regional and facility-level structures (Chowdhury et al., 2021). This centralized approach provides consistency but may limit local adaptation and ownership of quality improvement initiatives, including clinical audits.

Vision 2030 healthcare reforms include significant changes to governance structures, with increased autonomy for healthcare clusters and facilities, accompanied by enhanced accountability for performance (Health Sector Transformation Program, 2020). These structural changes create both opportunities and challenges for clinical audit implementation, potentially enabling greater local responsiveness while requiring development of quality improvement capacity at multiple organizational levels.

Leadership approaches within MOH facilities vary considerably, reflecting differences in leader backgrounds, training, and organizational contexts. Leaders significantly influence team culture through their communication patterns, decision-making approaches, and demonstrated commitment to quality improvement (O'Leary et al., 2019). Leaders who prioritize quality, engage actively with audit findings, allocate resources for improvement initiatives, and model learning-oriented responses to performance gaps foster team cultures that maximize audit impact.

Professional development programs for MOH leaders increasingly incorporate quality improvement methodologies and change management approaches, enhancing leaders' capability to foster team cultures conducive to effective clinical audit implementation (Memish et al., 2022). These programs represent an important investment in developing the leadership capacity necessary for translating Saudi Arabia's quality ambitions into improved patient outcomes.

### **Impact of Vision 2030 Healthcare Transformation**

Vision 2030's healthcare transformation program introduces significant changes to Saudi healthcare governance, financing, and delivery models, with profound implications for clinical audit implementation and effectiveness (Alasiri & Mohammed, 2022). Key aspects of this transformation that influence audit outcomes include:

1. **Enhanced performance measurement and accountability:** Vision 2030 introduces more robust performance measurement frameworks, with healthcare providers increasingly accountable for clinical outcomes, patient experience, and operational efficiency (Health Sector Transformation Program, 2020). This increased accountability creates incentives for engaging meaningfully with clinical audits as tools for performance improvement.
2. **Workforce development initiatives:** Vision 2030 includes substantial investments in healthcare workforce development, enhancing clinical and quality improvement skills among Saudi healthcare professionals (Chowdhury et al., 2021). These investments strengthen the capability of healthcare teams to implement effective clinical audits and respond appropriately to findings.

3. **Digital transformation:** Vision 2030 accelerates digital transformation in Saudi healthcare, with expanded implementation of electronic health records, clinical decision support systems, and data analytics capabilities (Alasiri & Mohammed, 2022). These technological advancements enhance the efficiency and accuracy of data collection for clinical audits, potentially reducing the burden on healthcare teams and improving data quality.
4. **Restructured care delivery models:** Vision 2030 introduces new care delivery models, including enhanced primary care, integrated care pathways, and value-based healthcare approaches (Health Sector Transformation Program, 2020). These models create opportunities for clinical audits focused on care coordination, patient outcomes, and value for patients, expanding beyond traditional process-focused audits.
5. **Private sector engagement:** Vision 2030 increases private sector participation in healthcare delivery and financing, creating a more diverse provider landscape (Chowdhury et al., 2021). This diversity introduces different organizational cultures and quality improvement approaches, potentially enriching the clinical audit landscape while also requiring mechanisms for ensuring consistency in audit standards and methodologies.

These transformation initiatives create a dynamic environment for clinical audit implementation, with evolving structures, processes, and expectations. Team cultures that embrace change, demonstrate adaptability, and maintain focus on patient-centered quality improvement are particularly valuable in this context of ongoing transformation.

## **Empirical Evidence on Team Culture and Audit Outcomes**

### **International Evidence on Cultural Factors**

International research provides substantial evidence on the relationship between team culture and clinical audit outcomes, offering insights relevant to the Saudi context. A systematic realist review by Hut-Mossel et al. (2021) identified multiple cultural and contextual factors that influence audit effectiveness, including leadership support, staff engagement, psychological safety, and improvement orientation. The review found that audits are most effective when embedded within supportive organizational cultures that value improvement and learning rather than focusing primarily on compliance and accountability.

Dixon and Wellsted (2019) examined the effects of team-based quality improvement learning on two teams providing dementia care, finding that teams with stronger collaborative cultures, characterized by mutual respect, shared goals, and effective communication, demonstrated greater improvements following audit participation. They identified psychological safety as a particularly important cultural attribute, enabling team members to engage honestly with performance data and contribute to improvement efforts.

A Cochrane systematic review by Ivers et al. (2012) analyzed the effects of audit and feedback on professional practice and healthcare outcomes, finding moderate positive effects overall but substantial variation in effectiveness across different contexts. The review identified factors that enhanced audit impact, including provision of feedback from a respected source, repeated feedback over time, explicit targets, and action plans—factors that align with cultural attributes including respect for expertise, commitment to ongoing improvement, goal orientation, and pragmatic problem-solving.

O'Leary et al. (2019) studied the immediate and long-term effects of team-based quality improvement training, finding that training enhanced team culture elements including collaboration, communication, and shared commitment to improvement, which in turn supported more effective quality improvement implementation. Their findings highlight the potential for targeted interventions to enhance team culture attributes that support effective clinical audit implementation.

These international findings provide valuable insights for understanding how team culture influences audit outcomes in Saudi MOH settings, while recognizing the need to consider contextual differences that may affect the applicability of specific findings to the Saudi healthcare environment.



## Case Studies from Saudi Healthcare Settings

While research specifically examining the relationship between team culture and clinical audit outcomes in Saudi healthcare settings remains limited, emerging case studies provide valuable insights into how cultural factors influence audit effectiveness in the Saudi context.

A case study of diabetes care improvement in a large MOH hospital in Riyadh documented how team culture factors including leadership commitment, interdisciplinary collaboration, and patient-centered orientation contributed to successful implementation of audit-based improvements (Chowdhury et al., 2021). The case highlighted how the team's shared commitment to evidence-based practice and patient outcomes helped overcome initial resistance to change and supported sustained improvements in diabetes care processes and outcomes.

Another case study examining maternal health audits across multiple MOH facilities identified significant variation in audit effectiveness, with team culture emerging as a key explanatory factor (Alasiri & Mohammed, 2022). Facilities with more collaborative interprofessional relationships, flatter hierarchies, and stronger improvement orientation demonstrated more substantial improvements following audit implementation, despite similar audit methodologies and resources across sites.

A quality improvement initiative focused on medication safety in MOH hospitals revealed how team culture influenced both data quality and response to audit findings (Memish et al., 2022). Teams with higher psychological safety reported more medication incidents, enabling more comprehensive identification of improvement opportunities, while teams with stronger collective efficacy implemented more substantial changes in response to audit findings.

These case studies highlight how team culture influences clinical audit outcomes in Saudi MOH settings, while also demonstrating the potential for culturally sensitive quality improvement approaches to enhance audit effectiveness even within traditional organizational structures.

## Emerging Patterns and Lessons

Analysis of both international evidence and Saudi-specific case studies reveals several consistent patterns regarding the relationship between team culture and clinical audit outcomes:

1. **Leadership as a cultural catalyst:** Leadership approaches significantly influence team culture and, consequently, audit effectiveness, with leaders who demonstrate commitment to improvement, engage personally with audit processes, and model learning-oriented responses to performance gaps fostering cultures conducive to effective audit implementation (O'Leary et al., 2019; Memish et al., 2022).
2. **Interprofessional dynamics as determinants of engagement:** The nature of relationships between different professional groups within healthcare teams—particularly between physicians, nurses, and allied health professionals—significantly influences audit engagement and implementation of recommendations, with more collaborative, mutually respectful relationships supporting more effective audit processes (Dixon & Wellsted, 2019; Alasiri & Mohammed, 2022).
3. **Data trust as a cultural prerequisite:** Trust in the validity, relevance, and fairness of audit data emerges as an important cultural prerequisite for effective audit implementation, with teams that question data quality or perceive data as threatening demonstrating limited engagement with audit findings (Alvarado et al., 2020; Chowdhury et al., 2021).
4. **Improvement capability as a mediating factor:** Teams' capability for quality improvement—including knowledge of improvement methodologies, change management skills, and experience with improvement initiatives—mediates the relationship between culture and audit outcomes, with greater capability enhancing teams' ability to translate cultural strengths into effective improvement actions (Kaplan et al., 2013; Memish et al., 2022).

5. **Alignment with broader organizational priorities:** The alignment of clinical audits with broader organizational priorities and values significantly influences their perceived legitimacy and the resources allocated for implementation, with greater alignment supporting more robust audit processes and outcomes (Hut-Mossel et al., 2021; Health Sector Transformation Program, 2020).

These patterns highlight the complex, multi-level nature of the relationship between team culture and clinical audit outcomes, emphasizing the need for comprehensive approaches that address cultural factors at team, organizational, and system levels to maximize audit effectiveness in Saudi MOH settings.

## **Strategies for Enhancing Team Culture to Optimize Audit Outcomes**

### **Leadership Development for Cultural Transformation**

Enhancing leadership capacity represents a high-leverage strategy for fostering team cultures that optimize clinical audit outcomes in Saudi MOH settings. Effective approaches to leadership development in this context include:

1. **Cultivating transformational leadership attributes:** Training programs that develop transformational leadership attributes—including inspirational motivation, intellectual stimulation, individualized consideration, and idealized influence—can enhance leaders' ability to foster team cultures that support effective clinical audit implementation (O'Leary et al., 2019). These programs should be contextualized to address the specific leadership challenges within Saudi healthcare settings.
2. **Building quality improvement knowledge and skills:** Enhancing leaders' understanding of quality improvement methodologies, including clinical audit design, implementation, and evaluation, strengthens their ability to guide teams through the audit process and translate findings into meaningful improvements (Dixon, 2021). This knowledge development should address both technical aspects of quality improvement and approaches to fostering improvement-oriented team cultures.
3. **Developing cultural intelligence:** In Saudi MOH settings, where healthcare teams often include professionals from diverse cultural backgrounds, developing leaders' cultural intelligence—their capability to function effectively in culturally diverse contexts—enhances their ability to foster cohesive team cultures that leverage this diversity as a strength (Chowdhury et al., 2021).
4. **Promoting distributed leadership approaches:** Developing leadership capacity at multiple organizational levels, rather than concentrating it exclusively in formal leadership positions, creates a broader foundation for fostering improvement-oriented team cultures (Montgomery et al., 2020). This distributed approach aligns with Vision 2030's emphasis on developing Saudi healthcare leaders at all levels of the system.
5. **Modeling reflective practice:** Leadership development programs that promote reflective practice—systematic reflection on experiences to derive learning and improve future performance—enhance leaders' ability to model learning-oriented responses to audit findings and performance gaps (Davidoff et al., 2015).

These leadership development approaches should be integrated into broader capacity-building initiatives within Saudi MOH settings, ensuring alignment with Vision 2030 healthcare transformation objectives while addressing the specific cultural and organizational factors that influence leadership effectiveness in this context.

### **Team-Based Interventions to Enhance Cultural Elements**

In addition to leadership development, specific team-based interventions can enhance cultural elements that support effective clinical audit implementation:

1. **Team training in quality improvement methodologies:** Structured training programs that develop team capabilities in quality improvement methodologies, including clinical audit design, data analysis, and implementation of improvements, enhance teams' ability to engage effectively with audit processes (O'Leary et al., 2019). These programs should emphasize both technical skills and cultural attributes such as improvement orientation and psychological safety.
2. **Interprofessional education and collaboration initiatives:** Programs that bring together professionals from different disciplines to learn together, develop shared understanding, and strengthen collaborative relationships enhance team cohesion and reduce hierarchical barriers that may limit audit effectiveness (Dixon & Wellsted, 2019). In Saudi MOH settings, these initiatives should be designed to respect cultural norms while promoting effective interprofessional collaboration.
3. **Team reflection and learning sessions:** Structured opportunities for teams to reflect on audit experiences, share insights, and identify learning can strengthen improvement orientation and collective efficacy (Davidoff et al., 2015). These sessions should be facilitated in ways that promote psychological safety and meaningful engagement from all team members.
4. **Simulation-based team training:** Simulation exercises that allow teams to practice responding to audit findings, developing improvement plans, and implementing changes in a safe environment can enhance team capabilities while strengthening cultural elements including collaboration, communication, and problem-solving (O'Leary et al., 2019).
5. **Appreciative inquiry approaches:** Approaches based on appreciative inquiry principles, which focus on identifying and building upon strengths rather than exclusively addressing deficits, can foster positive team cultures that support effective quality improvement (Hut-Mossel et al., 2021). These approaches align with cultural preferences for positive framing while still enabling substantive improvement.

These team-based interventions should be tailored to the specific cultural and organizational contexts of Saudi MOH facilities, recognizing variations in team composition, professional mix, and existing quality improvement capacity across different settings.

### **Structural and Procedural Enablers of Positive Audit Culture**

Beyond leadership development and team-based interventions, structural and procedural factors can enable and reinforce positive team cultures for clinical audit implementation:

1. **Clear governance structures and roles:** Establishing clear governance structures for clinical audit programs, with defined roles and responsibilities at different organizational levels, provides a framework for effective audit implementation while clarifying expectations and accountability (Dixon, 2013). These structures should balance centralized direction with local ownership and adaptation.
2. **Protected time and resources for audit activities:** Allocating protected time and adequate resources for audit participation, analysis of findings, and implementation of improvements signals organizational commitment to the audit process and enables meaningful team engagement (Hut-Mossel et al., 2021). This resource allocation is particularly important in Saudi MOH settings where competing priorities may constrain time for quality improvement activities.
3. **Integration of audit processes with broader quality systems:** Integrating clinical audits with broader quality management systems, including accreditation processes, incident reporting systems, and performance measurement frameworks, reduces duplication of effort and strengthens the perceived legitimacy of audit processes (Healthcare Quality Improvement Partnership, 2023).

4. **Transparent feedback mechanisms:** Developing transparent mechanisms for communicating audit findings to teams, with appropriate contextualization and explanation, enhances engagement and reduces defensive responses (Alvarado et al., 2020). These mechanisms should consider cultural preferences for communication while ensuring that performance issues are addressed honestly and constructively.
5. **Recognition and celebration of improvements:** Creating mechanisms to recognize and celebrate improvements resulting from clinical audits reinforces improvement-oriented team cultures and sustains motivation for ongoing engagement with audit processes (Keenan, 2023). Recognition approaches should align with cultural values while acknowledging both individual and collective contributions to improvement.

These structural and procedural enablers provide the organizational foundation for developing and sustaining team cultures that optimize clinical audit outcomes, complementing the leadership and team-focused interventions discussed previously.

### **Aligning with Vision 2030 Healthcare Transformation**

Strategies for enhancing team culture to optimize audit outcomes should align with the broader Vision 2030 healthcare transformation agenda, leveraging reform momentum to support cultural development:

1. **Connecting audit activities to Vision 2030 priorities:** Explicitly connecting clinical audit programs to Vision 2030 healthcare priorities enhances their perceived legitimacy and importance, potentially increasing team engagement and organizational support (Health Sector Transformation Program, 2020). This connection should emphasize how effective audits contribute to key transformation objectives including quality enhancement, patient-centeredness, and value for money.
2. **Leveraging digital transformation initiatives:** Utilizing digital tools and platforms developed as part of Vision 2030's digital transformation to streamline audit data collection, analysis, and feedback reduces burden on clinical teams and enables more real-time engagement with performance data (Alasiri & Mohammed, 2022).
3. **Integrating audit capabilities into workforce development:** Incorporating clinical audit knowledge and skills into broader workforce development initiatives ensures that Saudi healthcare professionals develop the capabilities needed for effective audit participation as part of their professional growth (Chowdhury et al., 2021).
4. **Harnessing cluster governance structures:** Utilizing the new healthcare cluster governance structures established through Vision 2030 to develop coordinated, system-level approaches to clinical audit implementation that balance standardization with local adaptation (Health Sector Transformation Program, 2020).
5. **Connecting with research and innovation initiatives:** Establishing links between clinical audit programs and Vision 2030's healthcare research and innovation initiatives creates opportunities for developing and testing innovative approaches to audit implementation and evaluating their impact on team culture and clinical outcomes (Memish et al., 2022).

This alignment with Vision 2030 positions clinical audit enhancement as an integral component of Saudi Arabia's healthcare transformation, rather than a separate initiative, potentially increasing its visibility, resources, and sustainability while contributing to broader system improvement objectives.

### **Conclusion and Recommendations**

#### **Summary of Key Insights**

This analysis has explored how team culture shapes clinical audit outcomes in Saudi MOH healthcare settings, examining theoretical frameworks, contextual factors, empirical evidence, and potential enhancement strategies. Several key insights emerge from this examination:

1. Clinical audit effectiveness depends not merely on technical design but critically on the cultural context in which audits are implemented, with team culture significantly influencing how healthcare professionals engage with audit processes and respond to findings.
2. Team culture elements including psychological safety, improvement orientation, interprofessional relationships, attitudes toward measurement, and collective efficacy shape audit outcomes through mechanisms including data quality, interpretation of findings, responsiveness to recommendations, sustainability of improvements, and organizational learning.
3. Saudi-specific cultural and organizational factors—including national cultural attributes, MOH organizational structures, leadership approaches, and Vision 2030 healthcare transformation initiatives—create a distinctive context for clinical audit implementation that requires culturally appropriate approaches to enhancing audit effectiveness.
4. International evidence and Saudi-specific case studies reveal consistent patterns regarding the relationship between team culture and audit outcomes, with leadership approaches, interprofessional dynamics, data trust, improvement capability, and alignment with organizational priorities emerging as particularly influential factors.
5. Strategies for enhancing team culture to optimize audit outcomes include leadership development, team-based interventions, structural and procedural enablers, and alignment with Vision 2030 healthcare transformation initiatives, with these approaches requiring careful adaptation to the Saudi context.

These insights highlight the complex, multi-level nature of the relationship between team culture and clinical audit outcomes in Saudi MOH settings, emphasizing the need for comprehensive, culturally sensitive approaches to maximizing audit effectiveness as a driver of healthcare quality improvement.

### Recommendations for Healthcare Leaders and Policymakers

Based on the analysis presented in this article, several recommendations emerge for healthcare leaders and policymakers seeking to enhance clinical audit effectiveness through cultural development:

1. **Develop a national framework for clinical audit implementation** that incorporates cultural and contextual factors alongside methodological guidance, providing a comprehensive approach that supports effective audit design, implementation, and evaluation across diverse MOH settings.
2. **Invest in leadership development programs** focused specifically on cultivating leadership capabilities for fostering improvement-oriented team cultures, integrating these programs with broader leadership development initiatives within the Vision 2030 framework.
3. **Establish communities of practice** for clinical audit implementation, bringing together professionals from different MOH facilities to share experiences, insights, and effective practices for enhancing audit impact through cultural development.
4. **Incorporate team culture assessment** into clinical audit evaluation frameworks, measuring cultural attributes alongside more traditional process and outcome metrics to develop a more comprehensive understanding of audit effectiveness and identify opportunities for enhancement.
5. **Develop culturally appropriate psychological safety interventions** tailored to the Saudi healthcare context, addressing specific barriers to open communication and honest engagement with performance data while respecting cultural norms and values.
6. **Create recognition mechanisms** that celebrate teams demonstrating effective audit implementation and resulting improvements in care quality, reinforcing positive cultural attributes while sharing successful approaches across the MOH system.

7. **Integrate clinical audit training** into professional education programs for Saudi healthcare professionals, ensuring that future clinicians develop both the technical skills and cultural orientations needed for effective audit participation throughout their careers.
8. **Conduct research on team culture and audit outcomes** in Saudi MOH settings, building a stronger evidence base regarding effective approaches to cultural development and their impact on audit effectiveness in this specific context.

These recommendations provide a starting point for concerted efforts to enhance clinical audit effectiveness through cultural development, contributing to Vision 2030's broader objectives for healthcare quality improvement and system transformation.

### Future Directions for Research and Practice

This analysis highlights several priority areas for future research and practice development regarding team culture and clinical audit outcomes in Saudi MOH settings:

1. **Develop and validate assessment tools** for measuring team culture attributes specifically related to audit effectiveness in Saudi healthcare contexts, enabling more systematic evaluation and monitoring of cultural development over time.
2. **Conduct comparative studies** examining variations in team culture and audit outcomes across different MOH facilities, identifying factors that explain these variations and informing more targeted approaches to cultural enhancement.
3. **Design and evaluate intervention programs** aimed at developing specific team culture attributes that support effective audit implementation, generating evidence regarding what approaches work, for whom, and in what circumstances within the Saudi context.
4. **Explore the relationship between national culture and team culture** in Saudi healthcare settings, developing deeper understanding of how broader cultural values influence team dynamics and identifying approaches that work with rather than against these cultural patterns.
5. **Investigate the impact of Vision 2030 transformation initiatives** on team culture and audit outcomes, examining how structural and governance changes influence cultural dynamics and identifying opportunities to leverage these changes to enhance audit effectiveness.
6. **Develop implementation frameworks** that integrate complexity science perspectives with practical guidance for enhancing team culture in the context of clinical audit implementation, recognizing the dynamic, non-linear nature of cultural change in complex adaptive systems.

These future directions offer opportunities to develop both theoretical understanding and practical approaches to enhancing the relationship between team culture and clinical audit outcomes in Saudi MOH settings, contributing to the Kingdom's ambitious agenda for healthcare transformation and quality improvement.

In conclusion, team culture plays a critical role in determining clinical audit outcomes in Saudi MOH healthcare settings, influencing whether these quality improvement mechanisms fulfill their potential to enhance patient care. By understanding the cultural dynamics that shape audit effectiveness and implementing culturally appropriate strategies to foster supportive team cultures, Saudi healthcare leaders and policymakers can maximize the value of clinical audits as drivers of healthcare excellence, contributing to the achievement of Vision 2030's ambitious healthcare transformation objectives.

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