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BARRIERS TO EFFECTIVE CLINICAL AUDIT PRACTICE AMONG MEDICAL OFFICERS AND TRAINEES IN MARDAN MEDICAL COMPLEX

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ABSTRACT
Background: Clinical audit is an essential element in clinical governance and quality improvement, but its effective use in most healthcare environments, especially through frontline clinicians, is difficult.
Method: This cross-sectional descriptive study was carried out at a tertiary care teaching hospital between January and June 2025 to identify the barriers that affected the clinical audit practice among medical officers and postgraduate trainees. The structured self-administered questionnaire was used to gather data on the awareness of clinical audit, previous experience, and perceived organizational, resource-related, governance, and professional barriers. The analysis involved 50 completed questionnaires, which were analysed using descriptive statistics. Respondents were aware of clinical audit (58.0), 60.0% had already performed an audit, and 62.0% had undergone formal audit training. The main barriers that were identified were lack of protection of time (46.0%), lack of clerical support (56.0%), lack of access to clinical data (58.0%), fear of litigation (58.0%), financial constraint (58.0%), and absence of formal audit governance structures (66.0%). Only less than half of the participants were confident that audit results would be received or taken action. Nevertheless, 66.0% and 52.0% of participants reported collegial cooperation and interest in conducting audits, respectively.
Results: The results imply that effective and sustainable clinical audit practice can be improved by institutional support, audit governance, training, and development of a non-punitive audit culture.
Graphical Abstract:

KEYWORDS: Clinical audit; Quality improvement; Medical officers; Postgraduate trainees; Healthcare governance

1.INTRODUCTION

Clinical audit is commonly considered as one of the pillars of healthcare quality assurance and clinical governance. It can be defined as a formal and organized procedure of comparing clinical practice to explicit standards to achieve better outcomes in patient care and clinical outcomes (Healthcare Quality Improvement Partnership, 2020; NICE, 2020). Clinical audit is fundamentally different from clinical research because it does not aim to develop new knowledge but, instead, to improve the existing practice by identifying the shortcomings, changing the practice, and evaluating the performance

through the continuous quality improvement cycle (Foy et al., 2020; van der Veer et al., 2020). The process of topic selection, the standards, data collection, data analysis, change implementation, and reaudit make the established audit cycle an iterative framework that ensures accountability, reflective practice, and ongoing clinical improvement (Healthcare Quality Improvement Partnership, 2020; NICE, 2020).

Clinical audit has increasingly been recognized as a powerful tool for improving patient safety, professional responsibility, and healthcare overall performance in the past decades across countries. Systematic reviews and large-scale studies have shown that the implementation of structured audit and feedback interventions is linked to increased adherence to evidence-based clinical guidelines, less unnecessary clinical practice variation, and quantifiable patient outcome improvements (Foy et al., 2020; Ivers et al., 2025; van der Veer et al., 2020). Moreover, audit practices lead to the enhancement of multidisciplinary collaboration and facilitate the creation of a culture of continuous learning and quality improvement in healthcare organizations (Healthcare Quality Improvement Partnership, 2022; Elizalde et al., 2024). Nevertheless, the success of clinical audit relies on the facilitating factors, which include dedicated leadership, audit methodology formal training, legally protected audit time, access to quality clinical information, and long-term commitment of the organization to quality improvement initiatives (Healthcare Quality Improvement Partnership, 2020; Elizalde et al., 2024).

Irrespective of its documented advantages, clinical audit implementation is not universal in healthcare systems. Recent literature recognizes several systemic obstacles to effective audit practice, such as heavy clinical workloads, limited knowledge of audit principles, insufficient data gathering and health information systems, poor feedback systems, and the lack of organized audit governance systems (Elizalde et al., 2024; Healthcare Quality Improvement Partnership, 2022). Such problems tend to result in the incompleteness of audit cycles, a lack of translation of audit findings into clinical practice, and demotivation of healthcare professionals, which decreases the overall effectiveness of audit as a quality improvement tool (Foy et al., 2020; Ivers et al., 2025).

The issues related to clinical audit in low and middle-income nations like Pakistan are further compounded by additional systemic limitations. Healthcare facilities often work in the framework of scarce financial resources, inadequate health information systems, and a lack of administrative focus on audit and quality enhancement efforts (Ahmed et al., 2024a; Malik et al., 2021; Ahmed et al., 2024b). Clinical audit is mostly viewed as a legislative or scholarly mandate, instead of an intrinsic process of enhancing patient safety and service provision in most environments (Ajaz et al., 2023). The medical officers and postgraduate trainees form the main workforce that takes care of patients in the teaching hospitals, and therefore, their participation in the audit activities should play a central role. Nevertheless, their participation is frequently limited by a lack of awareness of audit procedures, formal training, insufficient supervision, and insecure time on audit-related tasks (Ahmed et al., 2024a; Ajaz et al., 2023).

The Pakistan Medical and Dental Council has acknowledged the role of clinical audit in enhancing quality and accountability and has highlighted the need to include audit and quality improvement activities in postgraduate medical education and institutional governance systems (Pakistan Medical and Dental Council, 2023). These guidelines are intended to promote reflective practice, enhance professional accountability, and enhance patient safety outcomes. However, the current data indicate that the adoption of the systematic audit activity within teaching hospitals in Pakistan is inconsistent and often inefficient, which creates a significant discrepancy between the policy results and the conducted practice (Ahmed et al., 2024a; Ajaz et al., 2023,Mushtaq & Zaman, 2025).

At MMC, which is a tertiary care teaching institution, medical officers and postgraduate trainees have both patient management and an academic role to play. Their involvement in clinical audit is fundamental in identifying gaps in care delivery and enhancing compliance to evidence based standards and clinical outcomes. Nonetheless, there are informal observations that audit activities in the institution are not regular and that they are usually conducted in response to formal training or documentation requirements instead of being considered in a continuous quality improvement process. The potential barriers to effective clinical audit practice amongst medical officers and postgraduate trainees in MMC should be systematically reviewed to inform specific interventions and reinforce institutional audit culture.

1.1Research Objectives

- To assess the prevalence and types of barriers, organizational, educational, logistical, and personal, that hinder medical officers and trainees from conducting effective clinical audits at MMC.
- To evaluate how these barriers influence participation, completion, and sustainability of audit practices within MMC's institutional framework.

1.2Research Questions

- What are the major organizational, educational, and personal barriers affecting the conduct of clinical audits among medical officers and trainees at MMC?
- How do these barriers influence the effectiveness and continuity of audit practices within the institution?
- What strategies can be proposed to overcome these barriers and strengthen the audit culture at MMC?

2METHODOLOGY

2.1 Design of the Study

The study used a descriptive cross-sectional design to determine barriers to the effective practice of clinical audit among medical officers and postgraduate trainees in MMC. Cross-sectional designs are commonly applied in health care quality improvement studies to assess perceptions, practices, and contextual problems at a single point in time without the intervention (Setia, 2016; Elizalde et al., 2024). This design was deemed suitable for capturing the existing audit practices and perceived barriers at the institution.

Study Setting

The study was carried out in MMC, which is a tertiary care teaching hospital offering multidisciplinary clinical care and postgraduate medical training. The institution has large clinical units such as Surgery, Emergency Medicine, Obstetrics and Gynaecology, Pediatrics, and associated specialities. The clinical workloads and high patient volumes in teaching hospitals also represent a suitable background to investigate the institutional and professional obstacles to clinical audit and quality improvement efforts (Ahmed et al., 2024a; Ajaz et al., 2023).

Study Duration

The experiment was conducted in a period of six months between January and June 2025. This time frame included the questionnaire development, pilot testing, participant recruitment, data collection, and data analysis, which aligns with the schedules reported in other descriptive studies in the field of healthcare (Elizalde et al., 2024).

Study Population

The study population comprised medical officers and postgraduate trainees, including house officers, trainee medical officers, and residents who were actively engaged in clinical activities at MMC during the study period. These professionals are the frontline staff that delivers care to patients and are directly engaged in quality improvement programs like clinical audit (Ahmed et al., 2024a).

2.2 Sample

Out of the 127 respondents who received the questionnaire, 50 of them returned it and were incorporated in the study. The participants were also recruited through a convenience sampling method, which involves the availability and desire to take part. Convenience sampling is typically applied in exploratory and descriptive research in busy clinical settings where probability sampling might not be practical (Setia, 2016; Etikan et al., 2016).

2.3Data Collection

A structured, self-administered questionnaire based on a literature review of clinical audit and quality improvement barriers was used to collect the data. The questionnaire was based on the existing recommendations regarding audit implementation and the most frequently reported obstacles in healthcare facilities, such as the lack of education, the absence of time, inability to gain access to the data, inappropriate institutional backing, and resistance to change among professionals (Healthcare Quality Improvement Partnership, 2020; Elizalde et al., 2024).

The questionnaire consisted primarily of closed-ended dichotomous items and was organized into four sections:

- Demographic characteristics, including designation, department, and years of clinical experience
- Awareness and experience of clinical audit, including prior exposure and training
- Institutional and resource-related barriers, including protected time, information technology facilities, clerical support, access to clinical data, and audit governance
- Professional and perceptual barriers, including fear of litigation, financial considerations, acceptance of audit findings, interest in conducting audits, and cooperation from colleagues

There were optional open-ended questions to give the participants an opportunity to expand on the answers they chose, which is usually advised in surveys conducted on health services research to increase contextual knowledge (Elizalde et al., 2024).

2.4Pilot Testing

A pilot study on the survey was conducted on a small sample of healthcare professionals to determine the clarity, relevance, and understanding of the questionnaire. The received feedback in the pilot phase was utilized to improve the language and design of the questionnaire. Pilot respondents were excluded in the final analysis, which is one of the standard methodological practices (Setia, 2016).

2.5 Data Collection Procedure

The participants were approached by using departmental coordination and institutional communication channels after receiving the approval of the Institutional Review Board. The objective of the study was clarified, and informed consent was signed before participation. The questionnaires were distributed on paper, and participation was all voluntary. Coded identifiers were used to maintain anonymity, and the completeness of final questionnaires was examined before data entry, as per the required ethical research behaviors (World Medical Association, 2013).

2.6Statistical Analysis

IBM SPSS Statistics version 26 was used to enter and analyse the data. Only descriptive statistics, such as frequencies and percentages, were analyzed to describe the characteristics of the participants and barriers to clinical audit practice they reported. Cross-sectional studies should be analyzed using descriptive methods to define the patterns and prevalence of the perceived barriers instead of causes and effects (Setia, 2016). The findings were organized in tables in compliance with the PMDC and international journal reporting guidelines.

2.7Ethical Considerations

The study got prior ethical approval from the Institutional Review Board of MMC before commencing. All the participants gave informed consent in writing. During data collection and analysis, confidentiality and anonymity were ensured. Respondents were notified of their right to leave the study at any given time, without any penalty. The research followed the ethical standards of the Declaration of Helsinki and the national regulations of research ethics (World Medical Association, 2013; Pakistan Medical and Dental Council, 2023).

2.8Operational Definitions

• Clinical audit was defined as a systematic review of clinical practice against explicit criteria with the aim of improving the quality and outcomes of patient care (NICE, 2020).
• A barrier was defined as any factor that impedes the planning, conduct, or completion of a clinical audit (Healthcare Quality Improvement Partnership, 2020).
• A facilitator was defined as any factor that enhances participation, availability of resources, or completion of the audit cycle (Elizalde et al., 2024).

3.RESULTS

Participant Characteristics

A total of 50 completed questionnaires were included in the analysis. Participants comprised medical officers, postgraduate trainees, and other clinical staff involved in patient care. Medical officers accounted for 16.0% (n = 8) of respondents, while postgraduate trainees constituted 26.0% (n = 13). The remaining participants (58.0%, n = 29) belonged to other clinical designations. With respect to departmental distribution, the majority of participants were from allied specialties (68.0%, n = 34), followed by surgery (24.0%, n = 12) and emergency services (8.0%, n = 4). No participants were recruited from the medicine department. In terms of clinical experience, 16.0% (n = 8) had less than one year of experience, 40.0% (n = 20) had one to three years, and 44.0% (n = 22) had more than three years of clinical experience (Table 1).

Table 1: Demographic Characteristics of Participants (n = 50)

Characteristic	Frequency (n)	Percentage (%)
Designation		
Medical Officer	8	16.0
Postgraduate Trainee (TMO/Resident)	13	26.0
Other*	29	58.0
Department		
Emergency	4	8.0
Medicine	0	0.0
Surgery	12	24.0
Allied Specialties	34	68.0
Years of Clinical Experience		
< 1 year	8	16.0
1–3 years	20	40.0
> 3 years	22	44.0

***** Other includes clinical staff not classified as medical officers or postgraduate trainees.

Awareness and Prior Experience of Clinical Audit

Awareness of clinical audit was reported by 58.0% (n = 29) of participants, while 42.0% (n = 21) indicated no prior awareness. Previous experience of conducting a clinical audit was reported by 60.0% (n = 30) of respondents. Formal training related to clinical audit was reported by 62.0% (n = 31) of participants, whereas 38.0% (n = 19) had not received any structured audit training (Table 2).

Table 2: Awareness and Prior Experience of Clinical Audit (n = 50)

Variable	Yes n (%)	No n (%)
Awareness of clinical audit	29 (58.0)	21 (42.0)
Previous experience in conducting an audit	30 (60.0)	20 (40.0)
Received formal audit training	31 (62.0)	19 (38.0)

Time and Resource-Related Barriers

More than half of the participants reported having some protected time for conducting clinical audits (54.0%, n = 27), while 46.0% (n = 23) indicated a lack of dedicated time. Availability of basic information technology facilities was reported by

54.0% (n = 27) of respondents. Adequate clerical support was less commonly available, with only 44.0% (n = 22) reporting sufficient support, while 56.0% (n = 28) reported its absence. Similarly, only 42.0% (n = 21) of participants reported having access to sufficient clinical data for conducting audits, whereas 58.0% (n = 29) identified data availability as a barrier (Table 3).

Table 3: Time and Resource-Related Barriers to Clinical Audit (n = 50)

Barrier	Yes n (%)	No n (%)
Availability of protected time	27 (54.0)	23 (46.0)
Availability of IT facilities	27 (54.0)	23 (46.0)
Adequate clerical support	22 (44.0)	28 (56.0)
Availability of sufficient clinical data	21 (42.0)	29 (58.0)

Professional and Institutional Barriers

Fear of litigation during the conduct of clinical audit was reported by 58.0% (n = 29) of participants. Financial incentives for conducting clinical audit were reported by 46.0% (n = 23), while 54.0% (n = 27) reported no such benefits. Financial difficulty related to conducting audits was reported by 58.0% (n = 29) of respondents. Confidence that audit findings would be accepted or acted upon was reported by less than half of participants (46.0%, n = 23), while 54.0% (n = 27) expressed a lack of confidence in institutional acceptance of audit results (Table 4).

Table 4: Professional and Institutional Barriers (n = 50)

Barrier	Yes n (%)	No n (%)
Fear of litigation during audit	29 (58.0)	21 (42.0)
Financial benefit of conducting an audit	23 (46.0)	27 (54.0)
Financial difficulty in conducting an audit	29 (58.0)	21 (42.0)
Confidence that audit results will be accepted	23 (46.0)	27 (54.0)

Governance and Team Support

Only 34.0% (n = 17) of participants reported the presence of a governing body or designated leadership responsible for overseeing clinical audit activities, while 66.0% (n = 33) indicated the absence of such governance structures. Cooperation from colleagues during audit activities was reported by 66.0% (n = 33) of respondents. Slightly more than half of participants (52.0%, n = 26) expressed interest in conducting clinical audits, whereas 48.0% (n = 24) reported limited or no interest (Table 5).

Table 5: Governance and Team Support for Clinical Audit (n = 50)

Variable	Yes n (%)	No n (%)
Presence of a governing body for audit	17 (34.0)	33 (66.0)
Cooperation from colleagues	33 (66.0)	17 (34.0)
Interest in conducting a clinical audit	26 (52.0)	24 (48.0)

Overall, the results show that awareness and previous exposure to clinical audit among medical officers and trainees at MMC are possible; however, efficient audit practice is limited by several obstacles. These are insufficient secured time, insufficient clerical and data support, litigation fear, financial constraints, and poor audit governance. Irrespective of these obstacles, a fairly high percentage of participants expressed an interest in clinical audit and reported collegial support, which indicates that improving audit culture could be achieved through systematic institutional interventions.

4.DISCUSSION

This paper explored the challenges to effective clinical audit practice by medical officers and postgraduate trainees in a tertiary care teaching hospital. The results indicate that, despite the relatively high rate of respondents claiming to be aware of clinical audit and previous experience of audit activities, the actual performance of the audit cycle is still scarce because of the interdependence of training, resource, governance, and institutional culture constraints. These findings indicate the identifiable gap between the acknowledgement of clinical audit as a quality improvement tool and its systematic implementation in clinical practice (Healthcare Quality Improvement Partnership, 2020; Foy et al., 2020).

A key finding was that formal training was not universal, despite a generally acceptable level of awareness. This reinforces the idea that awareness does not necessarily support audit activity, especially when clinicians do not receive structured teaching, supervision, and methodological assistance to fulfill the audit cycle and implement the results into practice change (Healthcare Quality Improvement Partnership, 2020; Healthcare Quality Improvement Partnership, 2018). In Pakistan, these issues have been reported in research investigating audit as a part of postgraduate training, with institutional support gaps and ineffective implementation mechanisms reported to be one of the key obstacles to successful audit engagement (Dilnawaz et al., 2019). These findings support the need to incorporate medical practice audit education, mentorship, and follow-up processes in training programs, instead of viewing audit as a component requirement. Resource and time constraints were also imminent. Even in areas where some support for information technology existed, participants reported obstacles to clinical data, including clerical assistance and access to comprehensive clinical data. This is consistent with published recommendations that highlight that audit programmes cannot be effective if they do not have reliable data systems, administrative support, and guarded time that will allow clinicians to complete audit work in addition to clinical tasks (Healthcare Quality Improvement Partnership, 2020; Healthcare Quality Improvement Partnership, 2018). Greater literature on the involvement of healthcare professionals in quality improvement equally finds workload pressures, scarce resources, and access to expertise and data as common obstacles lowering participation and completion of improvement cycles (Elizalde et al., 2024). In this regard, obstacles to audit completion are not only individual-level hindrances but are system-level hindrances that determine the possibility of conducting an audit in a meaningful manner.

The professional and institutional factors also influenced engagement. The fear of litigation and adverse consequences was frequently reported, which implies that audit can be viewed as potentially punitive instead of developmental. This concern is consistent with wider patient safety literature highlighting that blame-oriented environments reduce openness and can discourage reporting and improvement behaviours (Ahmed et al., 2023). Where audit is considered as a fault-finding mechanism, rather than organisational learning, clinicians may evade initiating audits or restrict the scope of findings to reduce the perceived risk. It is especially applicable in environments with poor feedback, learning, and transparent follow-up systems.

Moreover, the proportion of respondents who felt confident that leadership would accept or take action based on audit results was less than half, which is unlikely to encourage the initiation of audits. It has been demonstrated that audit and feedback are best when feedback is practical, backed by plausible data, and coupled with systems that can support change implementation and not measurement (Foy et al., 2020). The low confidence score by the participants in this research could thus be due to previous experience of low follow-through, poor governance, or absence of visible institutional commitment to carry out the audit recommendations. The gaps in governance were also very pronounced, with only a small number of them pointing to the existence of an audit governing body or a specific leadership. Best practice guidance points out that an effective clinical audit needs visibility, prioritisation, accountability, and well-established follow-up and re-audit procedures (Healthcare Quality Improvement Partnership, 2020). Without these governance structures in place, the audit activity can be disjointed, lacking individual initiative, and unlikely to bring lasting improvement. These results affirm the belief that enhancing audit governance is the key to institutionalising audit as a component of clinical governance and not an academic practice on its own.

Although the challenges were noted, a number of positive results were observed. The majority expressed cooperation from colleagues, and many participants showed interest in undertaking clinical audits. It aligns with the evidence provided within Pakistan that audit is becoming more recognised as useful, but underdeveloped because of insufficient institutionalisation and the lack of consistent training support (Ajaz et al., 2023; Dilnawaz et al., 2019). The willingness voiced by the trainees and the junior doctors is a valuable chance that institutions can capitalize on to reinforce the audit culture by providing formal mentorship, protected time, and leadership support via structured training.

The findings are applicable in the Pakistani context. According to Ajaz et al. (2023), clinical audit is still a relatively new practice in routine, and the reinforcement of audit training and audit programmes is now increasingly perceived as a requirement to enhance the quality of healthcare in Pakistan. Addressing the identified barriers in this paper with respect to training, governance, data systems, and institutional culture could help improve the effectiveness and sustainability of clinical audit practices in teaching hospitals.

Limitations

This research has some limitations that must be taken into account when interpreting the results. First, it was carried out in one tertiary care hospital, which could limit its generalisability to other hospitals. Second, the cross-sectional descriptive design is unable to make causal inferences. Third, the responses were self-reported and could be affected by recall bias or social desirability bias. However, the research offers contextually specific understanding regarding the problem barriers of frontline clinicians and trainees and presents a practical basis of specialized institutional interventions.

5.CONCLUSION

This research paper emphasizes that the barriers to effective clinical audit practice among medical officers and postgraduate

trainees at a tertiary care teaching hospital are numerous and interacting. Even though there is a moderate degree of awareness and previous exposure to clinical audit, the transfer of audit knowledge to practice is limited due to organizational, resource-related, governance, and professional issues. The main obstacles identified are a lack of protected time, a lack of clerical and data support, litigation fear, limited finances, and the lack of well-defined audit governance frameworks.

Simultaneously, the availability of collegial collaboration and the declared willingness to perform quality improvement clinical audits among a significant percentage of participants indicates that the intrinsic drive of quality improvement is already established. These findings reveal that institutional support mechanisms should be strengthened rather than focusing on individual-level issues to introduce clinical audit in the clinical routine. The barriers identified could be addressed to foster a more efficient and sustainable culture of clinical audit and hence contribute to improved clinical governance and quality of care.

5.1 Implications

This research study recommends the strengthening of institutional mechanisms to enable the appropriate practice of clinical audit. The ownership, accountability, and continuity of audit activities should be enforced by making clear audit governance structures, which can be special audit committees or special audit leads. Clear leadership may help in planning, execution, and follow-up of audit cycles, which ultimately increases the likelihood of improving audit findings to effect positive change.

Capacity building should be encouraged through the integration of structured clinical audit training into the postgraduate medical education. Frequent training and mentoring may enhance the knowledge of the clinicians in audit methodology, as well as their ability to finish audit cycles and put recommendations into practice. The confidence and long-term interest in audit work can also be increased by these programs. The provision of adequate resources is also crucial. With proper clerical and information technology support, creating a special time slot during the clinical rotation would enable medical officers and trainees to administer audit processes without compromising the daily care provision to patients. In addition, the availability of full and trustworthy clinical data may also be improved to help in the efficient collection of data and enhance the quality of audit products.

Finally, the audit culture should be friendly and not punitive to encourage participation and openness. The fear of litigation can be minimized, and more clinicians can engage in audit by institutional interventions aimed at enhancing audit as a learning and quality improvement tool, not as a blame mechanism. Integration of clinical audit into the institutional policies of quality improvement, as well as the alignment of the above practices with the set regulatory and training environment, could help in making audit systems sustainable and effective.

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