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"Optimizing Telemedicine: A Mini Review on the Impact of ePrescription Audits on Medication Safety and Efficiency"

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ABSTRACT
The integration of electronic prescriptions (ePrescriptions) into healthcare systems has transformed medication management, improving accuracy, efficiency, and patient safety. This narrative review explores the impact of ePrescription audits on enhancing medication safety, reducing prescribing errors, and strengthening compliance in telemedicine-driven healthcare. ePrescription audits utilize digital data to assess prescribing patterns, identify risks, and enable corrective action through real-time integration with electronic medical records (EMRs) and pharmacy systems. They contribute to improved clinical decision-making, reduced transcription errors, and better adherence to therapeutic guidelines. Additionally, ePrescription audits help detect controlled substance misuse, optimize resource use, and support healthcare policy through reliable data analytics. The role of healthcare professionals—particularly clinical pharmacists—in interpreting audit findings is pivotal in ensuring quality improvement. In an era of expanding telemedicine, robust audit systems are essential to sustain medication safety, efficiency, and patient trust. This review highlights the need for comprehensive digital audit frameworks to enhance patient safety and policy compliance in evolving telehealth ecosystems.
Keywords: ePrescription, electronic prescribing audit, telemedicine, medication safety, healthcare efficiency, EMRs, compliance, digital health, clinical decision support

Narrative Review Approach

This narrative review synthesizes evidence from peer-reviewed journals, official healthcare reports, and grey literature published between **2000 and 2024**. Major databases, including **PubMed, Scopus, and Google Scholar**, were searched using combinations of keywords such as ePrescription audits, electronic prescribing, medication safety, telemedicine, and healthcare efficiency. Relevant studies were chosen based on their conceptual contribution to understanding the evolution, implementation, and impact of ePrescription audits. Seminal papers and global digital health policy frameworks were also included to provide conceptual breadth. Unlike systematic reviews, this narrative approach emphasizes thematic interpretation, conceptual synthesis, and clinical relevance over formal inclusion or exclusion criteria.

I. INTRODUCTION

The adoption of electronic prescription (ePrescription) systems represents a major advancement in digital healthcare transformation. By replacing handwritten prescriptions with digitally transmitted data, these systems reduce transcription errors, improve legibility, and strengthen medication traceability. The integration of ePrescriptions with telemedicine platforms has further enabled remote prescribing and continuity of care. Within this framework, **ePrescription audits** have emerged as crucial tools to monitor, evaluate, and enhance medication safety.

Although ePrescription systems are widely implemented, there remains a gap in understanding their audit processes and their integration within telemedicine frameworks. This review bridges that gap by synthesizing literature on how ePrescription audits influence patient safety, clinical efficiency, and healthcare accountability.

Objectives of the Narrative Review

This narrative review is guided by two main objectives:

1. **To evaluate the role of ePrescription audits in improving medication safety and prescribing accuracy**—by identifying, preventing, and reducing errors, and ensuring adherence to clinical and regulatory standards.
2. **To assess how ePrescription audits enhance healthcare efficiency within telemedicine frameworks**—by integrating with EMRs, optimizing workflows, reducing costs, and strengthening accountability in digital prescribing systems.

ePrescription Audits and Medication Safety

ePrescription audits analyze digital prescribing records to assess patterns, identify discrepancies, and ensure adherence to treatment guidelines. Early studies, such as Kaushal et al. (2003), established that computerized physician order entry (CPOE) systems significantly reduce medication errors. Fischer et al. (2008) highlighted that electronic transmission improves adherence and minimizes primary non-compliance. Modern audit systems now incorporate machine learning to detect anomalies in prescription frequency, dosage, or drug interactions in real time.

Integration with **Electronic Medical Records (EMRs)** allows continuous monitoring of patient history, allergies, and comorbidities, preventing potential adverse drug events (ADEs). As Bell et al. (2014) noted, the integration of audit systems enables dynamic decision support and enhances clinical accountability. Collectively, these findings suggest that ePrescription audits are most effective when embedded within comprehensive EMR systems supported by active clinician engagement.

ePrescription Audits and Healthcare Efficiency in Telemedicine

In telemedicine, ePrescription audits ensure that remote prescribing remains transparent, traceable, and compliant with clinical and ethical standards. Farghali and Borycki (2024) emphasized that ePrescribing enhances collaboration between providers and pharmacists, which is essential for virtual care models. These audits also help streamline workflows by automating validation checks and generating actionable feedback for prescribers.

Williams et al. (2022) reported that continuous auditing of ePrescriptions improves clinical efficiency and reduces turnaround time for prescription approvals. Furthermore, audits can identify cost-effective alternatives, thereby supporting healthcare sustainability. CMS and similar agencies recognize the financial and safety benefits of ePrescribing and promote its adoption through incentive-based digital health programs. However, variations in system design, digital literacy, and interconnectivity can influence these outcomes.

By embedding audit mechanisms in telemedicine, healthcare systems can minimize prescription fraud, ensure real-time data exchange, and maintain continuity of care across digital platforms.

Challenges and Implementation Barriers

Despite strong evidence supporting ePrescription audits, several challenges hinder their widespread adoption. Interoperability issues between EMR systems often limit seamless data exchange. Prescriber resistance due to alert fatigue, lack of standardized audit metrics, and insufficient training in digital prescribing are recurrent barriers. Additionally, smaller healthcare facilities may lack financial and technical resources for implementing integrated audit systems. Addressing these barriers requires coordinated policy efforts, capacity building, and incentivization at both institutional and national levels.

Role of Healthcare Professionals and Future Perspectives

The effectiveness of ePrescription audits depends on multidisciplinary engagement. Clinical pharmacists and informatics specialists play key roles in interpreting audit findings, training prescribers, and implementing targeted interventions. Mohsin-Shaikh et al. (2019) demonstrated that effective audit feedback fosters inter-professional communication and builds a culture of continuous quality improvement.

Looking ahead, artificial intelligence and predictive analytics could enhance ePrescription audits by predicting high-risk prescribing behaviours before adverse outcomes occur. Integration with national digital health records and AI-driven telemedicine tools will further improve precision and responsiveness. Global digital health strategies, such as the **WHO Global Strategy on Digital Health (2020–2025)** and **OECD Health Informatics Framework (2023)**, underscore the need for standardized digital safety audits in telemedicine.

II. CONCLUSION

ePrescription audits represent a cornerstone in achieving safer, more efficient, and accountable digital healthcare. They bridge the gap between technology and patient safety by transforming data into actionable insights for clinical decision-making.

Within telemedicine, where distance and decentralization pose unique risks, robust audit mechanisms ensure continuity, reliability, and ethical practice.

As healthcare systems evolve, strengthening ePrescription audits through automation, AI, and inter-professional collaboration will be crucial. Embedding audit analytics within national telehealth systems could standardize medication safety benchmarks globally.

Ultimately, these audits not only safeguard patients but also drive efficiency, transparency, and trust in digital healthcare delivery.

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