

Editorial

<http://doi.org/10.33279/jkcd.v14i04.843>

HARNESSING ELECTRONIC PATIENT RECORDS FOR AI INNOVATION: BALANCING DATA PRIVACY AND DIAGNOSTIC ADVANCEMENT

Artificial intelligence (AI) holds immense potential to revolutionize dental care, offering advancements in diagnostic accuracy, personalized treatments, and overall patient outcomes. However, AI's ability to deliver these benefits hinges on the availability of large, high-quality datasets, especially electronic patient records (EPR). These records, encompassing diagnostic images, treatment histories, patient demographics, and clinical outcomes, are critical for training AI models to enhance clinical decision-making. However, as the demand for data grows, so do the ethical concerns surrounding its collection and use.

Ethical Challenges in Data Collection

While the benefits of AI in dentistry are undeniable, collecting and using patient data for training AI models raises several ethical challenges that must be addressed

1. **Patient Privacy and Consent:** Informed consent and strict adherence to regulations (e.g., HIPAA, GDPR) are essential when using patient data.
2. **Data Ownership:** Clear ownership of patient data ensures ethical use and safeguards patient autonomy.
3. **Bias and Fairness:** Biased datasets risk producing unfair outcomes, particularly for underserved groups.
4. **Transparency and Accountability:** Clear processes and accountability mechanisms are vital to ensure safety and trust.

Balancing Innovation with Ethics

Dental professionals, researchers, and policymakers must collaborate to create a framework that ensures data is collected, used, and protected responsibly. To leverage AI's potential while addressing these ethical concerns, several strategies can be adopted:

- **Data Anonymization:** Protects privacy while enabling research.
- **Ethical Guidelines:** Standardized protocols for data collection and use.
- **Patient Education:** Informs patients about the benefits and risks of data sharing.

The future of dentistry lies in harnessing AI-driven insights for diagnostic precision and personalized treatment plans. However, its success depends on effectively navigating the ethical complexities of data use. By responsibly utilizing EPRs, we can achieve transformative advancements in dental care while maintaining the trust and confidentiality of the patients we serve.

Dr. Syed Muaz Masoom Shah

Lecturer

Department of Science of Dental Materials,
Khyber College of Dentistry,
Peshawar