

# Data Confidentiality in Artificial Intelligence-Assisted Medicine: The Main Ethical Issue

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## Abstract

**Background and Aim:** The use of Artificial Intelligence (AI) in healthcare presents previously unheard-of chances for efficiency and innovation as these technologies develop quickly. However, these developments have also led to serious ethical problems, especially regarding patient privacy, data confidentiality, and informed permission. Our study aimed to investigate the primary ethical concerns surrounding data confidentiality in AI-assisted medicine, highlighting the significance of upholding integrity and trust in the rapidly changing healthcare industry. Concerns regarding data confidentiality are the main ethical issues raised by the use of AI in medicine. Processing enormous volumes of private patient data is part of the use of AI in healthcare, which raises questions about data breaches, misuse, and illegal access. To build public trust and protect personal health information, it is essential to ensure patient confidentiality and implement robust information security safeguards. **Materials and Methods:** The study entails gathering patient data from electronic health records (EHRs), anonymizing it, creating AI algorithms for recommending treatments and diagnosing diseases, putting strong security measures in place, abiding by ethical standards, identifying and reducing biases in AI algorithms, and making sure that laws like GDPR and HIPAA are followed. Additionally, it highlights data privacy and ethical issues. **Results:** The investigation shows that privacy-preserving methods for AI-based healthcare applications have advanced significantly. Combining several privacy-preserving techniques, known as *hybrid* techniques, has also showed promise in improving data security and reducing risks. Although improvements have been made, there remain issues with possible privacy threats. **Conclusion:** Maintaining data privacy in AI-assisted medicine is a complex issue that demands for an all-encompassing and moral strategy. Although there are many potential advantages of using AI to enhance medical care, they must be weighed against potential risks to patient privacy and data security. Securing informed consent, overcoming algorithmic biases, upholding stringent regulatory requirements, and preserving strong data protection procedures are all important ethical issues. The healthcare sector can use AI to its full potential while maintaining the highest standards of medical ethics and protecting patient confidence by prioritizing these ethical concerns.

**Keywords:** Artificial Intelligence (AI); Assisted Medicine; Confidentiality; Data; Ethics; Electronic Health Records (EHRs).

