**Abstract**

Blockchain technology ensures secure, transparent, and interoperable management of healthcare data, improving patient privacy and data integrity. Electronic health records (EHRs) stored on a blockchain are encrypted and accessible only to authorized parties, reducing the risk of data breaches and fraud. Smart contracts automate processes like patient consent management or insurance claims processing, enhancing operational efficiency and reducing administrative costs.

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Blockchain also facilitates medical research by securely sharing anonymized data while maintaining patient confidentiality. However, integrating blockchain into healthcare systems requires addressing technical, regulatory, and interoperability challenges to realize its full potential in improving healthcare delivery and patient outcomes.