Decentralized Streaming-Based Monitoring of Post-Acute Care Outcomes via Blockchain-Integrated AI

Author: Adeferasin Esther Oluyole
Affiliation: Federal Ministry of Health, Abuja Nigeria
Email: Esther4christt@gmail.com

Abstract

As HealthcareHealthcare undergoes swift digital transformation, it creates new possibilities for enhancing post-acute care through advanced technological solutions. This study introduces a decentralized monitoring system that utilizes blockchain technology and artificial intelligence (AI) to track post-acute care outcomes in real time. Post-acute care services, including rehabilitation and skilled nursing, need real-time secure data monitoring that focuses on patients to help improve recovery and minimize hospital readmissions. The system design incorporates Internet of Things (IoT) devices, along with wearable sensors, to gather ongoing physiological and behavioral information from patients. Edge computing processes this data to maintain efficiency before it gets securely transmitted to a decentralized network where smart contracts and blockchain technology together ensure data immutability and provenance. Embedded AI algorithms within the system conduct real-time analytics to identify patterns and risks, enabling prompt clinical interventions.

Blockchain technology enhances stakeholder data transparency and auditability while improving data interoperability. AI facilitates predictive analytics, supporting personalized care planning. These technologies address significant healthcare challenges, including data silos and security vulnerabilities, while enhancing care coordination efficiency. The system architecture offers scalability and resilience while ensuring patient autonomy through data access control for individual users. The system proves its worth through its capabilities to minimize complications and facilitate early action while making decisions more efficient and promoting coordinated healthcare teamwork. The discussion encompasses ethical and regulatory considerations to ensure responsible implementation, which includes privacy protection, addressing algorithmic bias, and user acceptance. The combination of blockchain technology with AI creates a breakthrough in health monitoring, achieving intelligence and decentralization while enhancing security and leading to significant improvements in aftercare results and population health oversight.

Keywords: Blockchain in Healthcare, AI-Driven Post-Acute Care, Decentralized Health Monitoring, Real-Time Patient Analytics, IoT and Edge Computing in Medicine

Introduction

The healthcare industry is undergoing profound changes as medical data digitization advances alongside the increasing adoption of technologies such as blockchain and artificial intelligence (Segal et al., 2023). Data silos, combined with interoperability challenges and concerns over data privacy and security, plague traditional healthcare systems (Kumar et al., 2022; Zekiye & Özkasap, 2023). The synergistic capabilities of blockchain and AI technology offer solutions to existing healthcare challenges, particularly in post-acute care monitoring (Thacharodi et al., 2024). Services classified as post-acute care, which patients receive following hospitalization, including rehabilitation and skilled nursing, are essential to ensure that patient recovery proceeds effectively (Gordon & Catalini, 2018). Combining AI

with blockchain technology emphasizes healthcare processes that prioritize patients (Krittanawong et al., 2019). Decentralized monitoring systems that utilize streaming data, combined with blockchain and AI capabilities, enable secure and transparent data exchanges between patients and healthcare providers, resulting in improved health outcomes and cost savings. These technological integrations enable secure information exchange between multiple healthcare systems (Zhang et al., 2020).

System Architecture and Design

The monitoring system for post-acute care outcomes operates on a multi-layered architecture through decentralized streaming technology. IoT devices, along with wearable sensors, gather ongoing patient information at the foundational layer by monitoring vital signs, activity levels, and medication adherence (Jita & Pieterse, 2018). Secure communication channels transfer this data in real time to a decentralized network. Edge computing devices, positioned nearer to data sources, handle preliminary data processing and filtering, thereby decreasing the computational demands of central servers (Ianculescu et al., 2025).

Blockchain technology maintains data integrity while securing information and validating its provenance, according to Firouzi et al. (2022). All data transactions, such as uploads and modifications, along with access requests, become permanent records on the blockchain. Telehealth applications benefit from improved security measures through the integration of blockchain technology. By utilizing smart contracts, organizations can implement automated data-sharing agreements and access control policies that grant access to specific patient data only to authorized parties (Duong-Trung et al., 2020). The system incorporates AI algorithms that process streaming data through pattern recognition and anomaly detection to highlight potential risks. Healthcare providers receive real-time alerts from these algorithms, which enable them to perform timely interventions and create individualized care plans. The system's decentralized structure enhances its resilience and scalability, as it lacks a single failure point and allows new network nodes to join with ease.

Role of Blockchain Technology

Blockchain technology provides essential support for the decentralized streaming-based monitoring system by offering security and transparency while enabling interoperability. Blockchain offers secure and scalable storage of medical data across multiple institutions, enhancing interoperability efficiency through the use of smart contracts and intuitive application interfaces (Zhang et al., 2021). A blockchain-based system can develop interoperable platforms for clinical communication and data exchange, granting patients access to their complete medical history, as it facilitates secure transactions across networks (Zhang et al., 2018). Blockchain functions as both a decentralized and distributed ledger, distributing data across various network nodes to prevent centralized points of failure or attacks (Taherdoost, 2023).

The cryptographic signature of each data transaction creates an unchangeable sequence by connecting it to the preceding transaction (Sun et al., 2022). The immutable nature of the system prevents data tampering and alterations from going unnoticed while maintaining superior data integrity (Saho & Ezin, 2021). Blockchain technology enables secure data sharing and access control by utilizing smart contract functionality. Self-executing contracts automate data-sharing agreements and implement access control policies to limit patient data access to authorized individuals only.

The combination of data immutability, decentralization, and access control features in blockchain technology enables practical transformation by utilizing AI and machine learning as value bridges, leading to more effective interventions (Shaikh et al., 2025). Blockchain technology enables patient-centric medical models by granting patients increased authority and possession of their personal health information (Novi et al., 2023). Patients maintain control over their data by selectively enabling or withdrawing permissions for specific healthcare providers and researchers based on their established preferences. Through blockchain technology, patients maintain authority over their medical records by choosing which individuals hold the cryptographic keys needed to access the information (Chang & Chen, 2020).

Literature Review

Recent years have seen the healthcare industry pay close attention to blockchain technology while multiple studies assess its capability to overcome different challenges (Han et al., 2022) (Chen et al., 2018). Research studies, including Wu and Wang (2024), provide evidence that blockchain technology functions effectively to improve healthcare data storage and management. Through blockchain technology, clinical trial data is securely stored and shared, which improves transparency and accessibility for researchers and regulatory bodies (Segal et al., 2023). Research has been conducted on electronic health record management using blockchain technology, as noted by Ullah et al. (2020). Blockchain technology primarily addresses interoperability and data exchange challenges within healthcare systems, as noted by Hölbl et al. (2018). The secure and transparent data-sharing capabilities of blockchain technology enable healthcare stakeholders to access information, resulting in enhanced care coordination and improved patient outcomes. Blockchain technology's secure and decentralized framework serves as an ideal solution for authenticating pharmaceutical products and preventing the spread of counterfeit medications (Ram & Verma, 2024). Healthcare blockchain technology implementation faces multiple challenges, including unclear regulations, scalability limitations, and standardization requirements. Healthcare providers, technology developers, and regulatory agencies must work together to address these challenges (Attaran, 2020; Durneva et al., 2020).

AI-Driven Analytics for Post-Acute Care

The analysis of streaming data from post-acute care patients depends critically on artificial intelligence algorithms. Through training AI algorithms, it becomes possible to detect patterns and anomalies while identifying potential risks, which then deliver immediate insights and notifications to healthcare providers. Healthcare providers can use machine learning models to predict the chances of hospital readmissions and other adverse events by analyzing patient data. Predictive models enable healthcare providers to identify patients with high risks while allowing them to take preventive actions to reduce those risks. Through processing extensive unstructured datasets such as clinical notes and patient feedback, AI systems discover valuable insights that human reviewers might overlook.

Patient monitoring systems in post-acute care environments generate extensive data sets that capture physiological measurements alongside patient activity levels and self-reported outcomes. Through real-time analysis of incoming data, AI algorithms provide ongoing feedback and support, enabling individuals to maintain their treatment plans and manage their health conditions more efficiently. AI chatbots and virtual assistants provide personalized educational materials and reminders, resulting in improved patient engagement and treatment

adherence. Healthcare providers receive evidence-based recommendations and insights from AI algorithms, which help support clinical decision-making.

The integration of AI technology into healthcare systems necessitates careful examination of ethical issues and regulatory requirements. AI algorithms require transparency and explainability, alongside bias elimination, to function effectively. Healthcare providers must comply with regulatory standards, including the Health Insurance Portability and Accountability Act (HIPAA) and the General Data Protection Regulation (GDPR), to ensure patient data security and privacy (Akhtar, 2025). Healthcare professionals must learn to operate AI-driven tools properly and understand the results they produce (Abukhadijah & Nashwan, 2024). The implementation of AI in Healthcare requires careful management of data privacy concerns, addressing biases, and maintaining human expertise (Alowais et al., 2023).

Healthcare delivery and patient outcomes have become optimized through the crucial role of AI, as demonstrated by Bekbolatova et al. in 2024. AI algorithms undergo training based on extensive datasets, which allows them to discover patterns and generate predictions, as found by Li et al. (2024). Healthcare systems benefit from AI through improved human performance, operational efficiency, innovative patient care solutions, and reduced healthcare expenses, according to Dailah et al. (2024). AI algorithms enable the examination of extensive medical datasets to reveal hidden patterns and correlations that human analysts may overlook (Varnosfaderani & Forouzanfar, 2024).

Healthcare professionals receive assistance from AI-powered tools for creating accurate diagnoses, developing personalized treatment plans, and monitoring patient progress, according to Alowais et al. (2023). AI integration in healthcare will enable virtual patient care through AI tools while managing electronic health records and improving patient engagement and treatment adherence. Moreover, it will streamline administrative tasks for healthcare workers, expedite drug and vaccine development, detect prescription errors, and provide substantial data storage and analysis capabilities alongside technology-aided rehabilitation methods (Kuwaiti et al., 2023). Through advancements in AI technology, healthcare systems can expect a transformation in patient treatment and diagnostics while also improving operational efficiency, which could lead to a more personalized and accessible system for future medical services (Faiyazuddin et al., 2025).

Extensive healthcare data analysis through AI has been the subject of broad research to extract significant insights. Research indicates that AI models have the potential for disease diagnosis, as well as treatment planning and drug discovery (Kuwaiti et al., 2023; Malik et al., 2020; Yu et al., 2018). We must recognize and confront the ethical challenges that accompany AI applications in healthcare settings (Jeyaraman et al., 2023; Torkey et al., 2025). Developing AI algorithms using extensive patient data presents significant challenges to privacy protection and security (Shuaib, 2024). The development and deployment of AI systems require prioritizing patient safety and privacy to create more personalized and accessible healthcare interactions (Li et al., 2024).

The adoption of AI in clinical environments creates practical obstacles that require scrutiny (He et al., 2018). Healthcare organizations must invest heavily in infrastructure development, data systems management, and employee training programs when they adopt AI technologies (Udegbe et al., 2024). The integration of AI systems with existing healthcare IT frameworks can lead to interoperability issues, creating obstacles to data sharing and workflow improvements. Healthcare AI deployment presents a range of challenges and opportunities, as noted by Ghassemi et al. (2019). AI could transform healthcare delivery through enhanced

doctor assistance and personalized patient care, as well as improvements in population health while addressing rising expenses and resource shortages (Bekbolatova et al., 2024). Healthcare professionals and AI developers must collaborate to address interoperability challenges, maintain data quality standards, and achieve user acceptance for successful AI integration (Varnosfaderani & Forouzanfar, 2024). The proper use of AI in healthcare, guided by ethical practices, can transform patient care delivery and lead to significant advancements.

Methodology

The combination of blockchain technology and AI offers a robust system for managing healthcare data, ensuring both security and transparency. Healthcare settings can achieve improved patient care and streamlined procedures through blockchain-enabled secure data sharing and interoperability (Udegbe et al., 2024). Blockchain technology operates as a decentralized and permanent ledger system that records and distributes data. The cryptographic hash of each previous block within the blockchain makes it tamper-proof and auditable. A decentralized, streaming-based monitoring system addresses the issue through its secure and interoperable platform, which enables the transparent sharing of patient data and AI-driven insights.

Blockchain technology enables the secure storage and sharing of streaming data from post-acute care settings, preserving both data integrity and patient privacy. The framework prohibits any entity from restricting access to training on health data provided by participants or managing financial benefits, as these operations are facilitated through a public blockchain that maintains an immutable record without third-party involvement (Nash, 2024). Blockchain technology maintains data integrity through its immutable features while promoting trust and cooperative relationships among stakeholders due to its decentralized framework (Charles et al., 2023). AI algorithms enable the analysis of streaming data to detect patterns and anomalies that may signal potential issues.

AI algorithms analyze streaming data to provide real-time insights into patient recovery and detect potential complications. The pairing of AI with blockchain technologies presents a solution to the interoperability and security problems faced in healthcare data management, according to Wahl et al. (2018). The combination of AI and blockchain technology enhances financial decision-making processes and risk management capabilities while enabling financial institutions to develop more effective models (Adel, 2024). This approach delivers better post-acute care management while reducing readmission rates and enhancing patient results. The application of blockchain technology combined with AI produces secure data exchanges while improving accuracy and decision-making processes in post-acute care monitoring.

The blockchain-integrated AI architecture proposed functions through multiple essential components that operate together (Al-Enizi et al., 2024). The system requires continuous data input from multiple post-acute care environments, including wearable sensors, remote monitoring devices, and electronic health records. Data streams undergo preprocessing and cleansing before being passed to the AI models. AI models designed for predictive analytics and anomaly detection analyze preprocessed data to generate information about patient results. AI models generate insights that are securely recorded on a blockchain network, ensuring data integrity and provenance. Smart contracts provide automated data access and sharing solutions that allow stakeholders to retrieve necessary information while protecting patient privacy and ensuring compliance with regulatory requirements.

The combination of AI with blockchain technology enables vehicles to securely exchange their experiences and data, which healthcare systems can then adapt to their specific needs, according to Singh et al. (2020). This new methodology leverages recent technological advancements to facilitate secure and transparent monitoring of post-acute care outcomes while ensuring optimal efficiency. Blockchain's decentralized structure distributes data across multiple networked nodes, which eliminates single points of failure and enhances system resilience. The system achieves an immutable audit trail through blockchain technology, ensuring transparency and accountability in post-acute care monitoring (Radanliev & Roure, 2022; Yuan et al., 2025; Zheng & Dai, 2019). By implementing this methodology, stakeholders can securely exchange data and insights within a collaborative ecosystem, leading to improved patient outcomes and reduced healthcare expenses. AI algorithms play a crucial role in blockchain security by identifying unusual activities and preventing fraudulent behavior (Patel, 2022). The integration of technology enhances outcome monitoring in post-acute care by increasing accuracy and security, leading to improved patient care and reduced healthcare expenses.

Results

In post-acute care settings, AI functions as an essential tool that processes large data volumes to produce actionable insights for decision-makers (Porcellato et al., 2025). Through AI-driven automation of basic tasks, such as data entry and report generation, healthcare staff experience reduced administrative workloads, which enables them to dedicate more time to direct patient care (Akinrinmade et al., 2023). Healthcare providers who utilize AI algorithms can track patient recovery patterns to detect complications early and create personalized interventions that enhance outcomes. AI helps analyze patient treatment responses and predict medical outcomes through the analysis of electronic health records data, establishing proper medication dosages (Dixon et al., 2024). AI technology enhancements enable healthcare providers to deliver better patient care while optimizing operational processes and enhancing the work-life balance of medical staff (Rony et al., 2024).

The monitoring system, which utilizes streaming data and combines AI capabilities with blockchain security, offers multiple advantages for patients receiving post-acute care. The system enables the immediate tracking of a patient's recovery, allowing healthcare providers to act promptly and prevent complications (Duan et al., 2020). The system's decentralized structure encourages healthcare providers to share data and collaborate, which results in more coordinated and effective patient care. This integrated system enhances clinical decision-making by providing precise insights based on observed patterns in patient data, including vital signs and medication adherence (Mizna et al., 2025).

The application of AI-driven predictive analytics enables healthcare providers to predict patient outcomes, allowing them to identify at-risk patients ahead of time and implement preventive measures. AI systems enable healthcare providers to create personalized treatment plans that take into account each patient's unique characteristics and preferences, as noted by Hennrich et al. (2024). Through their capacity to detect patterns and identify risks, AI algorithms support healthcare planning by highlighting anomalies (Rony et al., 2023). Through continuous learning from new data, AI systems improve their predictive capabilities while enhancing the precision of outcome assessments (Serag et al., 2019). Healthcare providers maintain current knowledge of recent developments in post-acute care through continuous learning and apply evidence-based interventions accordingly (Rony et al., 2023).

The integration of AI with healthcare decision-making systems enhances both predictive accuracy and operational efficiency. The analysis of genetic information alongside demographic and lifestyle data through AI algorithms enables precise treatment recommendations that show great promise in cancer treatment (Li et al., 2024). Healthcare delivery and patient results see improvement through AI deployment, according to Gala et al. (2024). AI integration optimizes healthcare operations, reducing errors and enhancing service accuracy. Digital twins created with AI-based tools enable the development of individualized treatment plans, thereby enhancing patient outcomes (Briganti & Moine, 2020).

AI algorithms facilitate the accurate diagnosis and early detection of respiratory disorders by analyzing patient data, which includes medical images and physiological parameters, according to Alanazi et al. (2024). The result of these applications is faster medical intervention, leading to improved patient outcomes. The approach empowers healthcare workers to address medical issues before they escalate and to improve patient health outcomes. AI enhances overall population health through early interventions based on the identification of individuals at risk. The incorporation of AI into healthcare decision-making enhances predictive capabilities, boosts efficiency, and enables personalized treatment suggestions, ultimately leading to improved patient outcomes and enhanced healthcare delivery.

Discussion

Healthcare clinical decision-making has been transformed by AI, which provides tools that generate more profound insights into patient data, resulting in more precise diagnoses and better treatment plans (Varnosfaderani & Forouzanfar, 2024). The sophistication of AI's learning and processing abilities drives transformative changes in medical diagnostics and treatment protocols (Varnosfaderani & Forouzanfar, 2024). Medical image analysis systems utilizing AI achieve high accuracy when examining X-rays, MRIs, and CT scans and frequently outperform human experts in spotting abnormalities (AbuAlrob & Mesraoua, 2024). The implementation of AI technology facilitates the early detection and precise diagnosis of diseases, including cancer, cardiovascular conditions, and neurological disorders (Mizna et al., 2025). Artificial intelligence algorithms can detect disease patterns and help pinpoint populations with a higher risk of developing specific illnesses (Tariq, 2023). AI enhances medical image interpretation accuracy by detecting minor anomalies, reducing human error possibilities, and limiting fatigue and oversight effects (Khalifa & Albadawy, 2024).

AI systems maintain the ability to learn from new data inputs, which allows them to enhance their predictive functions and increase the precision of outcome evaluations. The analysis of extensive patient data using AI algorithms enables the detection of patterns and the prediction of future disease development based on medical history, genetic information, and lifestyle factors. Through analysis of different treatment options, AI algorithms enable physicians to choose optimal healthcare strategies by predicting patient outcomes. AI and machine learning applications in the healthcare industry facilitate improved patient care through the automation of administrative tasks and the enhancement of clinical decisions (Diaconu et al., 2023). Healthcare professionals benefit from AI-driven solutions that automate routine tasks, allowing them to dedicate their time to more critical patient care responsibilities.

The analysis of patient data through AI enables medical professionals to accurately diagnose diseases early while examining medical images and physiological parameters (Alowais et al., 2023). The timely interventions enabled by this approach lead to improved patient outcomes.

AI systems continually learn from new data inputs, which enhances their prediction accuracy and improves evaluation results, according to Jiang et al. (2017). Artificial Intelligence provides valuable analysis of complex datasets that humans find challenging to comprehend. Healthcare facilities that adopt AI solutions will achieve better diagnostic accuracy while making workflows more efficient and enhancing patient results. Through AI-powered systems, healthcare professionals can remotely track patient conditions and detect health risks to implement early treatments.

Medical imaging analysis through AI technology has significantly enhanced disease detection capabilities and diagnostic accuracy (Nia et al., 2023; Yu et al., 2018). AI demonstrates exceptional capabilities in medical image analysis by detecting minor irregularities and disease indicators, such as cancer, which enables early treatment and detection (AlSamhori et al., 2024; Coelho, 2023). AI helps examine complex medical images, including X-rays and MRIs, to detect abnormalities, which leads to disease diagnosis and supports clinical decision-making processes (Li et al., 2024). The implementation of artificial intelligence in healthcare has transformed image analysis by delivering superior accuracy and faster processing speeds. The precision of AI algorithms in medical image analysis often exceeds the human ability to detect subtle abnormalities.

Medical imaging now benefits from AI integration, resulting in improved abnormality detection and diagnostic precision. Computed tomography, along with magnetic resonance imaging and positron emission tomography, serves as a crucial tool for medical professionals to obtain detailed visual information about the human body (Coelho, 2023). Radiologists can now dedicate their expertise to complex diagnostic challenges as AI-driven technologies, including machine learning and deep learning, automate routine tasks and assist in disease detection and clinical decision-making (Bhandari, 2024; Coelho, 2023). These diagnostic tools achieve high accuracy when analyzing medical images because they combine data from various imaging techniques, such as CT scans, MRI scans, and PET scans, to create detailed diagnostic profiles. Researchers are creating AI-based solutions to support healthcare professionals in diagnosing and planning treatments for different medical conditions (Abdul et al., 2024).

Conclusion

Healthcare delivery has been revolutionized by AI technologies, which enhance diagnostic precision while streamlining operational processes to support customized patient treatment plans, resulting in improved patient outcomes and enhanced healthcare efficiency (Bhandari, 2024). The integration of AI into healthcare decision-making yields enhanced predictive accuracy and efficiency while providing personalized treatment recommendations. These combined benefits lead to improved patient outcomes and enhanced healthcare delivery. The diagnostic accuracy and disease detection capabilities of medical imaging have improved significantly through the implementation of AI technologies (Khalifa & Albadawy, 2024). Medical imaging is transforming the use of AI, machine learning, and deep learning, which supports improved diagnostic precision and personalized treatment approaches, ultimately enhancing patient outcomes, according to studies by Adams et al. (2020), Bi et al. (2019), and Retson and Eghtedari (2023). Medical imaging tools function to improve image quality while minimizing radiation exposure and enhancing diagnostic accuracy. AI algorithms enable optimization of radiation doses while reducing scan times and improving image quality, according to Melazzini et al. (2025).

Healthcare providers now better diagnose and manage diseases thanks to significant enhancements from AI technology. Healthcare professionals can enhance diagnostic precision and customize patient care while boosting patient results by utilizing artificial intelligence capabilities (Adams et al., 2020) (Gunasekara et al., 2020). AI-driven technologies present vast possibilities for healthcare transformation through enhanced diagnostic precision and workflow optimization while facilitating personalized care approaches (Bera et al., 2021; Marias, 2021; Wekenborg et al., 2025). Through analysis of medical images and physiological parameters, AI helps diagnose conditions accurately and detect them early (Poalelungi et al., 2023).

AI algorithms enable the analysis of extensive patient datasets that include medical histories, genetic information, and lifestyle factors to detect patterns that predict the probability of disease development (Islam et al., 2020). The healthcare sector utilizes AI and machine learning technologies to optimize administrative processes while improving clinical decision-making and enhancing patient care quality. Healthcare professionals gain more time to attend to complex patient care needs because AI-driven solutions automate routine tasks (Faiyazuddin et al., 2025; Oualikene-Gonin et al., 2024; Varnosfaderani & Forouzanfar, 2024). The main benefits for service users from diverse backgrounds include enhanced accessibility and convenience with special emphasis on serving patients with unique preferences who face physical mobility challenges (Khosravi et al., 2024). Artificial intelligence encompasses a range of technologies that incorporate machine learning, deep learning, natural language processing, robotics, speech processing, and several additional automation technologies.

Healthcare professionals' benefit from AI tools that detect potential drug interactions and predict treatment responses while personalizing medication plans. AI algorithms utilize extensive medical literature and clinical trial data analysis to determine personalized treatment strategies for patients. The ability of AI to analyze complex medical data allows healthcare professionals to make informed decisions and develop individualized treatment plans based on predicted treatment outcomes (AlSamhori et al., 2024). The implementation of AI in healthcare practice can enhance diagnostic accuracy and workflow efficiency, enabling personalized treatment plans that lead to improved patient outcomes and more efficient healthcare delivery (Chang, 2019; Olawade et al., 2023; Parekh et al., 2023; Ye et al., 2024).

AI and machine learning technologies have developed into transformative tools with the capacity to revolutionize healthcare delivery while simultaneously improving patient outcomes (Kulkov, 2021). AI technologies are revolutionizing healthcare healthcare through enhanced diagnostic precision and workflow optimization, enabling tailored treatments that produce better results for patients and more efficient healthcare operations. Medical professionals are utilizing AI in Healthcare to transform disease diagnosis and treatment through data analysis, which enhances patient outcomes while reducing expenses, according to Datta et al. (2019). The AI automation of routine tasks enables healthcare professionals to focus their efforts on more complex and critical aspects of patient care (Krive et al., 2023). Artificial intelligence serves multiple functions in the healthcare sector, including medical imaging analysis, diagnostic procedures, pharmaceutical research, and direct patient management, according to Dave and Patel (2023) and Kumar et al. (2022). AI-based applications support the creation of personalized treatment plans by analyzing individual patient characteristics, as well as genetic and lifestyle data (Bajwa et al., 2021; Bates et al., 2021; Hirani et al., 2024; Ramalingam et al., 2023).

References

Abdul, N. S., Shivakumar, G. C., Sangappa, S. B., Blasio, M. D., Crimi, S., Cicciù, M., & Minervini, G. (2024). Applications of artificial intelligence in the field of oral and maxillofacial pathology: a systematic review and meta-analysis [Review of Applications of artificial intelligence in the field of oral and maxillofacial pathology: a systematic review and meta-analysis]. BMC Oral Health, 24(1). BioMed Central. https://doi.org/10.1186/s12903-023-03533-7

AbuAlrob, M. A., & Mesraoua, B. (2024). Harnessing artificial intelligence for the diagnosis and treatment of neurological emergencies: a comprehensive review of recent advances and future directions [Review of Harnessing artificial intelligence for the diagnosis and treatment of neurological emergencies: a comprehensive review of recent advances and future directions]. Frontiers in Neurology, 15. Frontiers Media. https://doi.org/10.3389/fneur.2024.1485799

Abukhadijah, H. J., & Nashwan, A. J. (2024). Transforming Hospital Quality Improvement Through Harnessing the Power of Artificial Intelligence. Global Journal on Quality and Safety in Healthcare, 7(3), 132. https://doi.org/10.36401/jqsh-24-4

Adams, S., Henderson, R. D. E., Xin, Y., & Babyn, P. (2020). Artificial Intelligence Solutions for Analysis of X-ray Images [Review of Artificial Intelligence Solutions for Analysis of X-ray Images]. Canadian Association of Radiologists Journal, 72(1), 60. SAGE Publishing. https://doi.org/10.1177/0846537120941671

Adel, N. (2024). The Impact of Digital Literacy and Technology Adoption on Financial Inclusion in Africa, Asia, and Latin America. Heliyon, 10(24). https://doi.org/10.1016/j.heliyon.2024.e40951

Akhtar, Z. B. (2025). Artificial intelligence within medical diagnostics: A multi-disease perspective. Deleted Journal, 5173. https://doi.org/10.36922/aih.5173

Akinrinmade, A. O., Adebile, T. M., Ezuma-Ebong, C., Bolaji, K., Ajufo, A., Adigun, A. O., Mohammad, M., Dike, J. C., & Okobi, O. E. (2023). Artificial Intelligence in Healthcare: Perception and Reality [Review of Artificial Intelligence in Healthcare: Perception and Reality]. Cureus. Cureus, Inc. https://doi.org/10.7759/cureus.45594

Alanazi, S., Al-Omari, A., Alanazi, S., Marar, A., Asad, M., Alawaji, F., & Alwateid, S. (2024). Artificial intelligence in respiratory care: Current scenario and future perspective. Annals of Thoracic Medicine, 19(2), 117. https://doi.org/10.4103/atm.atm_192_23

Al-Enizi, A. M., Mishra, S., & Baihan, A. (2024). Enhancing secure financial transactions through the synergy of blockchain and artificial intelligence. Ain Shams Engineering Journal, 15(6), 102733. https://doi.org/10.1016/j.asej.2024.102733

Alowais, S. A., Alghamdi, S. S., Alsuhebany, N., Alqahtani, T., Alshaya, A., Almohareb, S. N., Aldairem, A., Alrashed, M., Saleh, K. B., Badreldin, H. A., Yami, M. S. A., Harbi, S. A., & Albekairy, A. (2023). Revolutionizing HealthcareHealthcare: the role of artificial intelligence in clinical practice [Review of Revolutionizing HealthcareHealthcare: the role of artificial intelligence in clinical practice]. BMC Medical Education, 23(1). BioMed Central. https://doi.org/10.1186/s12909-023-04698-z

AlSamhori, J. F., AlSamhori, A. R. F., Duncan, L. A., Qalajo, A., Alshahwan, H. F., Al-Abadi, M., Soudi, M. A., Zakraoui, R., AlSamhori, A. F., AlRyalat, S. A., & Nashwan, A. J. (2024). Artificial intelligence for breast cancer: Implications for

diagnosis and management. Journal of Medicine Surgery and Public Health, 3, 100120. https://doi.org/10.1016/j.glmedi.2024.100120

Attaran, M. (2020). Blockchain technology in HealthcareHealthcare: Challenges and opportunities. International Journal of Healthcare Management, 15(1), 70. https://doi.org/10.1080/20479700.2020.1843887

Bajwa, J., Munir, U., Nori, A., & Williams, B. (2021). Artificial intelligence in HealthcareHealthcare: Transforming the practice of Medicine. Future Healthcare Journal, 8(2). https://doi.org/10.7861/fhj.2021-0095

Bates, D. W., Levine, D. M., Syrowatka, A., Kuznetsova, M., Craig, K. J. T., Rui, A., Jackson, G. P., & Rhee, K. (2021). The potential of artificial intelligence to improve patient safety: a scoping review [Review of The potential of artificial intelligence to improve patient safety: a scoping review]. Npj Digital Medicine, 4(1). Nature Portfolio. https://doi.org/10.1038/s41746-021-00423-6

Bekbolatova, M., Mayer, J., Ong, C. W., & Toma, M. (2024). Transformative Potential of AI in Healthcare: Definitions, Applications, and Navigating the Ethical Landscape and Public Perspectives [Review of Transformative Potential of AI in Healthcare: Definitions, Applications, and Navigating the Ethical Landscape and Public Perspectives]. Healthcare, 12(2), 125. Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/healthcare12020125

Bera, K., Braman, N., Gupta, A., Velcheti, V., & Madabhushi, A. (2021). Predicting cancer outcomes with radiomics and artificial intelligence in radiology [Review of Predicting cancer outcomes with radiomics and artificial intelligence in radiology]. Nature Reviews Clinical Oncology, 19(2), 132. Nature Portfolio. https://doi.org/10.1038/s41571-021-00560-7

Bhandari, A. (2024). Revolutionizing Radiology With Artificial Intelligence [Review of Revolutionizing Radiology With Artificial Intelligence]. Cureus. Cureus, Inc. https://doi.org/10.7759/cureus.72646

Bi, W. L., Hosny, A., Schabath, M. B., Giger, M. L., Birkbak, N. J., Mehrtash, A., Allison, T., Arnaout, O., Abbosh, C., Dunn, I. F., Mak, R. H., Tamimi, R. M., Tempany, C. M., Swanton, C., Hoffmann, U., Schwartz, L. H., Gillies, R. J., Huang, R. Y., & Aerts, H. J. W. L. (2019). Artificial intelligence in cancer imaging: Clinical challenges and applications [Review of Artificial intelligence in cancer imaging: Clinical challenges and applications]. CA A Cancer Journal for Clinicians, 69(2), 127. Wiley. https://doi.org/10.3322/caac.21552

Briganti, G., & Moine, O. L. (2020). Artificial Intelligence in Medicine: Today and Tomorrow. Frontiers in Medicine, 7. https://doi.org/10.3389/fmed.2020.00027

Chang, A. (2019). The Role of Artificial Intelligence in Digital Health. In Computers in health care (p. 71). Springer International Publishing. https://doi.org/10.1007/978-3-030-12719-0_7

Chang, S. E., & Chen, Y. (2020). Blockchain in Health Care Innovation: Literature Review and Case Study From a Business Ecosystem Perspective [Review of Blockchain in Health Care Innovation: Literature Review and Case Study From a Business Ecosystem Perspective]. Journal of Medical Internet Research, 22(8). JMIR Publications. https://doi.org/10.2196/19480

Charles, V., Emrouznejad, A., & Gherman, T. (2023). A critical analysis of the integration of blockchain and artificial intelligence for supply chain. Annals of Operations Research, 327(1), 7. https://doi.org/10.1007/s10479-023-05169-w

Chen, Y., Ding, S., Xu, Z., Zheng, H., & Yang, S. (2018). Blockchain-Based Medical Records Secure Storage and Medical Service Framework. Journal of Medical Systems, 43(1). https://doi.org/10.1007/s10916-018-1121-4

Coelho, L. (2023). How Artificial Intelligence Is Shaping Medical Imaging Technology: A Survey of Innovations and Applications. Bioengineering, 10(12), 1435. https://doi.org/10.3390/bioengineering10121435

Dailah, H. G., Koriri, M. D., Sabei, A., Kriry, T., & Zakri, M. (2024). Artificial Intelligence in Nursing: Technological Benefits to Nurse's Mental Health and Patient Care Quality [Review of Artificial Intelligence in Nursing: Technological Benefits to Nurse's Mental Health and Patient Care Quality]. Healthcare, 12(24), 2555. Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/healthcare12242555

Datta, S., Barua, R., & Das, J. (2019). Application of Artificial Intelligence in Modern Healthcare System. In IntechOpen eBooks. IntechOpen. https://doi.org/10.5772/intechopen.90454

Dave, M., & Patel, N. (2023). Artificial intelligence in healthcare and education. BDJ, 234(10), 761. https://doi.org/10.1038/s41415-023-5845-2

Diaconu, C., State, M., Birligea, M., Ifrim, M., Bajdechi, G. E., Georgescu, T., Mateescu, B., & Voiosu, T. (2023). The Role of Artificial Intelligence in Monitoring Inflammatory Bowel Disease—The Future Is Now [Review of The Role of Artificial Intelligence in Monitoring Inflammatory Bowel Disease—The Future Is Now]. Diagnostics, 13(4), 735. Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/diagnostics13040735

Dixon, D., Sattar, H., Moros, N., Kesireddy, S. R., Ahsan, H., Lakkimsetti, M., Fatima, M., Doshi, D., Sadhu, K., & Hassan, M. J. (2024). Unveiling the Influence of AI Predictive Analytics on Patient Outcomes: A Comprehensive Narrative Review. Cureus. https://doi.org/10.7759/cureus.59954

Duan, W., Ji, Y., Zhang, Y., Zhang, G., Frascolla, V., & Li, X. (2020). 5G Technologies Based Remote E-Health: Architecture, Applications, and Solutions. arXiv (Cornell University). https://doi.org/10.48550/arxiv.2009.02131

Duong-Trung, N., Son, H. X., Le, H. T., & Phan, T. T. (2020). On Components of a Patient-Centered Healthcare System Using Smart Contract. 31. https://doi.org/10.1145/3377644.3377668

Durneva, P., Cousins, K., & Chen, M. (2020). The Current State of Research, Challenges, and Future Research Directions of Blockchain Technology in Patient Care: Systematic Review [Review of The Current State of Research, Challenges, and Future Research Directions of Blockchain Technology in Patient Care: Systematic Review]. Journal of Medical Internet Research, 22(7). JMIR Publications. https://doi.org/10.2196/18619

Ezeogu, A. O. (2024). Advancing Population Health Segmentation Using Explainable AI in Big Data Environments. *Research Corridor Journal of Engineering Science*, *1*(1), 267-2883.

Ezeogu, A. O. (2023). Real-Time Survival Risk Prediction with Streaming Big Health Data: A Scalable Architecture. (2023). *Contemporary Journal of Social Science Review*, *1*(1), 50-65. https://contemporaryjournal.com/index.php/14/article/view/123

Faiyazuddin, Md., Rahman, S. J. Q., Anand, G., Siddiqui, R. A., Mehta, R., Khatib, M. N., Gaidhane, S., Zahiruddin, Q. S., Hussain, A., & Sah, R. (2025). The Impact of Artificial Intelligence on Healthcare: A Comprehensive Review of Advancements in

Diagnostics, Treatment, and Operational Efficiency [Review of The Impact of Artificial Intelligence on Healthcare: A Comprehensive Review of Advancements in Diagnostics, Treatment, and Operational Efficiency]. Health Science Reports, 8(1). Wiley. https://doi.org/10.1002/hsr2.70312

Firouzi, F., Jiang, S., Chakrabarty, K., Farahani, B., Daneshmand, M., Song, J., & Mankodiya, K. (2022). Fusion of IoT, AI, Edge–Fog–Cloud, and Blockchain: Challenges, Solutions, and a Case Study in Healthcare and Medicine. IEEE Internet of Things Journal, 10(5), 3686. https://doi.org/10.1109/jiot.2022.3191881

Gala, D., Behl, H., Shah, M., & Makaryus, A. N. (2024). The Role of Artificial Intelligence in Improving Patient Outcomes and Future of Healthcare Delivery in Cardiology: A Narrative Review of the Literature [Review of The Role of Artificial Intelligence in Improving Patient Outcomes and Future of Healthcare Delivery in Cardiology: A Narrative Review of the Literature]. Healthcare, 12(4), 481. Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/healthcare12040481

Ghassemi, M., Naumann, T., Schulam, P., Beam, A. L., Chen, I. Y., & Ranganath, R. (2019). Practical guidance on artificial intelligence for healthcare data. The Lancet Digital Health, 1(4). https://doi.org/10.1016/s2589-7500(19)30084-6

Gordon, W. J., & Catalini, C. (2018). Blockchain Technology for Healthcare: Facilitating the Transition to Patient-Driven Interoperability [Review of Blockchain Technology for Healthcare: Facilitating the Transition to Patient-Driven Interoperability]. Computational and Structural Biotechnology Journal, 16, 224. Elsevier BV. https://doi.org/10.1016/j.csbj.2018.06.003

Gunasekara, S. R., Kaldera, H., & Dissanayake, M. B. (2020). A Feasibility Study for Deep Learning-Based Automated Brain Tumor Segmentation Using Magnetic Resonance Images. arXiv (Cornell University). https://doi.org/10.48550/arxiv.2012.11952

Han, Y., Zhang, Y., & Vermund, S. H. (2022). Blockchain Technology for Electronic Health Records. International Journal of Environmental Research and Public Health, 19(23), 15577. https://doi.org/10.3390/ijerph192315577

He, J., Baxter, S. L., Xu, J., Xu, J., Zhou, X., & Zhang, K. (2018). The practical implementation of artificial intelligence technologies in Medicine [Review of The practical implementation of artificial intelligence technologies in Medicine]. Nature Medicine, 25(1), 30. Nature Portfolio. https://doi.org/10.1038/s41591-018-0307-0

Hennrich, J., Ritz, E., Hofmann, P., & Urbach, N. (2024). Capturing Artificial Intelligence applications' value proposition in HealthcareHealthcare – a qualitative research study [Review of Capturing Artificial Intelligence applications' value proposition in HealthcareHealthcare – a qualitative research study]. BMC Health Services Research, 24(1). BioMed Central. https://doi.org/10.1186/s12913-024-10894-4

Hirani, R., Noruzi, K., Khuram, H., Hussaini, A. S., Aifuwa, E., Ely, K., Lewis, J. M., Gabr, A. E., Smiley, A., Tiwari, R. K., & Etienne, M. (2024). Artificial Intelligence and Healthcare: A Journey through History, Present Innovations, and Future Possibilities. Life, 14(5), 557. https://doi.org/10.3390/life14050557

Hölbl, M., Kompara, M., Kamišalić, A., & Zlatolas, L. N. (2018). A Systematic Review of the Use of Blockchain in Healthcare [Review of A Systematic Review of the Use of Blockchain in Healthcare]. Symmetry, 10(10), 470. Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/sym10100470

Ianculescu, M., Constantin, V.-Ștefan, Gușatu, A.-M., Petrache, M.-C., Mihăescu, A.-G., Bica, O., & Alexandru, A. (2025). Enhancing Connected Health Ecosystems Through

IoT-Enabled Monitoring Technologies: A Case Study of the Monit4Healthy System. Sensors, 25(7), 2292. https://doi.org/10.3390/s25072292

Islam, M. N., Inan, T. T., Rafi, S., Akter, S. S., Sarker, I. H., & Islam, A. K. M. N. (2020). A Survey on the Use of AI and ML for Fighting the COVID-19 Pandemic. arXiv (Cornell University). https://doi.org/10.48550/arxiv.2008.07449

Jeyaraman, M., Balaji, S., Jeyaraman, N., & Yadav, S. (2023). Unraveling the Ethical Enigma: Artificial Intelligence in Healthcare [Review of Unraveling the Ethical Enigma: Artificial Intelligence in Healthcare]. Cureus. Cureus, Inc. https://doi.org/10.7759/cureus.43262

Jiang, F., Jiang, Y., Zhi, H., Dong, Y., Li, H., Ma, S., Wang, Y., Dong, Q., Shen, H., & Wang, Y. (2017). Artificial intelligence in Health: Past, present and Future [Review of Artificial intelligence in Health: Past, present and Future]. Stroke and Vascular Neurology, 2(4), 230. BMJ. https://doi.org/10.1136/svn-2017-000101

Jita, H., & Pieterse, V. (2018). A Framework to Apply the Internet of Things for Medical Care in a Home Environment. 45. https://doi.org/10.1145/3291064.3291065

Juba, O. O., Olumide, A. O., Ochieng, J. O., & Aburo, N. A. (2022). Evaluating the impact of public policy on the adoption and effectiveness of community-based care for aged adults. *International Journal of Machine Learning Research in Cybersecurity and Artificial Intelligence, 13*(1), 65–102.

Juba, O. O., Lawal, O., David, J. I., & Olumide, B. F. (2023). Developing and Assessing Care Strategies for Dementia Patients During Unsupervised Periods: Balancing Safety with Independence. *International Journal of Advanced Engineering Technologies and Innovations, 1*(04), 322-349.

Juba, O. O., Olumide, A. O., & Azeez, O. (2023). *The Influence of Family Involvement on the Quality of Care for Aged Adults: A Comparative Study*.

Khalifa, M., & Albadawy, M. (2024). AI in diagnostic imaging: Revolutionising accuracy and efficiency. Computer Methods and Programs in Biomedicine Update, 5, 100146. https://doi.org/10.1016/j.cmpbup.2024.100146

Khosravi, M., Zare, Z., Mojtabaeian, S. M., & Izadi, R. (2024). Artificial Intelligence and Decision-Making in Healthcare: A Thematic Analysis of a Systematic Review of Reviews [Review of Artificial Intelligence and Decision-Making in Healthcare: A Thematic Analysis of a Systematic Review of Reviews]. Health Services Research and Managerial Epidemiology, 11. SAGE Publishing. https://doi.org/10.1177/23333928241234863

Krittanawong, C., Rogers, A. J., Aydar, M., Choi, E., Johnson, K. W., Wang, Z., & Narayan, S. M. (2019). Integrating blockchain technology with Artificial intelligence for Cardiovascular Medicine [Review of Integrating blockchain technology with Artificial Intelligence for Cardiovascular medicine]. Nature Reviews Cardiology, 17(1), 1. Nature Portfolio. https://doi.org/10.1038/s41569-019-0294-y

Krive, J., Isola, M., Chang, L., Patel, T., Anderson, M. C., & Sreedhar, R. (2023). Grounded in reality: artificial intelligence in medical education. JAMIA Open, 6(2). https://doi.org/10.1093/jamiaopen/ooad037

Kulkov, I. (2021). Next-generation business models for artificial intelligence start-ups in the healthcare industry. International Journal of Entrepreneurial Behaviour & Research, 29(4), 860. https://doi.org/10.1108/ijebr-04-2021-0304

Kumar, R., Arjunaditya, Singh, D., Srinivasan, K., & Hu, Y. (2022). AI-Powered Blockchain Technology for Public Health: A Contemporary Review, Open Challenges, and

Future Research Directions [Review of AI-Powered Blockchain Technology for Public Health: A Contemporary Review, Open Challenges, and Future Research Directions]. Healthcare, 11(1), 81. Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/healthcare11010081

Kuwaiti, A. A., Nazer, K., Alreedy, A. H., AlShehri, S. D., Almuhanna, A., Subbarayalu, A. V., Muhanna, D. A., & Al-Muhanna, F. (2023). A Review of the Role of Artificial Intelligence in Healthcare [Review of A Review of the Role of Artificial Intelligence in Healthcare]. Journal of Personalized Medicine, 13(6), 951. Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/jpm13060951

Li, Y.-H., Li, Y., Wei, M.-Y., & Li, G. (2024). Innovation and challenges of artificial intelligence technology in personalized healthcare healthcare [Review of Innovation and challenges of artificial intelligence technology in personalized healthcare healthcare]. Scientific Reports, 14(1). Nature Portfolio. https://doi.org/10.1038/s41598-024-70073-7

Malik, Y. S., Sircar, S., Bhat, S., Ansari, M. I., Pande, T., Kumar, P., Mathapati, B., Ganesh, B., Kaushik, R., Natesan, S., Ezzikouri, S., Zowalaty, M. E. E., & Dhama, K. (2020). How artificial intelligence may help the Covid-19 pandemic: Pitfalls and lessons for the Future [Review of How artificial intelligence may help the Covid-19 pandemic: Pitfalls and lessons for the Future]. Reviews in Medical Virology, 31(5), 1. Wiley. https://doi.org/10.1002/rmv.2205

Marias, K. (2021). The Constantly Evolving Role of Medical Image Processing in Oncology: From Traditional Medical Image Processing to Imaging Biomarkers and Radiomics. Journal of Imaging, 7(8), 124. https://doi.org/10.3390/jimaging7080124

Melazzini, L., Bortolotto, C., Brizzi, L., Achilli, M. F., Basla, N., Meo, A. D., Gerbasi, A., Bottinelli, O. M., Bellazzi, R., & Preda, L. (2025). AI for image quality and patient safety in CT and MRI [Review of AI for image quality and patient safety in CT and MRI]. European Radiology Experimental, 9(1). Springer Science+Business Media. https://doi.org/10.1186/s41747-025-00562-5

Mizna, S., Arora, S., Saluja, P., Das, G., & Alanesi, W. A. (2025). Analytic research and review of the literature on the practice of artificial intelligence in healthcare [Review of An analytic research and review of the literature on the practice of artificial intelligence in healthcare]. European Journal of Medical Research, 30(1). BioMed Central. https://doi.org/10.1186/s40001-025-02603-6

Nash, A. (2024). Decentralized Health Intelligence Network (DHIN). arXiv (Cornell University). https://doi.org/10.48550/arxiv.2408.06240

Nia, N. G., Kaplanoğlu, E., & Nasab, A. (2023). Evaluation of artificial intelligence techniques in disease diagnosis and prediction. Discover Artificial Intelligence, 3(1). https://doi.org/10.1007/s44163-023-00049-5

Novi, G. D., Sofía, N., Vasiliu-Feltes, I., Christine, Y. Z., & Ricotta, F. (2023). Blockchain Technology Predictions 2024: Transformations in Healthcare, Patient Identity and Public Health. Blockchain in Healthcare Today, 6(2). https://doi.org/10.30953/bhty.v6.287

Olawade, D. B., Wada, O. J., David-Olawade, A. C., Kunonga, E., Abaire, O. J., & Ling, J. (2023). Using artificial intelligence to improve public health: a narrative review [Review of Using artificial intelligence to improve public health: a narrative review]. Frontiers in Public Health, 11. Frontiers Media. https://doi.org/10.3389/fpubh.2023.1196397

Oualikene-Gonin, W., Jaulent, M., Thierry, J.-P., Oliveira-Martins, S. de, Belgodère, L., Maison, P., & Ankri, J. (2024). Artificial Intelligence Integration in the Drug Lifecycle and Regulatory Science: Policy Implications, Challenges, and Opportunities. Frontiers in Pharmacology, 15. https://doi.org/10.3389/fphar.2024.1437167

Parekh, A.-D. E., Shaikh, O. A., Kaur, S., Manan, S., & Hasibuzzaman, Md. A. (2023). Artificial intelligence (AI) in personalized Medicine: AI-generated personalized therapy regimens based on genetic and medical history: short communication. Annals of Medicine and Surgery, 85(11), 5831. https://doi.org/10.1097/ms9.0000000000001320

Patel, O. (2022). AI-Enabled Security for Ethereum Blockchain Transactions. Journal of Artificial Intelligence & Cloud Computing, 1(4), 1. https://doi.org/10.47363/jaicc/2022(1)372

Phiri, A. K., Juba, O. O., Baladaniya, M., Regal, H. Y. A., & Nteziryayo, T. (2024). *Strategies for Quality Health Standards*. Cari Journals USA LLC.

Poalelungi, D. G., Mușat, C. L., Fulga, A., Neagu, M., Neagu, A., Piraianu, A. I., & Fulga, I. (2023). Advancing Patient Care: How Artificial Intelligence Is Transforming Healthcare [Review of Advancing Patient Care: How Artificial Intelligence Is Transforming Healthcare]. Journal of Personalized Medicine, 13(8), 1214. Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/jpm13081214

Porcellato, E., Lanera, C., Ocagli, H., & Danielis, M. (2025). Exploring Applications of Artificial Intelligence in Critical Care Nursing: A Systematic Review [Review of Exploring Applications of Artificial Intelligence in Critical Care Nursing: A Systematic Review]. Nursing Reports, 15(2), 55. Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/nursrep15020055

Radanliev, P., & Roure, D. D. (2022). Advancing the cybersecurity of the healthcare system with self-optimising and self-adaptative artificial intelligence (part 2). Health and Technology, 12(5), 923. https://doi.org/10.1007/s12553-022-00691-6

Ram, B., & Verma, P. (2024). Application of Blockchain Technology in Data Security. IP Indian Journal of Library Science and Information Technology, 9(1), 51. https://doi.org/10.18231/j.ijlsit.2024.008

Ramalingam, A., Karunamurthy, A., Victoire, T. A., & Bellare, P. (2023). Impact of Artificial Intelligence on Healthcare: A Review of Current Applications and Future Possibilities [Review of Impact of Artificial Intelligence on Healthcare: A Review of Current Applications and Future Possibilities]. Quing International Journal of Innovative Research in Science and Engineering, 2(2), 37. https://doi.org/10.54368/qijirse.2.2.0005

Retson, T., & Eghtedari, M. (2023). Expanding Horizons: The Realities of CAD, the Promise of Artificial Intelligence, and Machine Learning's Role in Breast Imaging beyond Screening Mammography [Review of Expanding Horizons: The Realities of CAD, the Promise of Artificial Intelligence, and Machine Learning's Role in Breast Imaging beyond Screening Mammography]. Diagnostics, 13(13), 2133. Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/diagnostics13132133

Rony, M. K. K., Alrazeeni, D., Akter, F., Nesa, L., Das, D. C., Uddin, M. J., Begum, J., Khatun, Most. T., Noor, M. A., Ahmad, S., Tanha, S. M., Deb, T. R., & Parvin, Mst. R. (2024). The role of artificial intelligence in enhancing nurses' work-life balance.

Journal of Medicine Surgery and Public Health, 3, 100135. https://doi.org/10.1016/j.glmedi.2024.100135

Rony, M. K. K., Parvin, Mst. R., & Ferdousi, S. (2023). Advancing nursing practice with artificial intelligence: Enhancing preparedness for the Future. Nursing Open, 11(1). https://doi.org/10.1002/nop2.2070

Saho, N. J. G., & Ezin, E. C. (2021). Developing a Digital Healthcare Book based on Blockchain Technology. 2021 International Symposium on Electrical, Electronics and Information Engineering. https://doi.org/10.1145/3459104.3459203

Segal, G., Martsiano, Y., Markinzon, A., Mayer, A., Halperin, A., & Zimlichman, E. (2023). A blockchain-based computerized network infrastructure for the transparent, immutable calculation and dissemination of quantitative, measurable parameters of academic and medical research publications [Review of A blockchain-based computerized network infrastructure for the transparent, immutable calculation and dissemination of quantitative, measurable parameters of academic and medical research publications]. Digital Health, 9. SAGE Publishing. https://doi.org/10.1177/20552076231194851

Serag, A., Ion-Mărgineanu, A., Qureshi, H., McMillan, R. B., Martin, M.-J. S., Diamond, J., O'Reilly, P. G., & Hamilton, P. (2019). Translational AI and Deep Learning in Diagnostic Pathology [Review of Translational AI and Deep Learning in Diagnostic Pathology]. Frontiers in Medicine, 6. Frontiers Media. https://doi.org/10.3389/fmed.2019.00185

Shaikh, M., Memon, S., Ebrahimi, A., & Wiil, U. K. (2025). A Systematic Literature Review for Blockchain-Based Healthcare Implementations [Review of A Systematic Literature Review for Blockchain-Based Healthcare Implementations]. Healthcare, 13(9), 1087. Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/healthcare13091087

Shuaib, A. (2024). Transforming Healthcare with AI: Promises, Pitfalls, and Pathways Forward. International Journal of General Medicine, 1765. https://doi.org/10.2147/ijgm.s449598

Singh, S., Sharma, P. K., Yoon, B., Shojafar, M., Cho, G., & Ra, I.-H. (2020). Convergence of Blockchain and Artificial Intelligence in IoT Networks for Sustainable Smart Cities. Sustainable Cities and Society, 63, 102364. https://doi.org/10.1016/j.scs.2020.102364

Sun, Z., Han, D., Li, D., Wang, X., Chang, C., & Wu, Z. (2022). A blockchain-based secure storage scheme for medical information. arXiv (Cornell University). https://doi.org/10.48550/arxiv.2207.06102

Taherdoost, H. (2023). Privacy and Security of Blockchain in Healthcare: Applications, Challenges, and Future Perspectives. Sci, 5(4), 41. https://doi.org/10.3390/sci5040041

Tariq, Z. (2023). Integrating Artificial Intelligence and Humanities in Healthcare. arXiv (Cornell University). https://doi.org/10.48550/arxiv.2302.07081

Thacharodi, A., Singh, P., Meenatchi, R., Ahmed, Z., Kumar, R. R. S., Neha, V., Kavish, S., Maqbool, M., & Hassan, S. (2024). Revolutionizing HealthcareHealthcare and Medicine: The impact of modern technologies for a healthier future—A comprehensive review [Review of Revolutionizing HealthcareHealthcare and Medicine: The impact of modern technologies for a healthier future—A comprehensive review]. Health Care Science, 3(5), 329. https://doi.org/10.1002/hcs2.115

Torkey, H., Hashish, S., Souissi, S., Hemdan, E. E., & Mahmoud, A. S. A. (2025). Seizure Detection in Medical IoT: Hybrid CNN-LSTM-GRU Model with Data Balancing and XAI Integration. Algorithms, 18(2), 77. https://doi.org/10.3390/a18020077

Udegbe, F. C., Ebulue, O. R., Ebulue, C. C., & Ekesiobi, C. S. (2024). THE ROLE OF ARTIFICIAL INTELLIGENCE IN HEALTHCARE: A SYSTEMATIC REVIEW OF APPLICATIONS AND CHALLENGES [Review of THE ROLE OF ARTIFICIAL INTELLIGENCE IN HEALTHCARE: A SYSTEMATIC REVIEW OF APPLICATIONS AND CHALLENGES]. International Medical Science Research Journal, 4(4), 500. Fair East Publishers. https://doi.org/10.51594/imsrj.v4i4.1052

Ullah, H. S., Aslam, S., & Arjomand, N. (2020). Blockchain in Healthcare and Medicine: A Contemporary Research of Applications, Challenges, and Future Perspectives. arXiv (Cornell University). https://doi.org/10.48550/arxiv.2004.06795

Varnosfaderani, S. M., & Forouzanfar, M. (2024). The Role of AI in Hospitals and Clinics: Transforming HealthcareHealthcare in the 21st Century. Bioengineering, 11(4), 337. https://doi.org/10.3390/bioengineering11040337

Wahl, B., Cossy-Gantner, A., Germann, S., & Schwalbe, N. (2018). Artificial intelligence (AI) and global health: How can AI contribute to health in resource-poor settings? [Review of Artificial intelligence (AI) and global health: How can AI contribute to health in resource-poor settings?]. BMJ Global Health, 3(4). BMJ. https://doi.org/10.1136/bmjgh-2018-000798

Wekenborg, M., Gilbert, S., & Kather, J. N. (2025). Examining human-AI interaction in real-world HealthcareHealthcare beyond the laboratory [Review of Examining human-AI interaction in real-world HealthcareHealthcare beyond the laboratory]. Npj Digital Medicine, 8(1). Nature Portfolio. https://doi.org/10.1038/s41746-025-01559-5

Wu, D., & Wang, Y. (2024). Revolutionizing healthcare information systems with blockchain. Frontiers in Digital Health, 5. https://doi.org/10.3389/fdgth.2023.1329196

Ye, J., Woods, D., Jordan, N., & Starren, J. (2024). The role of artificial intelligence in the application of integrating electronic health records and patient-generated data in clinical decision support. PubMed, 2024, 459. https://pubmed.ncbi.nlm.nih.gov/38827061

Yu, K., Beam, A. L., & Kohane, I. S. (2018). Artificial intelligence in HealthcareHealthcare [Review of Artificial intelligence in HealthcareHealthcare]. Nature Biomedical Engineering, 2(10), 719. Nature Portfolio. https://doi.org/10.1038/s41551-018-0305-z

Yuan, F., Zuo, Z., Jiang, Y., Shu, W., Tian, Z., Ye, C., Yang, J., Mao, Z., Huang, X., Gu, S., & Peng, Y. (2025). AI-Driven Optimization of Blockchain Scalability, Security, and Privacy Protection. Algorithms, 18(5), 263. https://doi.org/10.3390/a18050263

Zekiye, A., & Özkasap, Ö. (2023). Decentralized Healthcare Systems with Federated Learning and Blockchain. arXiv (Cornell University). https://doi.org/10.48550/arxiv.2306.17188

Zhang, P., Schmidt, D. C., & White, J. (2020). A Pattern Sequence for Designing Blockchain-Based Healthcare Information Technology Systems. arXiv (Cornell University). https://doi.org/10.48550/arxiv.2010.01172

Zhang, P., Schmidt, D. C., White, J., & Lenz, G. (2018). Blockchain Technology Use Cases in Healthcare. In Advances in Computers (p. 1). Elsevier BV. https://doi.org/10.1016/bs.adcom.2018.03.006

Zhang, R., Xue, R., & Liu, L. (2021). Security and Privacy for Healthcare Blockchains. IEEE Transactions on Services Computing, 15(6), 3668. https://doi.org/10.1109/tsc.2021.3085913

Zheng, Z., & Dai, H. (2019). Blockchain Intelligence: When Blockchain Meets Artificial Intelligence. arXiv (Cornell University). https://doi.org/10.48550/arxiv.1912.06485