

Review on Transformative Impact of Intelligence of Artificial-Based Technologies on Public Healthcare

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Abstract:

This review focuses on the revolutionary impact of Intelligence of Artificial (AI) on public healthcare, discussing how it having the capacity to change diagnostics, tailor therapies and substantially improve operational management both nationally and internationally. The potential of AI encompasses computer vision, processing of natural language, deep learning, Learning of Machines, and robotics, is to tackle some of our most pressing healthcare challenges, from cost to inequity in access and the growing burden of chronic disease.

The article refers to India as an interesting case, citing the country's novel platform-first approach to social infrastructure around strong deployments of DPI and broad-based programs (e.g., extant e-sanjeevani and Nikshay). They support the swift adoption and scaling of AI and reveal material benefits, including better data management with multilingual bots, better access to specialist care in rural areas or prediction and early detection of diseases at scale.

Even though AI is such a potent force, integrating AI into public healthcare in a country like India comes with many challenges. These include data quality issues, biased outcomes, infrastructural challenges, ethical (privacy, accountability, transparency), to concerns about regulatory compliance, and human-in-the-loop requirements. The long-term viability and financial models of AI solutions are largely unknown as well.

The review emphasizes that successful and inclusive AI integration requires a calibrated and preemptive perspective, focused on ensuring the quality and fairness of data, the strength of the infrastructure, and a strong commitment to moral standards. India's novel, context-specific AI repurposing and national efforts can offer a model for other LMICs to advance digital health transformation and ensure equitable access to health technology.

Keywords: Intelligence of Artificial, Public Healthcare, Digital Public Infrastructure, India, Diagnostics, Challenges

1. Introduction

Intelligence of Artificial (AI) is becoming a seismic force that is transforming industries around the world. In this tectonic shift, healthcare is increasingly viewed as a sector that could be revolutionized and brought forward by AI.¹ Using advanced Learning of Machines algorithms, advanced data analytics, and automations, AI has major potential to transform medical decision-making, improve diagnosis

accuracy, and improve treatment outcome.²⁻⁴ This shift is not just hypothetical – drug and biotech companies, MedTech innovators and nimble startups have already been well underway leveraging AI to develop and implement products that serve the healthcare market across a wide swath of segments. Among these breakthroughs are applications for Drug development, preclinical research, clinical trials, patient monitoring, genomics, and early disease detection diagnosis and screening.⁵ AI's capacity to mimic human cognitive processes, and also to decode subtle patterns in complex and large dataset makes it as an invaluable tool for the optimisation of clinical workflow, increase efficiency, and make more informed decisions in medical systems.⁵

Internationally, public health care systems struggle to manage a broad range of both longstanding and growing issues. These factors include the non-stop escalation of health care prices, widespread disparities in access among vital resources, and the overwhelming prevalence of chronic diseases.⁶ Such formidable challenges highlight a compelling and undeniable imperative for creative, scalable solutions. In this light, digital healthcare has evolved not as a futuristic ambition, but an urgent and essential necessity for redressing institutional inefficiencies embedded over time as well as inherent modes of access to public health infrastructure. The deliberate incorporation of technology into public health frameworks is in hope of broadening access to care, better real-time data compilation and much improved clinical outcomes, especially areas that have traditionally been unable to receive care. Telemedicine, EHRs, digital health ID, and integrated AI-based disease monitoring are the manifestations of such potential.⁷

We argue in this paper that AI-enabled technologies have a strong transformative potential in public health for greatly improving diagnosis results, making possible very personalized treatments, and for largely improving operational efficiencies. Yet, the realization of this profound potential will require successfully negotiating an intricate web of challenges. That includes fundamental questions about data quality; the omnipresent risk of algorithmic bias; complex ethical issues; and the need for strong infrastructure to support it all. These challenges are even more emphasized and demand subtle approaches in the distinctive and varied setting of India's pluralistic public health-practice system. Fair, responsible, sustainable inclusion of AI in such settings requires frameworks for responsible AI governance, ongoing human oversight, and the development of strategic public private partnerships. The review will end with practical suggestions, with aspirations that may lead policy design and implementation in the future.

2. Healthcare Industry in India

India's public health infrastructure has for decades lamentably failed to be able to cope with the healthcare needs of its huge and highly heterogeneous people. The system is described as being under chronic strain, with hospitals generally overstretched, health care access being inequitably distributed, a long-standing deficit of medical personnel, and insufficient primary care having been established. A major percentage of government hospitals and PHCs are consistently overcrowded, overcruising from their normalized size. It results in a series of universal problems, like long waiting lines in the out-patient service and the emergency room that can hardly bear any further patients, representing a great disparity between the number of patients and the resources of medical services.⁸ That is, while 70% of the Indian population lives in rural areas, most drinking water and health services are located in urban areas. This difference also stands out in the National Health Profile 2022, which reports a hospital bed for every 500 people in cities as opposed to one bed for a cluster of 1,600 in villages. Most of the public

health facilities are not well equipped and are understaffed — with competitors sometimes being treated in a hospital's full wards.⁹

The scope of the problems, both operational and logistical, in India's public health sector are varied and rooted. One long-standing issue is the lack of modern infrastructure and necessities such as medical equipment, which is most obvious in smaller towns and in the countryside. Some services are still paper-based services that slow process and data handling given the increased monitoring capabilities of electronic solutions. In India there is also an acute shortage of health care personnel with the doctor to patient ratio of about 1: 834, which is less than the WHO recommended ratio of 1: 1000. This scarcity is compounded by physician aversion to practice in rural jurisdictions, leading many rural communities to be medically underserved.

Consequently, low-quality care, including misdiagnosis and the presence of undertrained health professionals, is prevalent, particularly in rural settings. One study even uncovered a PHC doctor in Delhi prescribing incorrect treatment methods 50% of the time, directly hindering health improvement for rural Indians.

The existence of a robust digital public infrastructure (DPI) and large-scale technology platforms like e-Sanjeevani and Nikshay is not merely supportive; it acts as a foundational enabler and a force multiplier for AI integration in public health.⁶ These platforms are explicitly designed to lessen a lot of the issues with data, adoption, and scaling typically associated with AI deployment. They facilitate comprehensive data collection, facilitate the integration of models and data annotation, assist numerous stakeholders, and expedite the adoption and expansion of AI solutions..¹⁰ This means India can bypass the initial, often costly, and time-consuming process of building data infrastructure from scratch for AI applications. Instead, it leverages existing digital pathways to accelerate AI adoption and its impact at scale. This strategic advantage explains how India, despite its systemic healthcare challenges, can emerge as a global pathfinder in digital health.

3. Review of Literature

Defining AI and its Sub-domains in Healthcare

Intelligence of Artificial (AI) broadly refers to computers' ability to mimic human reasoning. processes and execute tasks within real-world settings, often surpassing human capabilities in data analysis and contextualization.¹¹ AI-enabled programs are designed to contextualise and analyse data in order to provide information or initiate actions automatically without the need for direct human participation..¹¹ Within this expansive field, several key sub-domains are particularly relevant to healthcare.

Learning of Machines (ML) is a fundamental subset of Intelligence of Artificial that employs algorithms to automatically identify patterns and extract insights from data, continuously improving its decision-making capabilities through experience. It is essentially a statistical method for learning and fitting models to data through iterative training processes. In healthcare, the most common application of conventional Learning of Machines is precision medicine, which forecasts the best course of action for each patient according to their particular characteristics and clinical setting.¹ The majority of applications for learning of machines, especially in precision medicine, use supervised learning, which necessitates a training dataset where the intended result variable is already known.¹

Neural Networks (ANNs) represent a more intricate variation of Learning of Machines, with their foundational concepts established in healthcare research as early as the 1960s. These networks are widely used for categorization applications, such as determining a patient's likelihood of acquiring

a specific disease. Neural networks conceptualize problems by analyzing inputs, outputs, and the weighted relationships or features that connect them.¹ Despite being frequently compared to how neurones in the brain process messages, the connection to the intricate workings of the brain is thought to be somewhat poor.¹ Deep Learning is the most sophisticated type of Learning of Machines, characterized by models of neural networks with multiple layers of variables or characteristics that forecast results.¹ Leveraging the greater computing power of today’s graphic processing unit and cloud based architecture, deep learning models are able to discover thousands of hidden features in large data collection successor learning to rank, large datasets. A popular and important usage of deep learning in the medical field is to identify possibly cancerous lesions for radiology images.

NLP Market Having The Ability Of Facilitating Computers To Understand, Interpret And Work In Same Language As Human Being It Since last decade, the field of processing of natural language (NLP) market has seen significant growth.¹¹ In the field of healthcare, NLP is used for activities like speech recognition and mining useful patient information from unstructured sources such as doctors' notes.

This is the idea of computer vision -- the fact that the computer can see before.¹¹ In healthcare, it is widely used in medical image analysis like X-rays, MRIs, CT scans for identifying anomalies and diagnosis. 1

Robotic and Robotic Process Automation (RPA) feature strongly in the healthcare story too. Robotic technology can help surgeons in complex operations that require precision and accuracy, and can even make minimally invasive surgery safer, so that there are fewer risks of complications and better patient outcomes. 12 Robotic Process Automation (RPA) is a process of scripts emulating human actions for manual repetitive tasks like input of data. RPA is used by healthcare companies and hospitals to automate these administrative duties, relieving doctors and administrators to concentrate on higher-value, patient-facing tasks.¹²

In this article, we summarize the key AI technologies involved, as well as their applications in public health care with the aid of the following table:

Table 1: Key AI Technologies and Their Applications in Public Healthcare

AI Technology	Definition/Description	Key Applications in Healthcare
Intelligence of Artificial (AI)	Computers' overall capacity to simulate human thought and perform tasks; analyze and contextualize data to provide information or trigger actions automatically.	Enhancing diagnostic medicine, personalizing surgical precision, improving surgical precision, automating tasks, accelerating decision-making.
Learning of Machines	subset of artificial intelligence that uses algorithms to identify patterns and gain	Precision medicine (predicting treatment success), analyzing

(ML)	insights from data, improving decisions through experience.	electronic health records for clinical decision support, predicting hospital visit outcomes.
Neural Network s (ANNs)	Complex form of ML, conceptualizing problems with inputs, outputs, and weighted features; used for categorization.	Determining patient disease acquisition, basis for deep learning in image analysis.
Deep Learning	Most complex ML, using neural networks with many feature layers; uncovers hidden patterns from large datasets.	Recognition of cancerous lesions in radiology images, analyzing MRI and other medical images for abnormalities, radiomics.
Processing of natural language (NLP)	ML focused on The capacity of computers to comprehend, evaluate, and produce human language.	Speech recognition, obtaining patient information from medical records, capturing provider-patient interactions.
Computer Vision	Ability for computers to interpret images.	Medical image analysis (X-rays, MRIs, CT scans) for abnormality detection, facial recognition in patient identification (with bias concerns).
Robotics/Robotic Process Automatio n (RPA)	Robots assist surgeons; RPA simulates human behaviour in manual tasks such as data entry.	Assisting surgeons in complex procedures, automatin g administrative tasks (billing, data entry).

4. Research Methodology

Assessment of the impact of AI in public health must take a comprehensive approach that goes far beyond traditional clinical trials and considers the wider societal and systemic context. The existing evidence suggests several hypothetical research approaches that are essential to this endeavor.

There are number of references to Empirical Studies and Case Studies, such as Google DeepMind working with Moorfields Eye Hospital, IBM Watson Health’s Oncology Data Initiative and the In the All of Us Research Program at the National Institutes of Health.³ This implies a focus on a methodology of examining how AI is actually being implemented in practice and learning from the successes, failures and best practices.

This concept of Framework Development and Validation is another connoted method. A five-step validation board and a hierarchical mind map for AI preparedness introduction implies a tendency for developing structured framework or model to guide the process of AI integration.¹⁴ These models would also need to be validated in an adequately robust manner, such as by use and testing in practice.¹⁷

Interdisciplinary Collaboration and Qualitative Research describe the focus on the involvement of different stakeholders such as AI developers, health experts, citizens, patient representatives, ethicists, data managers and law experts. This also points out the relevance of qualitative approaches, involving interviews, focus groups, and co-creation meetings, for data collection to obtain in-depth views and understanding. Understanding the perception and acceptability of AI decisions by its users is essential to

achieve trust and again support the necessity of qualitative research in this regard. Data-Centric Research is core, when high- quality, unbiased data, data governance, and secure sharing are in focus. This includes approaches that focus on the creation and validation of data anonymization methods, the development of bias detection and mitigation algorithms, and the development of data standards to make AI usage reliable.

Ethical and Regulatory Research is evident in the above extensive debate on responsible use, in dual-use controls and the introduction of regulatory regimes such as the EU AI Act. This field of work aims to determine the social and ethical implications of AI and to develop policies and standards for responsibly deploying it.

One potential research avenue that NLP for the purposes of HCI is HCI Due to the push of human-in-THE- loop and explainable AI.¹⁴ This effort will seek to create visible and explicable AI systems and provide a channel for effective human feedback and collaboration, with the ultimate goal of ensuring that AI technologies continue to augment rather than replace human expertise.

Last, but not least, Infrastructure and Systems Research is vital. A call for such strong AI-enabled infrastructure, therefore, also encompasses the research and development of scalable computing resources, secure data management structures, and organizational models that are required for the upkeep and servicing of AI systems in public health.¹⁴

The success of AI in public health depends on three cornerstones: high-quality, neutral data, strong AI-driven infrastructure, and sustained human monitoring. These components do not exist in isolation, but function as a highly interdependent ecosystem for Trustworthy AI.

Data of High Quality and Free from Bias is the Foundation for Accurate Predictability and Equitable Results in AI Systems.¹⁴ In the absence of clean, representative data, AI models are very likely to generate biased predictions, which might cause inefficient or even harmful decisions.¹⁴ Thus, the stringent mechanisms for collection, cleaning and validation of data are pivotal requirements. Addressing data bias up front is also critical to avoid biased AI-generated outcomes that may have otherwise deleterious consequences on some communities, which for assist to increased health disparities.

A strong foundation built on AI Infrastructure is a must for successful deployment of AI solutions. This infrastructure includes not just the requisite technical hardware and software, but the organizational ability to support, update, and oversee sophisticated AI systems. It is equipped with high-performance computing resources, more advanced data storage systems and software frameworks for both model training and deployment. Moreover, it needs trained personnel and strong governance to safeguard privacy and security of data. Without sufficient infrastructure, the most sophisticated AI algorithms will not be deployable to address public health crises.

Continuous Human Oversight is paramount. Incorporating person-in-the-loop methods is key for enhancing the accuracy and reliability of AI-based tools in public health. Although AI is good at digesting large numbers of medical data, its generalization is inherently narrow. Human inputs facilitate manual detection and resolution of the errors, improving AI-predicted insights, which eventually yields AI recommendation with better accuracy. This process of human supervision and AI refinement iteratively reinforces the system reliability, reduces errors and promotes the trustworthiness of the system, particularly when the inference of AI is not ultimate. ¹⁴ Human experts contribute vital context, domain expertise, and supervision not achievable through AI alone, ensuring ethical, fair, and accountable decisions. It is further revealed that the AI revolution is held back by the least innovative of

these three aspects, making it apparent that only a seamless integrated approach to all three at once is needed.

A rigorous AI evaluation plan may be established to guarantee the AI systems being evaluated and validated strictly. A critical component in such a strategy would be an associated test set with proper test samples and carefully selected performance metrics and reference methods. Test set should be clearly distinguished from training set to prevent data leakage, maintaining unbiased estimation of model performance. The adoption of performance measures must be weighed in a thoughtful way of their virtues and potential deficiencies. Last, by benchmarking against existing AI tools or standard clinical practice, a direct comparison can be made to assess the model's performance and thereby clarifying its efficacy and reliability.¹⁷

Indeed the diversity of implicit research methods here is an expression of the intrinsic multi-dimensionality and complexity of AI's effects to public health. Public health AI is not only a technical issue (requiring algorithmic work to be sure), but a social-technical issue that involves human-computer interaction studies and qualitative research. Second, it involves ethical and legal aspects, requiring special ethical and regulatory investigation and organisational and infrastructural dimensions, which require systems research. This suggests that full comprehension and intelligent application of AI does require a multidisciplinary holistic approach, which goes beyond traditional [bio] medical research and should integrate disciplines such as social sciences, engineering, law and ethics.

5. Analysis and Interpretation

Use of AI technology is particularly well suited to mitigate the urgent and specific demands such as those posed by India's public health requirements. Take AI-powered diagnostics, which can help fill the gaping divides in specialist care, such as in remote and under-resourced areas, directly addressing the debilitating shortage of trained healthcare providers and the immense distances many must travel to see one. Multilingual AI bots will be game-changing for India or any country with multilingual population. They can interact with patients and health workers, reliably collect health information and store it in an orderly fashion in Electronic Medical Records (EMRs), solving the current problem of manual documentation and largely enhancing the quality and availability of data they need.¹⁰ It can also contribute to overcoming language barriers, which are a common barrier of effective health care provision in a multilingual society.

In addition, AI models play a critical role in screening, diagnosing diseases and forecasting the spread of diseases for both individuals and large populations. This ability has a direct relevance on the management of significant public health issues such as malaria and TB, dengue and novel outbreaks, advancing a very reactive and non-specific public health response. By unlocking the potential of treatment plans and enhancing diagnostic accuracy, AI has the potential to significantly reduce health care costs and consequently alleviate the costs people in India pay. AI can also combine and synthesize they can glue together different types of data streams from multiple sources,^{2,3,7,20,51} develop effective public health connections, and create future early warning systems outbreaksgeneration of vital information to inform policy decisions and improve preparedness.¹⁰

Pilot Projects and Government Initiatives in India

India's strategic path towards AI integration in public health will involve utilizing its extant massive technology platforms to combat traditional barriers to AI adoption and scale. ¹⁰ This platform first approach is one of the company's key distinctions. These mature platforms are built to ingest large

volumes of data, support multiple interests, provide data annotation and model integration, and to be able to be used at scale openly. ¹⁰ It enables faster upscaling and is cost-effective, which also guarantees a constant monitor of the real world data for improving AI models. Such a model can become a blueprint for other Countries with Low and Middle Incomes (LMICs) that are encountering the same infrastructure and adoption obstacles and is a demonstration of how widespread impact can be achieved by constructing AI on the already existing digital base.

A prime example is **e-Sanjeevani**, one of the biggest telemedicine platforms in the world, which serves approximately 300,000 patients every day via a network of more than 200,000 medical specialists. ¹⁰ The high volume and velocity of data generated on this platform allow for AI integration at multiple points. This permits the use of computer vision models for image scanning, the collection of structured data, clinical decision assistance, patient information acquisition, and the detection of disease epidemic hotspots. ¹⁰ Importantly, e-Sanjeevani's physician inputs function as expert-labeled data. which continuously refines and improves the underlying AI models. ¹⁰

Another significant initiative is **Nikshay**, a web-enabled application and mobile app used for monitoring tuberculosis (TB) patients across India. It stands as The biggest database and software platform in the world dedicated to TB eradication. ¹⁰ Within Nikshay, a notable case study involves the **prediction of adverse treatment outcomes, specifically failure to follow up (LFU)**, which refers to treatment disruption among TB patients for 30 days or longer in a row. ¹⁰ In India, approximately 9% and 3% of all TB cases of drug-resistant TB patients experience LFU. AI models, trained on longitudinal Nikshay data from over 600,000 patients, predict LFU at the initiation of treatment, identifying early warning signs include smoking, drinking, being a migrant, and lacking social or financial support that are associated with treatment interruption. ¹⁰ These cloud-hosted models provide a risk score that can be dynamically adjusted based on the availability of health worker resources at local TB units. These AI models have demonstrated superior performance compared to traditional rule-based methods, with the potential to have an almost twofold greater impact on the same level of patient targeting. ¹⁰ Beyond this specific application, the Nikshay platform also facilitates broader AI development, including AI-predicted case counts for hotspot identification, voice capture, conversational chatbots to augment health worker capacity, and the use of cough sounds for AI-powered TB screening in experimental implementations. ¹⁰

A further innovative application is in **Newborn Anthropometry and Infant Health**. A smartphone-based computer vision AI system has been created to estimate baby weight and other anthropometric measurements (such as height, head circumference, and chest circumference). from short videos taken in home settings, even with a variety of backgrounds and inadequate illumination. ¹⁰ This solution is contactless, geo-tagged, accurate (with a mean weight error of approximately 114 grams for babies up to 6 weeks old), and critically, edge-hosted, meaning it does not require internet connectivity to function. ¹⁰ This technology is being deployed for Social health activist with accreditation (ASHA) Information syncing to the Reproductive and Child Health (RCH) portal is being piloted by inclusion into a sandbox for the ANMOL platform in Ratlam, India, and employees via the Health Care Management Platform in Daman and Diu, India. Integration with ANMOL/RCH and tools such as the Poshan Tracker, which detects stunting and monitors the provision of nutrition services, are intended to enable full scalability. ¹⁰ This pragmatic approach, where AI development is tailored to existing constraints rather than waiting for ideal infrastructure, enables immediate impact and fosters local innovation, which is key to achieving equitable access in challenging environments.

Public Private Partnerships (PPPs) are seen as a necessity in delivering the agenda for digitalisation in Countries with Low and Middle Incomes (LMICs).² These collaborations could help expand affordable broadband and cloud-based data storage for health care providers, addressing infrastructure gaps head-on.² Partnerships between NGOs, private sector, academia and the government are essential, the later leading with policies and NGOs aiding the growth of such new technologies such as AI integrated in our society.²

Challenges of AI Adoption in India

Despite these nascent developments, adoption of AI in the system of public health in India is fraught with unique challenges. Data Challenges are significant, ranging from privacy issues and the time-consuming and costly process of annotating data to data quality and completeness (particularly in the Global South) and the risk of bias/shift due to training data not matching deployment settings.¹⁰

Deployment, and Adoption and Scale Challenges are further very large. AI solutions require an often-overshadowed layer of lightweight applications being locked to basic smart phones to function offline in rural and suburban resource poor settings (Friederich Rösler et al., 2019), this calls for model compression (Li et al., 2016) and user friendly interfaces with a human override as well.² Adoption and scaling~~up~~ requires system-wide and local strategies and scaling requires inter~~operability~~ and adaptations in workflow across multiple healthcare environments. AI architectures should consider environmental restrictions including network availability and device capabilities. In addition, the AI models developed in other nations may not consider the local disease patterns and socio-cultural idiosyncrasies, thus making the adaptation of AI to the Indian healthcare system essential.¹⁰

Large scale Long-term Sustainability Challenges are not deterministic. AI's models need to be regularly tested and re-trained on new data so that they remain accurate and up to date, leading to continuous maintenance costs, which the government must pay for. Hybrid financing models of determinants of long-term sustainability are underexplored.¹⁷

Finally, Regulatory Challenges persist. India is currently in the process of shaping an AI regulatory regime for healthcare to address existing laws, cybersecurity protocols, IP concerns amid the AI technology's fast-evolving landscape for developers to take cognisance to. There is an equally urgent requirement to establish clear liability for AI-augmented errors.

6. Findings

The systematic analysis of the impact of AI in public health indicates some interesting insights, particularly for India. AI is a disruptive force working to transform diagnostics, personalize treatments, and improve productivity for health systems around the world. Its established use-cases include drug discovery, virtual nursing companions, and predictive analytics which shows its potential to reinvent many aspects of healthcare delivery.⁴ In India, we are beginning to see AI deliver real advantages, such as reducing huge gaps in specialist care, better data management through multilingual bots, and large-scale early detection and prediction of outbreak of diseases.

India's Strategic Use of a Strong Digital Public Infrastructure (DPI) and an Extension of the Existing Large-scale Platforms Such as e-Sanjeevani and Nikshay An excellent and unique example of robust AI adoption and scale-up at speed. This technique makes India a world leader in digital health.⁶ Additionally, pilot projects in India, such as using AI for prediction of tuberculosis treatment adherence and smartphones for newborn anthropometry, clearly illustrate the feasibility and significant potential

for positive impact on population health, even in resource-limited settings. Notwithstanding this great promise, and despite the prospect of widespread use of AI in public healthcare, there are significant barriers to its implementation worldwide and specifically in India. Among these are common challenges involving quality of data, risks for biases in algorithms, as well as substantial constraints in infrastructure. Ethical considerations, including potential privacy invasion, liability attribution for mistakes, transparency of blackbox algorithms, and informed consent by patients are formidable barriers to trust in and acceptance of AI applications. 1 The need for strong regulatory systems, ongoing human supervision and effective education programs for the workforce is critical in order to minimize these risks and facilitate the responsible and effective implementation of AI. 10 Another unexplored issue is the long-term sustainability of AI solutions, and in particular the financial models for continued maintenance and retraining.

Most importantly, with its ability to test, refine and scale solutions across its large and diverse population, India and its landmark national programmes like ABDM, CoWIN Platform and eSanjeevani, ensure that it leads global transformation in digital health. The adoption of such context-specific AI solutions, including offline-first applications and smartphone-based solutions designed for low-resource settings, reflects an innovative approach India has been taking to circumvent infrastructure bottlenecks and ensure equitable access to healthcare technologies.

7. Conclusion

Intelligence of Artificial is clearly a disruptive influence that is going to reshape public healthcare practices around the world, and represent an opportunity to transform the way in which diagnostics are performed, interventions are personalized and operations are optimized. Its potential for handling large data sets, finding patterns that are not only simple

The current state of the field reflects how AI is moving from theoretical potential to real-world implementation, with significant recent developments toward this in diverse areas of healthcare. However, the journey is a complicated one that needs to be fine-tuned and adapted to different settings. India is an interesting case study and a world leader in this transformation. The above notwithstanding, India has a strategic stake in its Digital Public Infrastructure and its pioneering, scalable AI projects, such as e- Sanjeevani and Nikshay, provides us a pragmatic, high-leverage glide path for AI to be grafted within the public health space. The Indian context indicates, on the one hand, the phenomenal promise of AI, and, on the other, the urgent necessity of context-sensitive, ethical and collaborative approaches to make AI beneficially accessible to all segments of society.

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