BLOCKCHAIN® IN HEALTHCARE TODAY
PLATFORM APPROACHES IN HEALTHCARE

BHTY PREDICTIONS CONV2X 2026

2026 Healthcare Predictions: AI, Blockchain, and the Rise of Decentralized Innovation

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DOI: https://doi.org/10.30953/bhty.v8.475

Keywords: Agentic AI, artificial intelligence, blockchain, consumer health applications, decentralized identity, decentralized science, DeSci, domain-specific models, healthcare interoperability, HIPAA compliance, post-quantum cryptography, programmable finance, stablecoins, verifiable credentials

Abstract

As we head into 2026, artificial intelligence (AI), blockchain, and other emerging technologies are moving from experiments into core healthcare systems. That shift promises tangible benefits: fewer people left untreated, faster discovery of lifesaving treatments, and simpler, lower-cost ways to move money and data across borders. It also brings real risks—speculative hype, erosion of institutional trust, and rushed rollouts that fail patients—so adoption must be disciplined and values-driven. This annual predictions article, informed by ConV2X Symposium speakers, highlights practical advances likely to matter at the bedside and beyond: programmable stablecoins that lower cross-border payment friction; AI that surfaces pediatric risks earlier; verifiable digital credentials that ease clinician mobility; post-quantum cryptography to safeguard sensitive records; domain-specific AI designed for regulatory compliance; consumer apps that put usable health tools in people's pockets; and the rise of Decentralized Science (DeSci) to restore transparency and funding momentum to stalled research. Realizing these possibilities will require deliberate choices, commitment, and coordinated stewardship across innovators, clinicians, and policymakers. With that effort, these tools can help build a more verifiable, equitable, and resilient global healthcare system—technology shaped to serve people, not the other way around; aspirations for healing, dignity, and universal well-being. While uncertainties persist, the path forward is clear: responsible innovation today will shape a healthier, more inclusive tomorrow.

Published: January 2, 2026

Rapid advances in distributed ledger technologies, artificial intelligence (AI), and adjacent innovations are reshaping the architecture, practice, and governance of healthcare. What were once isolated demonstrations and pilot projects are converging into interoperable systems that touch clinical workflows, payment rails, research pipelines, and patient-facing services. This transition presents opportunities to improve care quality, reduce friction in financing and data exchange, and accelerate translational research, while also raising complex technical, regulatory, and ethical questions that require rigorous examination.

Blockchain and related ledger technologies offer novel primitives for verifiability, provenance, and programmable finance; AI contributes new capabilities for pattern detection, prediction, and decision support; and their combination enables emergent use cases that neither technology could realize alone. The healthcare sector's unique constraints—sensitivity of patient data, regulatory heterogeneity, legacy system inertia, and high stakes for safety and equity—amplify both the promise and the risks of technological adoption. Understanding near-term trajectories therefore depends on integrating technical maturity with operational realities and policy constraints.

Each year, Blockchain in Healthcare Today (BHTY) convenes perspectives from ConV2X Symposium speakers and other domain experts to surface evidence-informed forecasts about technologies likely to influence the coming year. This article compiles those perspectives to map anticipated developments across clinical practice, operational efficiency, regulatory frameworks, and patient empowerment. Rather than speculative futurism, the focus is on plausible, near-term changes that are actionable for researchers, health system leaders, technology developers, and regulators.

The assembled contributions address a coherent set of domains: programmable financial instruments for cross-border transactions; AI-enhanced longitudinal analytics for pediatric and developmental care; decentralized identity and verifiable credentials for clinician mobility and attribution; post-quantum and quantum-resistant cryptographic strategies for data protection; domain-specific AI architectures aligned with compliance requirements; consumer-oriented mobile health solutions; and the institutional and technical foundations of DeSci. Across these topics, contributors foreground ethical considerations—data sovereignty, informed consent, transparency in research funding and provenance, algorithmic fairness, and equitable access—recognizing that technological maturation must be accompanied by governance mechanisms that protect public goods.

By synthesizing multidisciplinary viewpoints, this article aims to guide stakeholders in prioritizing investment, piloting responsibly, and updating governance structures to reflect emerging capabilities. The intent is to support informed decision-making that reduces geographic and institutional barriers, strengthens trust mechanisms through verifiable processes, and fosters intelligent, adaptive systems that deliver measurable improvements in health outcomes.

Michael Dershem

As 2026 unfolds, the convergence of AI, blockchain, and fintech continues to shift healthcare's operational and ethical foundations. This year marks a turning point where previously experimental technologies begin serving as infrastructural elements rather than pilot projects.

Cross-Border Medical Commerce and Programmable Finance

The first generation of stablecoins tailored for international medical transactions will enter production. These programmable assets are designed to facilitate transparent, low-friction payments between patients, providers, and insurers across jurisdictions. Beyond reducing transaction fees, they offer new pathways for automating compliance, streamlining reimbursements, and embedding audit trails into global health financing flows.

Pediatric AI and Developmental Insight Systems

In parallel, AI is extending into pediatric care, not just as diagnostic tools, but as longitudinal insight engines. By processing multivariate data across health and educational domains, emerging models aim to identify early patterns in physical and cognitive development. These systems provide tailored, evidence-based prompts for early intervention, transforming how caregivers and educators anticipate and respond to developmental trajectories.

Verifiable Credentials and Global Clinical Portability

Clinician identity and credentialing are being reimagined for a borderless digital health workforce. Leveraging decentralized identifiers (DIDs) and verifiable credentials, new standards will emerge for validating practitioner expertise across regions. This evolution supports safer AI model training, facilitates remote consulting, and reduces friction in health worker mobility.

Together, these trends signal a broader shift: healthcare in 2026 will no longer be bounded by geography, currency, or legacy intermediaries. Instead, it will be anchored in verifiability, programmability, and adaptive intelligence, laying the groundwork for a globally interoperable health infrastructure.

John Riley, III

When we look at the future of emerging technology in healthcare, I believe we are going to see a major shift in how organizations adopt innovation. AI will be increasingly leveraged to streamline processes and unlock efficiencies that many providers have not yet tapped into. At the same time, blockchain will still play a critical role in securing sensitive health data and verifying research results with greater accuracy and transparency.

This transformation will accelerate as more C-suite decision makers become educated on the advancements in these technologies and recognize the urgency of preparing their organizations for digital transformation. It is no longer a question of if it is a matter of when, and that "when" is happening right now.

With emerging tech evolving faster than most can keep up, another area that will gain traction in the healthcare sector is quantum computing, specifically the adoption of Post-Quantum Cryptography (PQC). Organizations like the Mount Sinai Health System are already exploring PQC to secure genomic and patient data, while firms like Deloitte are advising healthcare clients on quantum-safe infrastructure. The signs are very clear, quantum is no longer theoretical. It is being applied in real-world case studies across the globe, and healthcare leaders need to be ready.

2026 will mark a turning point. We will see a spike in the adoption of emerging technologies unlike anything in

Citation: Blockchain in Healthcare Today 2025, **8**: 475 - https://doi.org/10.30953/bhty.v8.475

years past. Sitting on the sidelines will no longer be an option. This will be the year leaders move away from the outdated legacy mindset of "waiting to adopt" and instead embrace an innovative mindset, one that positions their organizations to thrive and scale in a future that is already arrived.

Mohan Venkataraman

Both blockchain and AI have already proven transformative in Healthcare and Life Sciences. By 2026, we will see accelerated momentum in three key directions. Immediate application to legacy use cases: Existing systems with embedded reasoning and workflows will evolve to leverage agentic AI models. Pharmaceutical supply chains, tailored health insurance offerings that blend machine learning with generative AI, revenue cycle management, and payer operations are prime candidates. Traditional Business Process Management (BPM) and middleware solutions may increasingly be replaced by generative AI–driven orchestration.

Evolution of the technologies themselves: Today's large language models (LLMs) are bulky and general-purpose, requiring costly fine-tuning for healthcare. By 2026, one can expect a shift toward smaller, domain-specific models that balance efficiency with precision. This evolution will demand stronger process and solution architecture skills, along with design patterns that integrate blockchain's trust and transparency with the intelligence of specialized LMs.

Compliance and regulatory alignment: Healthcare's regulatory environment will push blockchain platforms, AI models, and supporting tools toward HIPAA and FedRAMP compliance, and certifications such as SOC 1 and SOC 2. The convergence of trust, intelligence, and compliance will define the next wave of adoption.

Consumer mobile applications: Alongside enterprise adoption, a surge of AI-driven mobile health apps will target everyday consumers. This will be so expect for personalized wellness tools such as yoga and exercise routines, health assistants that manage individual care plans (including appointment scheduling, tracking, and reminders), and purpose-trained chat assistants that provide tailored guidance. These applications will democratize access to healthcare insights, making AI and blockchain part of daily life.

Jim Nasr

2025—quietly—saw real progression and the start of material adoption in DeSci. There are now a number of legitimate DeSci infrastructure and funding enablers, such as Molecule and ResearchHub, supporting a rapidly growing number of open science projects. Also, finally, we are seeing some of the more forward-looking crypto projects, such as Solana and Bio Protocol, actually make an effort here and put resources and political capital on the line.

At the same time, 2025 saw a screeching, and possibly irreversible, halt in traditional funding for many health and science projects. Desperation, the mother of invention…

2026 will see DeSci to be much more than a perceived niche ecosystem that offers alternative funding rails. There will be many more organized projects (and, not all as DAOs), with clearer milestones, scientifically sound protocols, discretely broken-down budgets, and transparent peer reviews, ready to execute in weeks than years!

Interestingly, I do not think many people will actually care about the tech in DeSci. It is a given that software and data must be open. It is also a given that AI will be at the core of almost all DeSci projects. The best practice would be to embrace the decentralized mindset and build in blockchain-enabled data verifiability, user self-sovereignty, and private AI practices…but that is not a given.

Science and crypto ecosystems will have to adapt to seize this opportunity. Science will have to embrace transparency in process and funding, working with smaller, phased budgets, engaging directly with users…maybe even citizen science! Crypto will have to be less self-aggrandizing, less driven by price-pump "Growth VPs," and embrace the fact that transformational returns in science and health are often measured in years and lives saved, than days and TVL.

Ajaz S. Hussain, PhD

AI and blockchain as foundational enablers of a resilient, patient-centric, and [globally] interconnected healthcare ecosystem—resonates deeply with longstanding regulatory imperatives. These imperatives prioritize risk-based, science-driven approaches to ensure patient safety, data integrity, and therapeutic reliability.

Emerging applications, such as programmable stablecoins for seamless cross-border payments, verifiable credentials for clinician mobility, and domain-specific AI models for longitudinal pediatric insights, hold particular promise. Notably, these innovations parallel the paradigm shift seen in pharmaceutical Quality by Design (QbD). Much like QbD, these technologies move systems away from empirical, trial-and-error frameworks toward predictive, knowledge-driven controls characterized by built-in quality assurance, robust traceability, and reduced variability.

From a regulatory science perspective, the most encouraging signal in these predictions is the recurring emphasis on compliance-ready architectures. The focus on HIPAA- and FedRAMP-aligned platforms, PQC safeguards, and user-sovereign data practices is critical.

Equally important is the disciplined commitment to real-world performance at the individual patient level. Algorithmic outputs must be not only accurate and explainable but also demonstrably safe, effective, and equitable across diverse populations. Furthermore, the rise of DeSci offers the potential to democratize therapeutics and enhance reproducibility—provided it incorporates verifiable protocols and phased milestones to mitigate the risks of unvalidated claims or data fragmentation.

My primary takeaway is a sense of urgency tempered by rigor: these technologies must not outpace our ability to establish harmonized regulatory pathways. Proactive interdisciplinary collaboration—among innovators, regulators, and standards bodies—is essential to translate infrastructural potential into equitable outcomes.

Without evidence-based validation, governance for continuous learning (particularly in adaptive AI systems), and safeguards for vulnerable populations, we risk repeating historical pitfalls where innovation faltered due to inadequate oversight.

In summary, 2026 could mark a transformative inflection point if the ecosystem embraces regulatory science as a partner in innovation. The insights from these ConV2X experts reinforce the fact that responsible adoption today will define tomorrow's healthcare: a system that is verifiable, efficient, equitable, and ultimately serves the patient at the center of all regulatory endeavors.

Funding

No funding was provided for the development of the article.

Conflicts of Interest

The authors are ConV2X 2025 speakers except for Jim Nasr, Acoer CEO, and BHTY editor; and Ajaz S. Hussain, Regulatory Science Section Editor, BHTY.

Contributors

The preparation of this article included the contributions of each author.

Data Availability Statement (DAS), Data Sharing, Reproducibility, and Data Repositories

Not applicable.

Application of AI-Generated Text or Related Technology

None were used.

Citation: Blockchain in Healthcare Today 2025, **8**: 475 - https://doi.org/10.30953/bhty.v8.475