NAROCOIN

World's First Medical Currency

Narocoin Whitepaper

To Unify Worldwide Medical Records, Providing Quality
and Affordable Healthcare to Everyone

Table of Contents

1. Executive Summary

Global healthcare is a multi-trillion dollar industry that is fraught with inequities, but ripe for change. Narocoin's primary goal is to eliminate healthcare disparities by leveraging on one of the most important concepts of the digital economy - data. Three distinct pillars support Narocoin's strategy to challenge existing medical conventions and disrupt the industry:

i) Data Unification

We envision a worldwide healthcare intranet that collates medical records by region, and then eventually, across the globe. This creates a simplified foundation to effectively and securely manage high volumes of data, bypassing the problematic integration of fragmented databases and repositories.

ii) Data Analytics

The sheer volume of healthcare transactions captured by Narocoin will rapidly generate actionable, long-term strategies. Researchers and medical institutions will find access to accurate and well organized data extremely valuable, when conducting medical research and developing policies that benefit entire populations.

iii) Currency Functionality

Narocoin also serves as a universal healthcare currency on our designated transaction platform for medical services and pharmaceuticals. This standardizes the value of basic treatment and medication, steering us towards our goal of affordable healthcare for all.

In addition, this paper discusses the importance of Blockchain technology in revolutionizing healthcare, and provides details on our ICO process.

2. Healthcare - Today's Issues

The problem we identify with the state of healthcare today, is that data management can be complex, when juggling the need to share information with stakeholders, while prioritizing data integrity and patient privacy.

Technology has put an immense volume of data into the hands of healthcare providers today. To put things into perspective, the National Health Service in England reportedly treats one million people every 36 hours. The collection of this data has facilitated notable medical research advancement in England, especially in areas such as epidemiology, outcomes research, vaccines, drug safety, and health services, amongst others.

The collation of data on a national scale also enabled researchers to formulate national statistics which were integral in pinpointing medical trends, like the rise in lung cancer mortality rate and its strong link with smoking. In 2015, the data collected by the NHS has enabled researchers to conduct an epidemiological study which conclusively disproved the link between autism and measles, mumps, and rubella vaccine.

Notwithstanding the fact that the above sounds beneficial, the problem is that all this precious information is stored in silos, within electronic medical records (EMR) systems. Data is largely manually reconciled between organizations. The result is that data transfer and exchange is not as smooth as we imagine, and hospital systems are unable to conveniently, and securely, share data.

This situation results in patients having to repeat their allergies and preexisting conditions every time they see a new doctor in a different clinic or hospital, and healthcare systems still failing to deliver comprehensive, personalized care plans despite the folders and folders of information it has on each individual patient.

Cumbersome EMR systems are centralized and vulnerable to security breaches. This implies excessive delays when different departments or organizations work together to deliver care to patients, and costly overheads maintaining the integrity of these systems.

We believe Blockchain technology can unlock the current inefficiency holding back medical advancement. The distributed ledger infrastructure is an obvious tool to trigger a healthcare revolution.

3. Healthcare - The Narocoin Ideal

Modern patient expectations require active coordination between healthcare provider systems to deliver optimal care. The relationship between primary physicians, specialists, second opinions, pharmacies etc. is a complex collaboration that aims to bring top notch medical service to patients. The very basic requirement for first world healthcare, therefore, is a seamless and interoperable system of information exchange.

Adopting a blockchain system supports Narocoin's vision to redesign the way medical records are kept and used. In addition, Narocoin cryptocurrency tokens can be used as a store of value, for patients to pay for services and pharmaceuticals provided by healthcare partners in the Narocoin network. We envision the global healthcare landscape being transformed massively thanks to these fully integrated benefits.

4. The Blockchain Healthcare Revolution

Blockchain technology is distinguished by its immutability. It is a secure and radically transparent ecosystem precisely because of the absence of centralized control and centralized authority. All transactions are ultimately tamper-proof public records.

As a result, healthcare technologists are starting to sit up and pay attention to how Narocoin's blockchain can streamline EMR processes for professionals in the field. This frees up valuable time that doctors and nurses can instead dedicate towards value added services to patients.

Implementing a blockchain architecture for EMR has huge advantages. It keeps workflow simplified. There is no necessity to add another organization between the patient and the records, because there is no single, exclusive owner of data. Granting access to records with intelligent control is possible without custom functionality for each individual data vendor.

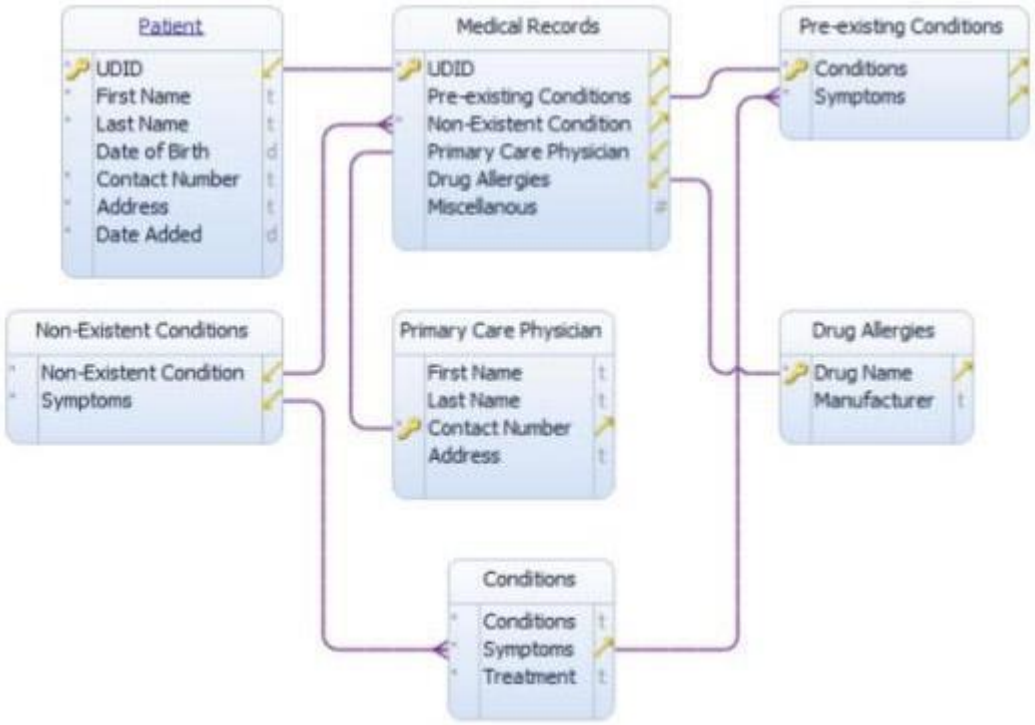
In this section, we break down Narocoin's strategy to restructure the industry's network for information exchange and discuss each component in turn.

4.1 Narocoin's Blockchain - Data Unification

Narocoin's data strategy captures transactions on its Ethereum-based blockchain. These are records of anything that can come out of a visit to a family clinic - a diagnosis, a prescription, a specialist referral etc. Personnel with special access keys add to the ledger, and transactions are validated decentrally.

Present day EMR systems are information silos built on an isolated credential validation architecture. Patient data is stored separately in different organizations, which means getting an accurate snapshot of a patient's health is a difficult task. By collating EMRs from as many sources available as possible - linking up an individual patient's records compiled across different healthcare providers and organizations - patients gain access to the best possible holistic medical care.

We illustrate below the database schema that would be initially deployed. As data requirements increase over time, the schema can be modified easily to accommodate more information.



Unified, interoperable data systems mean efficient information exchange with no delays or downtime. Patients will gain ownership of their own health, by becoming the primary intermediary to send and receive standardized information, where previously, their interaction with information mechanisms was highly restricted. The new transparent set up with blockchain smart contracts will eliminate the need for multiple repositories and integration points. The benefit? All your information in one place, accessible on command, safe from hacking.

4.2 Narocoin's Blockchain - Data Analytics

Medical advancement is predicated on substantial research, and data is critical to that study. It is therefore in the public's interest to make individual patient records accessible for the benefit of mankind.

However, the difficulty researchers today face is that an overwhelming percentage of patient data is filed away in physical folders and cabinets. Physically searching through non-standardized data is extremely time consuming, let alone compiling results that are significant.

Narocoin believes it is clear that when new databases are built on the blockchain foundation, a solution that has only recently been created, new doors will open. All manner of analytics are possible when you have accurate and well organized data at your fingertips. Prescriptions will be backed and supported by results from others who have suffered, and recovered from the very same illness and diseases. Pharmaceutical efficacy can be evaluated across patients from diverse geographical and genetic backgrounds.

The bigger picture is that these valuable patterns can guide decision making for optimized healthcare around the world. Imagine its value to medical institutions and nonprofit organizations who genuinely wish to shape the future.

Narocoin acknowledges a common patient concern - data collected from an individual patient is sensitive and private, and the benefit to medical advancement needs to be balanced against patient confidentiality. A security compromise would be extremely damaging to a patient's trust in the system, as would a sale of data to third parties who benefit commercially from such information.

Therefore, to protect patients, healthcare providers and agents who handle confidential and individually identifiable health information are to strictly observe the Privacy Rule in Title II of the Health Insurance Portability and Accountability Act (HIPAA). This act aims to prevent healthcare fraud and abuse by regulating the use and disclosure of Protected Health Information (PHI).

5. The Narocoin Cryptocurrency Token (NAR)

The Narocoin medical data infrastructure is powered by Narocoin cryptocurrency tokens (NAR). Hospital systems and healthcare organizations contribute nodes to the blockchain, where NAR control the way data is processed. Examples of how NAR is used to power blockchain technology include:

- Writing new data on the network
- Accessing databases when compiling records
- Modifying transactions
- Initiating analytics for research

Additionally, NAR can be traded on our platform or a cryptocurrency exchange. This highlights NAR's secondary function as a store of value. Examples of how NAR can be used as a store of value include:

- Paying for smart contracts
- Incentivizing quality healthcare with compensation
- Encouraging resource savings and collaboration

Narocoin works on a closed loop payment system where tokens are pre-loaded into patient accounts, conferring benefits such as expenditure tracking, functional customization, and patient captivity. This encourages a huge volume of transactions on the Narocoin blockchain, which drives long-term appreciation in token value.

6. Token Distribution

Presale NAR can be acquired in exchange for a pledge in two other cryptocurrencies - Bitcoin (BTC) and Ether (ETH). Attractive bonuses will be applied to the Presale tranche of tokens, as well as the first three weeks of the ICO phase. Bonus tokens will be paid out of a reserve, and minted if necessary.

An investor's BTC or ETH pledge is captured at the time of deposit. Its value in US dollars, referenced from Coinbase at the time of transaction, is used to calculate the number of NAR tokens an investor will receive. An investor receives 1 NAR token for every US$0.20 worth of BTC or ETH pledged.

The table below breaks down the total number of NAR tokens an investor can expect to receive, including bonuses, depending on his entry period, for every US$1,000 worth of BTC or ETH pledged.

Period	**Bonus (%)**	**US$1,000** (in NAR)
Presale	30%	6,500
ICO Week 1	20%	6,000
ICO Week 2	10%	5,500
ICO Week 3	5%	5,250
ICO Week 4	0%	5,000

After this initial distribution, NAR can be transferred between healthcare organizations, patients, and medical partners.

Narocoin aims to list NAR on major cryptocurrency exchanges, as well as integrate with independent trading platforms. This drives liquidity, and value creation.

NAR supply shall be distributed in the following manner:

- up to 60% of the Total NAR Number shall be distributed in accordance with Clause 4.10 in our Terms & Conditions document;
- up to 10% of the Total NAR Number shall be reserved and distributed as Bonus Tokens;
- 20% of the Total NAR Number shall be held by the Narocoin Team and Advisors;
- up to 10% of the Total NAR Number shall be allocated and/or distributed in accordance with agreements, if any, entered into in relation to the Bounties; and
- any NAR that are minted for the purposes stipulated in our Terms & Conditions document, shall be destroyed if not distributed during the Offering Period.

Bounties Allocation:

15% - Marketing Support
15% - Narocoin Thread Support
20% - Strategic Partnerships
50% - Exclusive Support

The Narocoin Website, the Narocoin Platform and NAR are not offered for use to natural and legal persons having their habitual residence or their seat of incorporation in the United States of America and the Republic of Singapore (the “Restricted Areas”). In addition to the above,

User(s) warrant that they adhere to the terms and conditions stipulated in our Terms & Conditions document.

7. Project Milestones

Our vision to revolutionize and disrupt the current state of healthcare can be broken down into significant ICO milestones to keep our efforts focused in different phases of progress. Each milestone is to be implemented in turn, built upon preceding fundraising accomplishments. A milestone project is commenced when its minimum sum has been accumulated.

Each investor's individual pledge in US dollars (converted from BTC or ETH) at respective time of deposit is summed, to arrive at the total pledge in US dollars. Narocoin uses the total pledge in US dollars to determine milestones.

Milestone 1 US$100,000	• Roadmap • Form developer team
Milestone 2 US$500,000	• Build Worldwide Secure Intranet • Implement Blockchain technology
Milestone 3 US$1,000,000	• Apply Machine Learning • Trial Run of Intranet • Expand team
Milestone 4 US$5,000,000	• Beta Testing Phase I • Secure Hospital Contracts • Integrate Artificial Intelligence and Analytics
Milestone 5 US$7,000,000	• Beta Testing Phase II • Protocol Updates • Create Payment Gateways for Strategic Partners
Milestone 6 US$10,000,000	• Project Roll-out to Hospitals Worldwide • Improve NAR Security

For example, suppose on 1 August 2017 at 11:00am, 50 investors each pledge 2.5 BTC to Narocoin, and a further 50 investors each pledge 10 ETH to Narocoin. The prices of 1 BTC and 1 ETH on Coinbase at this exact time are US$2,500 and US$210 respectively. Suppose on 2 August 2017 at 2:30pm, another 100 investors each pledge 3 BTC to Narocoin, and a further 100 investors each pledge 12 ETH to Narocoin. The prices of 1 BTC and 1 ETH on Coinbase at this exact time are US$2,650 and US$230 respectively. Assume no other transactions take place apart from those described above.

To determine which milestone the Narocoin project is on, we break the transactions down by date and price.

As of 1 August 2017 at 11:00am,

BTC pledges
50 x 2.5 x US$2,500
= US$312,500

ETH pledges
50 x 10 x US$210
= US$105,000

Total pledge
US$312,500 + US$105,000
= US$417,500

Therefore, as of 1 August 2017, at 11:00am, the Narocoin project is still on Milestone 1, just shy of commencing Milestone 2.

Taking into account the pledges on 2 August 2017 at 2:30pm,

BTC pledges
100 x 3 x US$2,650
= US$795,000

ETH pledges
100 x12 x US$230
= US$276,000

Total pledge
US$795,000 + US$276,000
= US$1,071,000

Total pledge over both days
US$417,500 + US$1,071,000
= US$1,488,500

Therefore, as of 2 August 2017, at 2:30pm, the Narocoin project is on Milestone 3.

8. Our Team

8.1 Medical Team

Nikola Kolundzic, PhD

Founder and Board Member

Dr. Kolundzic is a confident and innovative scientist with more than ten years of research experience in fields such as regenerative medicine, and stem cells. He has strong interpersonal and collaboration skills thanks to his time spent working with a multidisciplinary team to design and fully validate innovative 3D in vitro models of skin. He possesses a keen understanding of data structures.

Ayman A. Saeyeldin, MD

Chief Executive Officer

https://www.linkedin.com/in/ayman-saeyeldin

Dr. Saeyeldin received his medical degree from Tanta University School of Medicine in 2015. He began his residency training in the Cardiovascular Department in Tanta University Hospital, and is currently a post-doctoral research fellow at Yale center for thoracic aortic diseases. Narocoin's data analytics platform is a great tool for medical studies across the world.

Suneil Kumar, MD

Business Development Executive

https://www.linkedin.com/in/suneil-kumar-m-d-2ba0ba6/

Dr. Kumar graduated from the American University Of Antigua College of Medicine in 2013. His long work history in many medical institutions and healthcare organizations across the US inspires the need for a network of unified data. He is currently a medical consultant for Doctor Certified LLC, providing medical businesses with clinical guidance for quality public relations and medical credibility.

Ahmad Alsayes, MD

Public Relations Manager

https://www.linkedin.com/in/ahmad-alsayes-380b02110

Dr. Alsayes is a class of 2011 medical graduate from Alexandria University, Faculty of Medicine. He worked as a general practitioner in the private healthcare sector, and has participated in dozens of clinical trials. He brings his comprehensive general clinical knowledge, and extensive experience in research to our team.

Kimberly Langdon, MD

International Business Advisor

https://www.linkedin.com/in/kimberly-langdon-m-d-41847610

With an illustrious career spanning two decades in Obstetrics and Gynecology, Dr. Langdon's career highlights include seven years as CEO and Senior Researcher for Physician Integrative Laboratories. She is an inventor of a patent pending medical device for women's health, and also spends her time writing medical articles and research protocols.

Marija Petković, MD, MSc

Finance Advisor

Dr. Petković's publications include data-driven research papers on diabetes mellitus and colorectal cancer. Her significant career contributions in the field of medicine include her time spent serving in Doctors Without Borders, a humanitarian non-governmental organization best known for its projects in war torn regions.

8.2 Technical Team

Jefferson Davis

Chief Developer

Mr. Davis has 6 years' experience in embedded control systems, instrumentation, and data acquisition applications, with an increasing involvement in blockchain projects over the past 2 years. He has vast experience in developing Ethereum distributed applications and smart contracts, data analytics and machine learning applications.

Nathan Clark

Blockchain Developer

Mr. Clark has built several smart contract based applications. He is an expert in cyber security and his skills are vital in protecting sensitive EMRs.

Eugene Danko

Data Scientist

Mr. Danko is a certified and well-recognized developer with expertise in various programming languages. He offers valuable insights and skills to the technical team.

Anna Taran

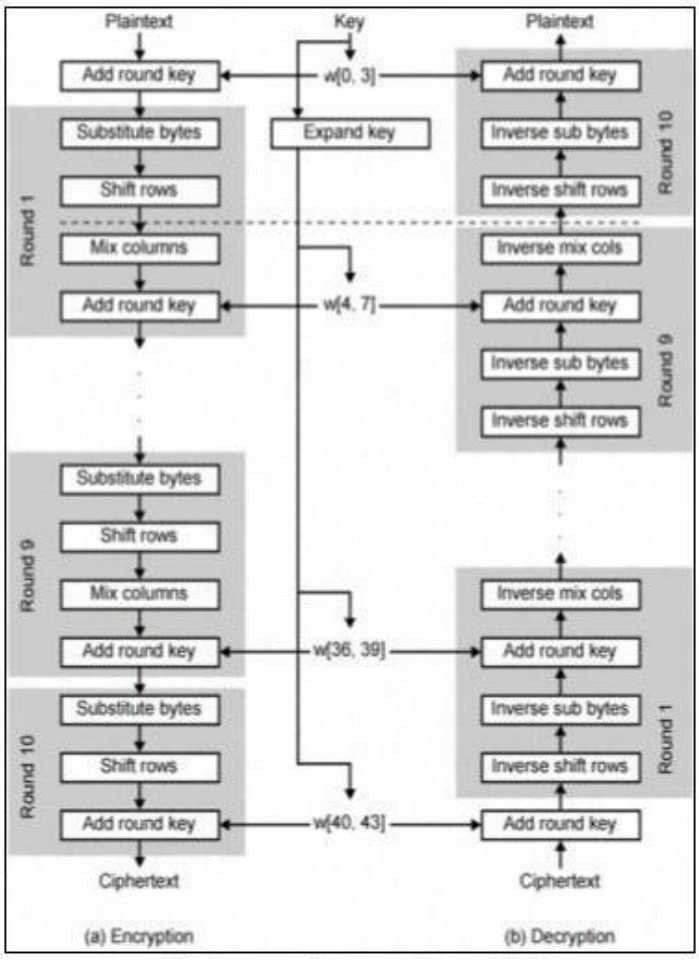
Lead Programmer

Ms. Taran is a seasoned blockchain engineer in the industry, offering more than 6 years of experience in blockchain, machine learning, data analysis and GUI development.

9. Security and Encryption

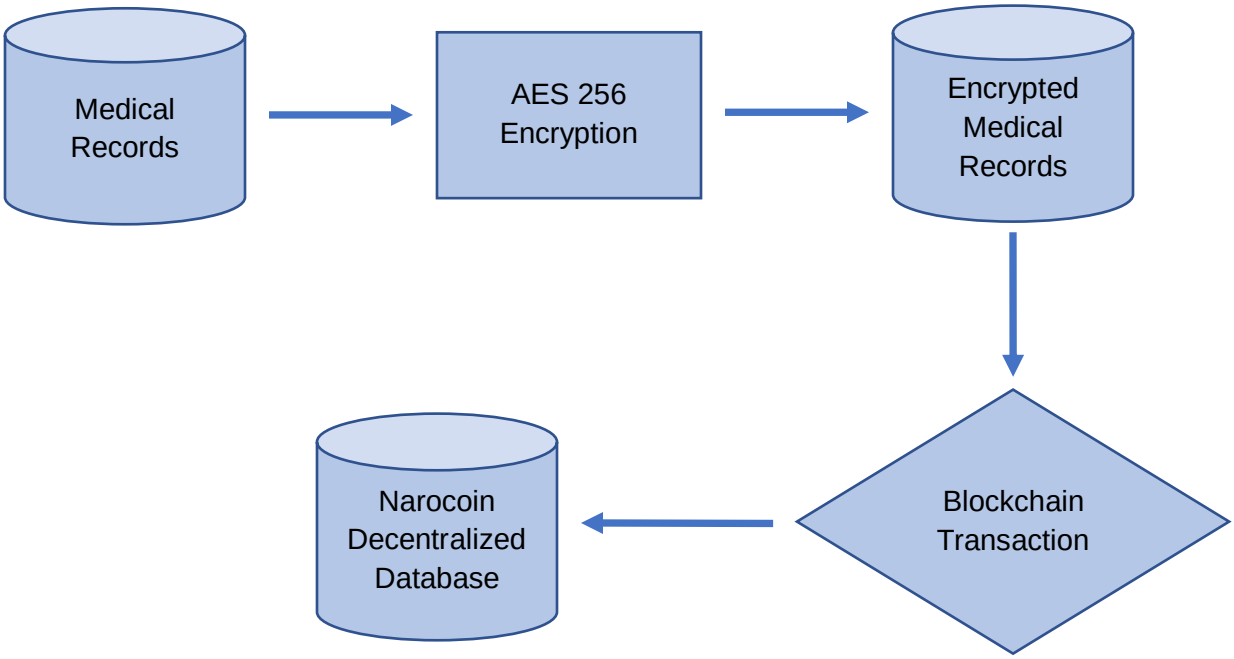
The Advanced Encryption Standard (AES) is a symmetric block cipher implemented in hardware and software throughout the world to encrypt sensitive data against attacks. AES comprises three block ciphers - AES 128, AES 192 and AES 256.

Patient data will be secured with AES 256. In June 2003, the US government stated that AES 256 could be used to protect classified information up to the Top Secret level, meaning this will be sufficient to meet Narocoin's security requirements. Each individual patient will possess a private key to access, update and modify their own data. The flow of this encryption method can be seen below.



Based on current supercomputer specifications, it would theoretically take 5.4183479^{52} years to only have a 50% chance of cracking the encryptions. The very nature of the blockchain foundation automatically guards records against malicious attack techniques, meaning that medical data will always be high quality and information integrity is maintained.

A simplified breakdown of Narocoin's usage can be seen below, where medical records are encrypted using the AES 256 standard, sent as a blockchain transaction to be stored in a decentralised database.



10. Conclusion

Blockchain technology holds the power to disrupt traditional industries because of its capacity to improve how transaction data is managed. The healthcare sector is not an exception. Narocoin aims to spark a revolution with an initial coin offering that will streamline data processes, and create an alternative currency unique to the medical industry. The future of human health is positively bright, if we can set the necessary change in motion for the generations to come.

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