



The *fastest* way to a diagnosis...
Anytime. Anywhere.

v. 2.1

Updated Nov 29, 2017



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1. OVERVIEW

Telemedicine and eHealth are poised for tremendous growth over the next decade.¹ The ubiquity of smartphones now allows people to communicate both in writing and photographically with anyone in the world instantaneously.² Telemedicine is beginning to find its place in medical fields heavily dependent on observational exam findings. Dermatology is one such field, whereby the diagnosis can often be confidently ascertained with photographs and a brief description.³ Despite the progress of telemedicine, it still faces many challenges associated with centralization, such as international payment, middlemen fees, patient anonymity, liability and regulation. For the first time in history, digital currencies with smart contract functionality have been integrated with peer-to-peer (P2P) networks to create decentralized platforms.

To date, we do not know of a medical application that uses a decentralized platform for health services. We believe that dermatology is the most readily accessible medical specialty to establish ourselves in blockchain-based telemedicine. Once established in teledermatology, we will strategically add medical specialties to build a thriving platform for patients and doctors.

This will serve as the foundation of a decentralized global electronic health record system. The final product will be both a global electronic health records system and marketplace giving patients instantaneous access to medical care anywhere in the world—that is, a truly free global healthcare market.

2. INTRODUCTION



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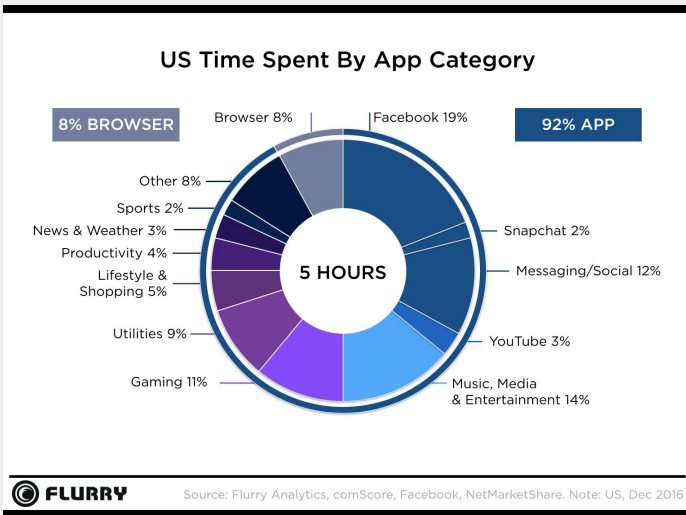
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2.1 Telemedicine: A \$200 billion market by 2024

The global telemedicine market is currently valued somewhere between \$18.2 billion and \$51.3 billion, and is expected to grow around 25% per year to become greater than a \$200 billion market by the year 2024.^{1,4-7}

The great promise of telemedicine lies in expanding access to care, optimizing physician productivity and reducing healthcare costs. In light of rising healthcare costs and the benefits of telemedicine, why is telemedicine just now beginning to boom? First, the traditional idea of a patient-physician encounter is changing. The patient's requests for second and third opinions now supersede desire for an intimate patient-doctor relationship. The profusion of mobile technology in our daily lives has further reduced the desire for in-person encounters. The average person in the United States now interacts with his or her phone an average of 5 hours each day.⁸ Over 90% of this time is spent on apps, while less than 10% is spent on an Internet browser.

The idea of obtaining a diagnosis or medical recommendation via a smartphone app is no longer foreign to more recent generations. This notion is confirmed in studies that demonstrate no significant difference in patient satisfaction when comparing in-person and telemedicine consultations.¹⁰





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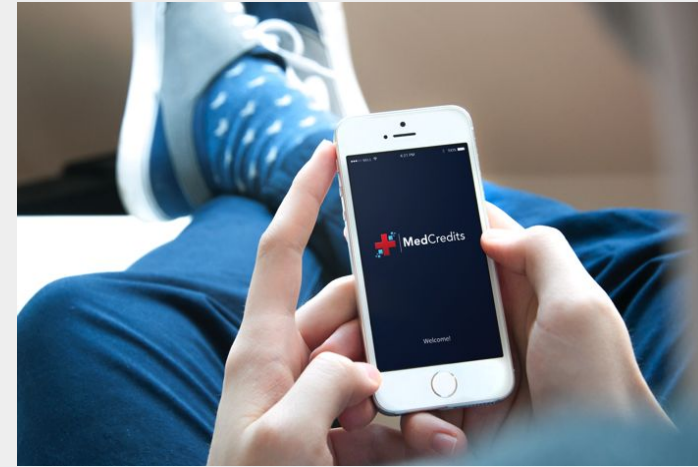
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Secondly, the ubiquity and technological capability of smartphones now make telemedicine possible. Over 2.6 billion people worldwide use smartphones.⁹ This means that about 1/3 of the global population can communicate in writing, photographically or via an app with anyone in the world instantaneously. With these powerful means of communication in so many hands, telemedicine is quickly finding its place in medical specialties heavily dependent on observational exam findings. Dermatology is one such field, whereby the diagnosis can often be ascertained with a single photograph and brief history.



2.2 Creating an Open Market in Medicine

The cost of healthcare varies greatly around the world. The reason is multifactorial, but includes the model of healthcare (single payer vs. private vs. other), insurance coverage (uninsured, public or private), availability/demand for providers, specialty type and setting of evaluation (hospital or clinic). In an outpatient setting though, the cost of the office visit is often directly related to the physician salary and overhead, especially in specialties such as dermatology,

family practice and ophthalmology. These physician salaries vary drastically from one country to the next. As shown in the table below, a dermatologist in the USA earns on average 386,000 USD annually.¹⁶ Dermatologists in Canada, Europe and Australia earn considerably less, between 100,000 and 200,000 USD equivalent annually. Dermatologists in other countries have even markedly lower annual salaries.



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Annual Dermatologist Salary by Country

Country	Annual Salary (USD Equiv.)
USA	\$386,000 ¹⁶⁻¹⁹
Canada	\$163,000 (210,000 Can. Dollar) ¹⁶⁻¹⁹
Australia	\$156,000 (205,000 Aus. Dollar) ¹⁶⁻¹⁹
UK	\$116,000 (90,620 British Pound) ¹⁶⁻¹⁹
S. Africa	\$39,000 (535,000 S. African Rand) ¹⁶⁻¹⁹
India	\$9,300 (600,000 Indian Rupee) ¹⁶⁻¹⁹

This cost disparity has given rise to an entire industry known as medical tourism. Patients are willing to travel overseas in order to take advantage of more competitive pricing for otherwise expensive medical care. Medical tourism is an example of efforts to create a freer market. By physically travelling to another location, patients are able to distribute demand more evenly. Connecting patients in one geographic location to physicians elsewhere can dramatically reduce cost, and create a competitive market for high quality medical services.

2.3 Limitations of Centralized Health Systems

Due to the centralized nature of healthcare, true adoption of telemedicine has been slow and fraught with regulatory hurdles. Among the challenges faced are issues related to licensing, payment and liability.

In the US, physicians are mostly restricted to practicing medicine in states in which they are board certified. This is a barrier to adoption as one of the goals of telemedicine is to allow broader access to patient care that often necessitates crossing state and international lines. Regulatory changes are currently underway to adapt to this growing market and, in the US, there are now licensing exams allowing physicians to practice medicine across state lines. Nevertheless, adaptation is slow, and currently these extra hurdles still discourage many physicians from incorporating telemedicine into their own practices.

With the exception of one country, we are not aware of any laws prohibiting a physician in one country from providing a medical recommendation to a patient in a different country, as long as it is done remotely. The



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one exception is the *Telemedicine Act of 1997* in Malaysia prohibiting doctors outside Malaysia from providing medical recommendations to patients within Malaysia's borders.

Payment for telemedicine services is also a barrier to large-scale adoption. In the US, private coverage by insurance companies of telemedicine services is required in only 19 states, and the scope of coverage is variable. Medicare (one of the largest payers of healthcare in the US) only covers a limited amount of services. Qualifying sites are limited to specific rural Health Professional Shortage Areas.¹³ Few physicians are willing to stay current and navigate this convoluted reimbursement structure. Additionally, payment methods for remunerating providers overseas are costly as well as limited.

Similarly, malpractice coverage for physicians who integrate telemedicine services is equally inconsistent. Despite studies which have shown that proper use of telemedicine can lead to reduced hospital days per patient, lower hospital readmission rates and improved outcomes in the management of chronic conditions,^{12,13} physicians are wary of integrating telemedicine services into

practice as many malpractice plans do not cover these services, leaving physicians vulnerable to legal liability.

2.4 Overcoming Limitations through Decentralization

For the first time in history, advanced P2P networks with blockchain payments and smart contracts now exist paving the way for decentralized marketplaces. MedCredits is not the first platform to recognize the immense potential of these systems. OpenBazaar, released in 2016, is the first decentralized marketplace for goods. Sia and Storj strive to provide decentralized cloud storage. Augur is in the final stages of completing the beta version of a decentralized prediction market. GameCredits is transforming the payment system within the gaming sector. Nearly every sector of commerce is rapidly being revolutionized by blockchain technology.

This technology, however, has made very little inroads in medicine. To date, we do not know of a decentralized network connecting patients and doctors for medical services. Some have postulated that a blockchain based electronic medical record (EMR)



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system is one way that the blockchain can transform medicine. Indeed, there are several startups attempting to create blockchain based EMRs. However, with collectively over 60 years in health care experience, the MedCredits team understands the challenges associated with switching EMR systems. Medical offices, hospitals and clinics spend millions of dollars purchasing their current EMR systems, training personnel, and transferring enormous quantities of data to the new systems. Unfortunately, this overhead makes swapping systems a monumental task—not to mention the regulatory compliance associated with handling medical records.

We believe that creating a decentralized EMR cannot be approached directly. Rather, a platform needs to be built that provides advantages to the people who actually use the system—the doctors and patients. This platform is MedCredits. By incentivizing patients and doctors with a more affordable and convenient system, we will be laying the foundation for a larger healthcare network. As the platform grows, we will release software upgrades that will organically transform MedCredits into both an EMR and medical services platform that is intuitively interconnected.

By creating a platform that decentralizes healthcare, we will give patients worldwide access to quality healthcare at reduced costs. Just as we are seeing the modification of financial laws to accommodate digital currencies, healthcare laws will also have to be modified to keep up with the technological progress. Given the presently enormous expense of healthcare in most countries, we believe that governments will see the advantage in drastically reducing healthcare costs. The United States spends 17.2% of its GDP on healthcare, and the average country in the European Union spends about 10%.¹⁶ By demonstrating the power of our platform to serve more patients for reduced costs, governments will be incentivized to accommodate this progressive model of healthcare.

2.5 From Dermatology App to EMR

We believe in success through simplicity. Dermatology (the medical field relating to diagnosing and treating skin diseases) is the most readily accessible medical specialty for telemedicine and will be our starting point. We intend to establish the MedCredits platform in telemedicine by creating a



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user-friendly application allowing the fastest and most affordable dermatological care. Once established, we will expand to other specialties, such as psychiatry/psychology, family medicine, internal medicine and radiology. After building a robust platform for mobile medical care, we will be able to take the next step and transform MedCredits into a global electronic health record system. MedCredits will become a decentralized platform where every patient has his or her health record encrypted on the decentralized network, and can use this single platform to access medical care across an array of medical specialties. Payments will be in digital currency and automated through smart contracts. The outcome will be a truly decentralized health care system allowing instant access to high quality healthcare anywhere in the world and at a fraction of the cost.

3. MEDX TOKEN

MedCredits (MEDX) is an ERC20 token used for both payment and physician verification on the network. On a protocol level, nodes on the network will verify physician licensing and board certification to ensure that only the highest quality physicians have access to the platform. In turn, these nodes will be rewarded in MEDX. MEDX will also be the backend payment from patient to physician in exchange for medical services.

The total supply of MEDX is 100,000,000 tokens. This will be a locked supply whereby no additional tokens can be generated. Additional information on MEDX is outlined in the "Token Sale" section.

4. DESIGN PROTOCOL



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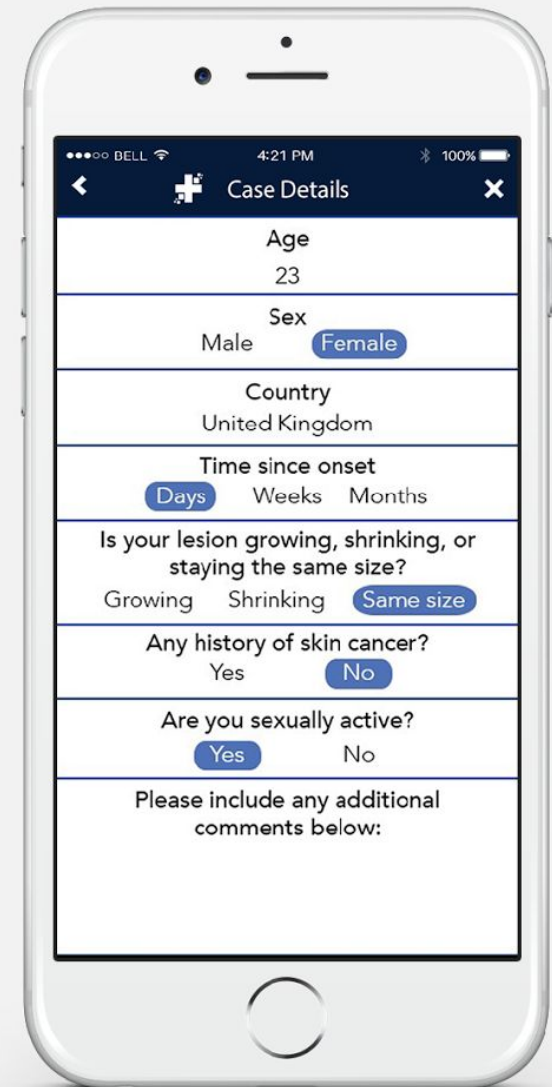
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4.1 The Patient Experience

The MedCredits platform will have both a desktop client and mobile app available for free in both the Apple App Store and Google Play Store.

- Upon downloading the app, the first screen will ask the user whether she is a “Physician” or “Patient.”
- When the patient initiates a case, the app accesses the smartphone camera to allow the patient to snap a photo(s) of the lesion(s).
- The next screen asks the patient a series of brief questions.
- In the final screen, the patient submits payment.
- Once a dermatologist has reviewed the patient’s case, the patient will receive a notification stating, “Your results are ready for review.” The results screen will have the physician’s diagnosis and recommendation.





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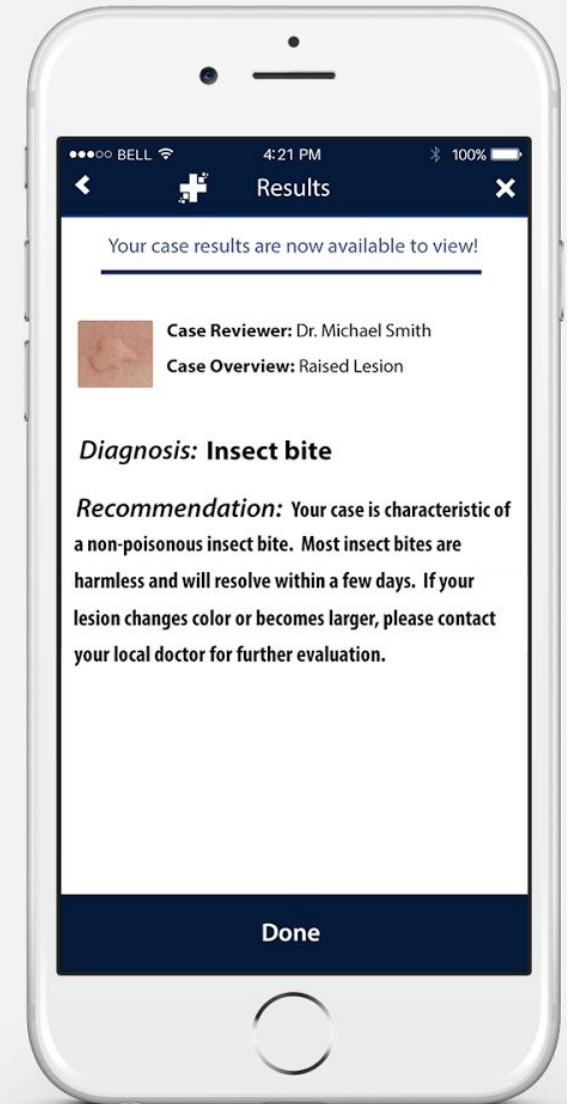
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4.2 The Physician Experience

By selecting “Physician,” the doctor will be given the option to login with a username and password, or “Create a new account.” Once registered, the physician can begin evaluating patient cases.

- Upon selecting a patient case, a screen will appear showing the image(s) of the lesion with the description.
- The physician will then submit a diagnosis (or differential diagnosis if multiple possibilities) with recommendations.
- Upon submission, the physician will receive payment in MEDX via a smart contract.





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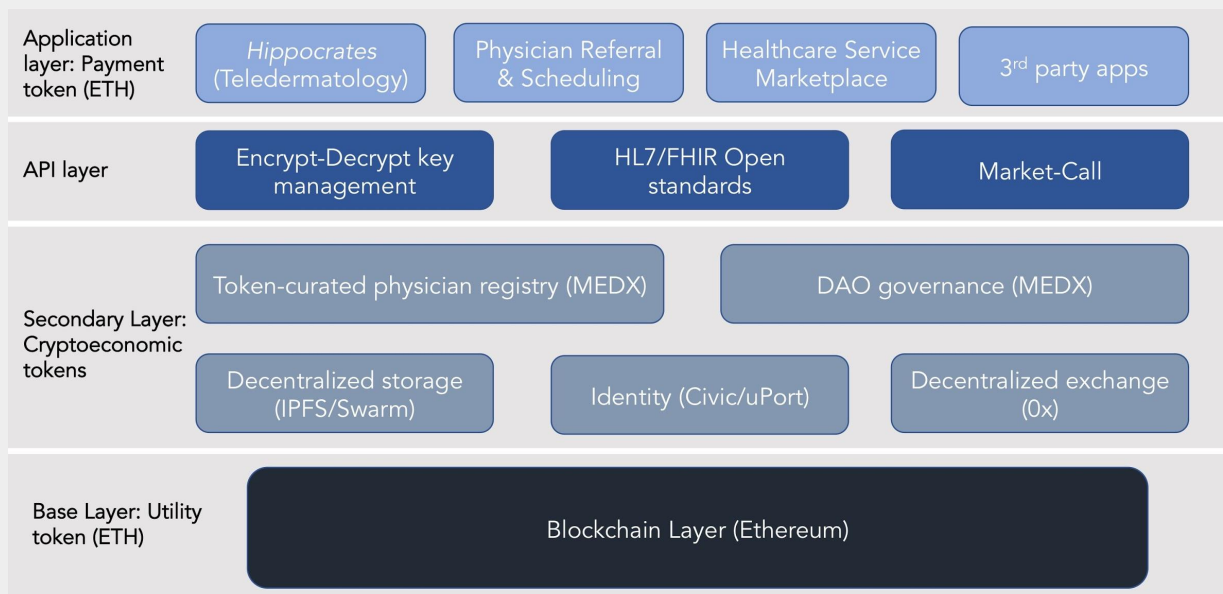
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4.3 Technical Framework Overview

Using Ethereum smart contracts for payment and case validation, the Swarm protocol for decentralized storage, a Token-Curated Registry (TCR) for physician credentialing, and Xamarin for the mobile application, MedCredits uses the latest technology to create the first truly decentralized healthcare services platform. The following sections will further explain each of these technical components of the MedCredits platform.

4.3.1 Application Stack

The MEDX token is used to power a TCR of physicians. The MEDX token will also be used as voting-rights for any governance decisions made in the MedCredits ecosystem. On top of the crypto-economic layer, MedCredits is advancing solutions for encrypted healthcare data storage and decentralized markets for healthcare services and data. The *Hippocrates* tele dermatology app will aggregate these solutions into a provable dapp, but the infrastructure will be open-source and can be used to develop 3rd party healthcare dapps.





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4.3.2 MEDX as a Protocol Token

MEDX is a cryptoeconomic token used to power the TCR of physicians. The protocol token is used to incentivize nodes to verify physician credentials. The basic incentive game involves three parties:

- **Doctors who seek entry into the registry.** Before accessing any patient data, physicians must first verify their credentials by uploading images of their medical diploma, license and certification documents. Doctors must stake MEDX to apply for the registry.
- **Verifiers who review physician credentials.** Any verifier can challenge a physician applicant if he believes the physician to be nefarious. To challenge the physician applicant, the verifier must match the physician's staked MEDX deposit. Any challenged physician applicant then undergoes a voting round during which other verifiers vote either "Yea" or "Nay" on the applicant in a Partial Lock Commit Reveal (PLCR) contract. If the applicant loses the challenge, his stake is distributed among the challenger and voters. If the challenger loses, his stake is distributed among the applicant and voters.

If no challenge is raised against the doctor, his public key will be added to MedCredits' physician-registry smart contract. Any public key in this registry is privileged with the ability to request and decrypt cases on the *Hippocrates* dapp. The smart contract can also be called upon by any other 3rd party healthcare dapps that require verified physicians. The contract also has associated metadata including physician name, location, specialty etc.

- **Patients who are consumers of the registry.** Patients will only use a MEDX-powered application if the registry contains verifiable doctors.

Note that the physician registry is decentrally maintained and is not limited by the efforts of the MedCredits team nor is the MedCredits team legally liable for any actions of the physicians in the registry.



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4.3.3 Decentralized Storage

Data generated on the MedCredits app must be stored in a way that gives patients ultimate control of the data. MedCredits uses Swarm for data storage. Swarm is a distributed storage platform and content distribution service that uses the native base layer service of the Ethereum web 3 stack.

When storing healthcare data on the Swarm network there are multiple considerations:

- Data stored on the blockchain is public and immutable.
- Each case should be encrypted with separate keys to minimize risks.
- Patient controls access to case data.

4.3.4 Data Encryption and Key Management

Data for each case is encrypted with a unique encryption key using symmetric encryption. In symmetric encryption, the same key is used to encrypt and decrypt the data.

The encryption key is randomly generated using the AES algorithm the moment the patient submits a case to the system. The AES algorithm is one of the most widely used symmetric algorithms and does not have any known vulnerabilities.

Initially the encryption key is only available to the patient. The dilemma is as follows: the encryption key needs to be shared with a physician so that she may review the cases files; however, the patient does not know in advance who this doctor will be and all the data on the blockchain is publicly available. For this reason, the encryption key itself must be encrypted initially in a manner that only the patient can decrypt it, but ultimately in a manner that only the doctor can decrypt it. This requires asymmetric encryption, or public-key cryptography. Asymmetric encryption is a form of encryption where keys come in pairs. What one key encrypts (public), only the other can decrypt (private). Fortunately, every Ethereum user already has a set of public and private keys in order to interact with the Blockchain. Ethereum uses Elliptic Curve cryptography with secp256k1 curve.



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The same keys can be used for asymmetric encryption of patients' case files. Accounts in Ethereum smart contracts are identified by address and not public key. In order for a smart contract to know the public key, a current transaction must be sent by that account. For that reason, public keys of the patients and doctors will be recorded in MedCredits smart contracts when users register for the system.

4.3.5 Mobile App Solution

Hippocrates will be built as both a desktop and mobile application. For mobile solutions, we will use Nethereum and Xamarin. Nethereum is a platform-agnostic code library written for Microsoft.NET which provides an interface to the EVM. This provides the advantages of the .NET ecosystem including Xamarin—a world-class mobile development framework.

4.3.6 Incentivizing “Good Actors” and Penalizing “Bad Actors”

With any system involving the exchange of value, mechanisms have to be in place to protect users from malicious activity. MedCredits will use a reputation-based system to incentivize honest behavior. In our reputation system, each patient will rate the doctor after receiving a diagnosis and recommendation. It will be a 1 to 5 star rating system.

In addition to a reputation-based system, good behavior will be financially incentivized through the use of “case validation” in a smart contract as follows.

- The patient will submit the evaluation fee PLUS 50% to escrow. After a doctor evaluates the case and submits his report to the patient, the patient must confirm that the doctor's response was either appropriate or inappropriate. A patient has 24 hours to respond before the smart contract automatically executes and transfers payment to the doctor.



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- If the patient is content with the doctor's evaluation, the additional 50% will be refunded back to the patient's account.
- If the patient is dissatisfied and challenges the case, the case will go for validation. Of note, from the doctors' perspective, an original case and validation case appear identical.
- If the diagnosis by the second doctor is the same as the diagnosis by the first doctor, the smart contract executes sending the initial fee to the first doctor and the additional 50% to the second doctor. From the patient's point of view, this can be seen as a discounted second opinion. We understand that the second doctor is completing the same amount of work as the first doctor and getting paid less. This reduced fee is distributed among the doctors though. For example, assuming only 10% of cases go to validation, the overall average doctor fee is still 95% of the fee for an initial evaluation.
- If the second doctor's report differs from the first, which can occur in multiple ways including a discrepancy in the diagnosis, insufficient information to make a diagnosis or poor picture quality, then the initial fee is returned to the patient and the additional 50% goes to the second doctor. Of note, the initial doctor receives no money in this encounter. Since doctors cannot know which cases are initial evaluations and which are validation cases, doctors will always be incentivized to perform quality evaluations.



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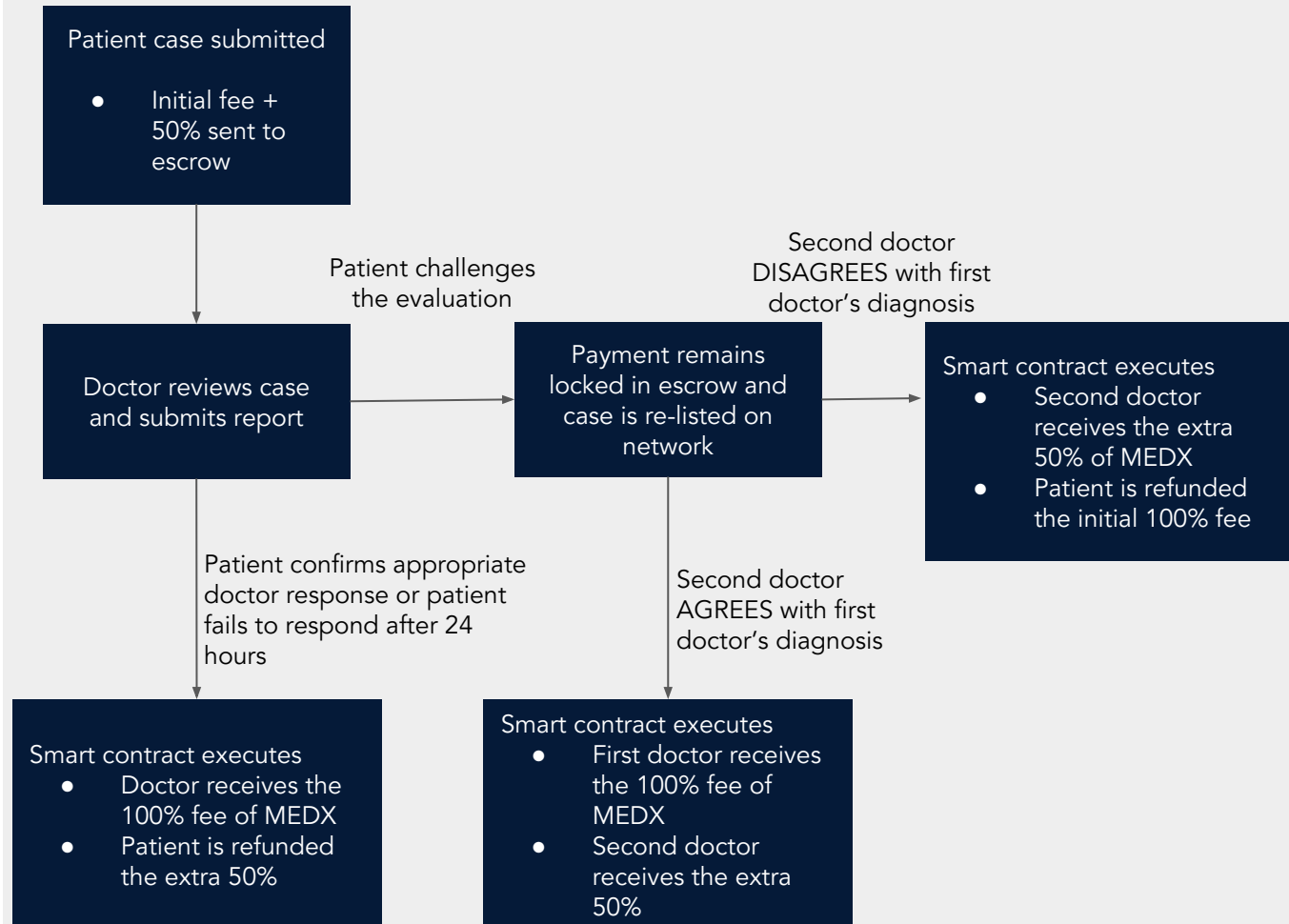
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Case Validation Smart Contract Algorithm





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4.4 Software Release 1, *Hippocrates*

The first software release will focus on development of the intuitive and user-friendly dermatology application as described in the above sections. *Hippocrates* will be released in alpha, beta and final release development phases. We are currently actively engaged in the pre-alpha phase of development, which consists of establishing a stable desktop version of the platform.

We are simultaneously developing the MedCredits mobile app to access the network. After thoroughly testing all app functions including case initiation, smartphone camera engagement, patient data input and payment on a test network with test tokens, we will then give access to the token sale participants. During this phase, physician responses will not reflect the submitted cases in any way, but will be standard responses used solely for testing the app and payment portals. Bounties will be offered for identified bugs. Once the majority of bugs are fixed, we will then launch the alpha version of the software on the main network.

Access to the alpha version will be by invitation only, and rolled out to token sale participants.

Following the successful alpha release, we will enter beta phase, opening the platform to the general public. In order to incentivize both patients and physicians to use the platform, the first 6 months or 1000 cases will be free for patient use. The MedCredits team will use a portion of the allocated token sale marketing MEDX to pay participating physicians during this trial period. Patients will be limited to 1 active case at any given time to prevent spamming the network with multiple cases. Diagnoses and recommendations will be from licensed physicians. We recognize this will initially be a centralized payment system by necessity, but early patient and physician adoption is paramount for success.

After the trial period, a simple 1-tier payment structure will be instituted whereby physicians are paid the equivalent of 10 USD per evaluation. Later releases will have multiple payment options. Despite this seemingly low fee, the doctor is still well compensated.



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On our platform, we suspect a licensed doctor will be able to complete an evaluation in 5 minutes or less. For a \$10 evaluation with no overhead, this translates into wages of \$120 per hour for the physician.

4.5 Software Release 2, *Galen*

Following the stable release of *Hippocrates*, project development will focus on significantly expanding the scope of MedCredits' clinical services in the release of *Galen*. Telemedicine is compatible with many medical specialties and we will work in parallel to expand MedCredits' services to many of these fields shown in the table on the right. We will also be simultaneously upgrading MedCredits' capability to include HIPAA-compliant video in order to service medical specialties requiring live video encounters. *Galen* will also introduce free-market pricing to replace *Hippocrates*' one-tier price model.

Our strategy will be to capture market share early and to have immediate utility. After dermatology, mental health is perhaps the next most promising application of telemedicine. In addition to the known advantages of increased access, and reduced

TELEMEDICINE COMPATIBLE SPECIALTIES

Allergy/Immunology

Cardiology

Dentistry

Dermatology

Otolaryngology (ENT)

Emergency medicine

Endocrinology

Family/general practice

Gastroenterology

Infectious disease

Internal medicine

Neurology

Oncology

Ophthalmology/optometry

Pain management

Pathology

Pediatrics

Psychiatry/psychology

Rheumatology

Urology



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transportation barriers, there is the advantage of lowering the threshold to seek care. Many patients with mental illness have anxiety and fear related to leaving their homes. Patients with major depression often lack the mental energy to schedule an appointment and transport themselves to a therapist. Sadly, many suicide cases occur in patients who have never even seen a mental health professional. Telemedicine helps solve these problems and provides an enhanced feeling of safety and comfort.

The final addition to the *Galen* software will be the "Ask-a-Doctor" service in both store-and-forward and live video encounters. This will allow patients with general medical conditions to ask family medicine and internal medicine doctors about common problems such as sinusitis, respiratory tract infections, allergies, minor sports injuries, abdominal pain and urinary tract infections. This could dramatically reduce the number of unnecessary visits to the local emergency department.

4.6 Software Release 3, *Herophilus*

Once *Galen* is out of beta, we will add several key features to the platform: patient charts, appointment scheduling, notifications

REDUCING UNNECESSARY ER VISITS

The National Center for Health Statistics found that an emergency room visit costs nearly 7 times the price of visiting a physician's office, and a study by Truven Health Analytics found that 71% of emergency room visits are unnecessary.¹⁵ On the other hand, many patients with life-threatening conditions unknowingly delay visits to the emergency room because they are unaware of the seriousness of their conditions. By lowering the barrier of contacting a physician, MedCredits can both save substantial healthcare costs as well as encourage appropriate patients to visit the local emergency department.



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of upcoming appointments and a “physician referral” feature. The patient chart will contain pertinent information including past medical history, past surgical history, medications, allergies, social history and family history. We will also create a pediatrics chart where families can bundle their children’s profiles into their accounts and send a pediatrics case on behalf of their child. This patient data will become available to the physician upon submission of a new patient case.

The goal of the physician referral feature will be to fuel the expansion of MedCredits from a decentralized telemedicine service to a decentralized healthcare ecosystem with a diverse array of specialists. As specialists around the globe are referred patients, our goal will be to retain patients and healthcare providers within the MedCredits ecosystem.

The patient chart feature will allow referrals to occur seamlessly without loss of patient information. As any provider can attest, the current healthcare system makes it extremely challenging to evaluate new patients, as

previous health records are often inaccessible. If they are available, the chart often consists of 100s of pages of unsorted faxes. This necessitates the time-consuming use of resources devoted to repeat history taking, testing and scanning of documents. The time and cost saving benefits of *Herophilus* will optimize outpatient clinics, leaving patients more satisfied with their appointments and decreasing medical errors by keeping patient data organized and streamlined.

4.7 Beyond *Herophilus*

As MedCredits continues to develop, so too will blockchain technology and telemedicine. A major feature of the Ethereum Virtual Machine (EVM) is the formation of decentralized autonomous organizations (DAOs). Future software releases will allow patients and providers to form DAOs for their respective insurance needs including healthcare insurance and malpractice insurance. New credentialing agencies will form to license physicians in specific DAOs.



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These emerging companies will have the opportunity to integrate their services into MedCredits and interact directly with our patients and healthcare providers. We will see MedCredits transform into a full-feature decentralized electronic medical record system with the potential to combine payments with decentralized insurance and provider credentialing solutions.

4.8 Blockchain in the Healthcare Sector

Compared to the over \$3 billion raised in ICOs in 2017 alone, a meager \$25 million has been raised in healthcare ICOs by November of 2017. Considering the enormity of the healthcare sector valued in trillions of USD, this is a disproportionately small amount. *Thus far, healthcare is dramatically underrepresented in the developing blockchain and token economies.*



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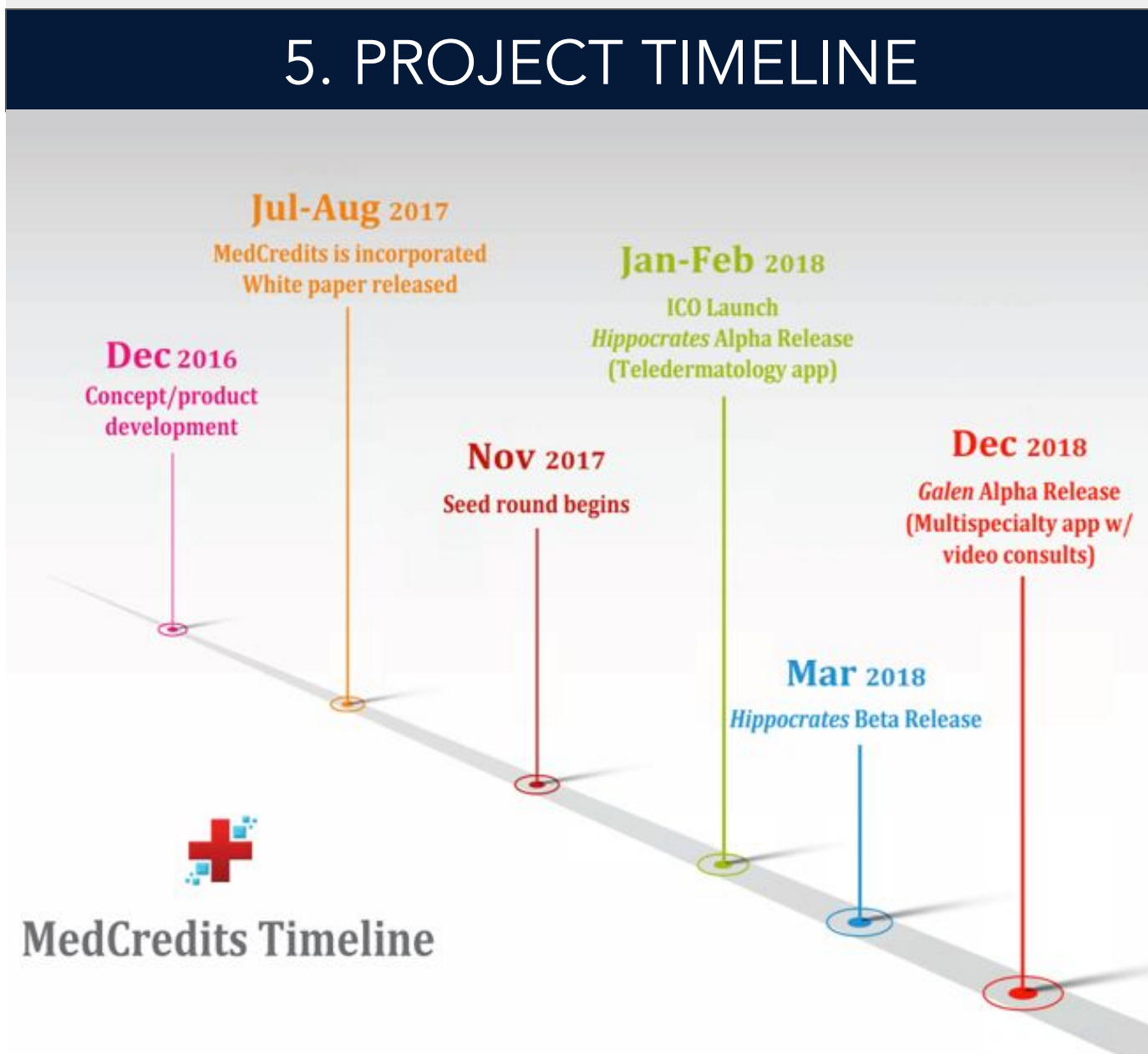
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5. PROJECT TIMELINE



MedCredits Timeline



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6. TOKEN SALE

A total of 100,000,000 MEDX will be generated on the Ethereum platform. This number will be locked without the possibility of creating additional tokens. Seventy percent of the tokens (70,000,000) will be distributed to token sale participants in Seed, Presale and Public Sale rounds. Twenty percent of the tokens (20,000,000) will be allocated to the MedCredits team and the remaining ten percent (10,000,000) will be held in escrow for marketing purposes and physician incentivization.

The Seed round will begin in November 2017. The dates of the Presale and Public Sale will be announced in January 2018. The token sale will last 1-2 months or until all available 70,000,000 MEDX tokens are sold with a target of raising the equivalent of approximately 35 million USD. A minimum of the equivalent of 5 million USD is required by the deadline, or the contributions will be refunded to the participants.

The capital raised in the token sale is expected to fund active development of the MedCredits platform for a minimum of 8 years. A breakdown of the expenditures is outlined in the table below.

	\$5-10 million	\$10-20 million	\$20+ million
Backend Development	<i>Hippocrates</i> release with case validation smart contracts. Galen release to follow. Patient and provider aliases. Encrypted video interface. Provider reputation and verification system.	<i>Hippocrates</i> and <i>Galen</i> releases on scheduled timeline. <i>Herophilus</i> release to follow. Provider reputation and verification systems. Dedicated cyber security expert.	All product releases on accelerated timeline. Decentralized DAOs including healthcare and malpractice insurance policies.
Headcount	3	6	10
Annual Expenses	\$300,000	\$600,000	\$1,000,000
Frontend Development	Basic desktop GUI with mobile app on iOS and Android. Pediatrics sub accounts. Provider reputation system and nodes GUI for physician credentialing.	Patient charts. Provider reputation system and nodes GUI for physician credentialing. Mobile MEDX wallet integrated in app. Research market (patients may lease data for monetization).	Physician referrals. Appointment scheduling, appointment reminders. Data input from smart devices (FitBit, glucometer etc.). Fiat-to-MEDX gateway built into wallet.
Headcount	2	4	6
Annual Expenses	\$200,000	\$400,000	\$600,000
Fund Management	Combination of USD, traditional investments and digital currency holdings by current in-house team.		Hire dedicated fund management firm.
Annual Expenses	\$100,000		\$200,000
Legal	Periodic consultation.	Retain counsel from seasoned legal experts in cryptocurrency and health law.	Lobby in medical associations. Form Political Action Committee (PAC) and recruit donors to influence and guide future telemedicine regulations.
Annual Expenses	\$150,000	\$300,000	\$1,000,000
Patient and Physician Recruitment	Attendance at healthcare conferences. Online advertising and web presence optimization. Press releases and advertisements in media.	International outreach for physician recruitment. Dedicated marketing team.	Partnership with outpatient clinics and HMOs.
Annual Expenses	\$150,000	\$400,000	\$1,000,000
Business Development	Current management team	Form relationships and partnerships with seasoned healthcare consultants.	Seasoned healthcare consultants to build referral network to our platform.
Annual Expenses	\$100,000	\$500,000	\$700,000
Total Annual Expenses	\$1,000,000	\$2,300,000	\$4,500,000



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7. TEAM

James M. Todaro, MD

Dr. Todaro graduated with honors from Columbia University, College of Physicians and Surgeons, and is a licensed medical doctor in the United States. He has cultivated technology and industry experience during his employment at the United States Patent and Trademark Office and as Director of Sales & Marketing for a medical device company. In addition to his clinical responsibilities, Dr. Todaro has been actively involved in blockchain technology since 2013.

Moshe Praver, MD

Dr. Praver graduated with honors from Columbia University, College of Physicians and Surgeons, and is a licensed medical doctor in the United States. He is highly published in peer-reviewed journals in the field of neurosurgery. In addition to his clinical accomplishments, he has actively explored blockchain applications to create borderless healthcare solutions since 2014.

John Todaro

John Todaro graduated summa cum laude from University of Pennsylvania with a degree in psychology and coursework in finance from the Wharton School of Business. He has developed financial expertise during his various trading positions for a New York investment bank. He has been involved in digital assets for several years, as he believes the technology and decentralized nature can revolutionize various industries.

Ryan Cody

Ryan Cody graduated from University of Michigan with a degree in engineering. He is proficient with Python / HTML / JavaScript / C# / PHP / MySQL and Solidity. His passion for computer science and programming are what drew him to the blockchain scene.



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Ankeet (Nick) Patel

Mr. Patel has a decade of experience in investments across a number of markets specializing in quantitative and fundamental trading strategies. He holds an engineering degree from Georgia Tech and several certifications in a number of domains with a passion for Behavioral Economics, Game Theory, and Data Analytics. He is an avid cultural traveler.

Paul Horvath

Paul Horvath holds a degree in Computer Science from Western Michigan University and is currently an information security analyst for a major health insurance network. With numerous certifications in Reverse Engineering Malware, Operating Systems Forensics, Advanced Linux/Unix Hardening and Network Forensics from SANS, Paul is making valuable contributions to cybersecurity and cryptography.

Arjun Dupati, MD

Dr. Dupati is currently in his final months of completing his residency training in the field of Dermatology at the University of Michigan. He has been inducted into numerous honor societies and currently serves as the Academic Chair and Clinical Trial resident. He brings invaluable clinical experience to the MedCredits platform.

Brian Baillis, MD

Dr. Baillis is currently in his final months of completing his residency training in Dermatology and Dermatologic Surgery at the Medical University of South Carolina. His clinical experience in dermatology is integral to the development of the teledermatology app *Hippocrates*.



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Vimell Yuvarajah

Vimell Yuvarajah completed 4 years of study in physics and engineering at the University of Pennsylvania, which included Master's coursework in computer science. He has held various positions in programming, most recently in algorithmic trading for a leading quantitative hedge fund. His passion for technology and computers is what drives his interest in blockchain applications.

Stewart Donnell

Mr. Donnell is president of Donnell Consultants Inc., a project cost management consultancy, which he founded in 1986. He has consulted on projects ranging from \$10 million to \$300 million both nationally and internationally. He has over 35 years of business management experience including strategic planning with world-class private corporations, as well as governments, universities and boards. He is a fellow of the Royal Institution of Chartered Surveyors. Mr. Donnell is excited to bring his vast experience in company operations and organizational leadership to the MedCredits project.

Joseph Todaro

Joseph Todaro is an early investor in Bitcoin and Ethereum as well as numerous other cryptocurrency projects. He brings his expertise in protocol evaluation and market analysis.

David Barmherzig

David Barmherzig studied engineering and mathematics at Harvard and the University of Toronto, and is accredited by Professional Engineers Ontario. He is completing his Ph.D. at Stanford University in mathematical signal processing and optimization, and is excited to bring his expertise in algorithm design and dataset query to the MedCredits platform.

William Jou, MD

Dr. Jou is both a board certified medical doctor and Chief Financial Officer for a medical device company for over 10 years. He brings a unique combination of clinical experience and business acumen to the MedCredits team.



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What is MEDX?

MedCredits (MEDX) is a protocol token on the Ethereum blockchain to be used within the MedCredits application as payment for services between patients and health care providers as well as payment to nodes for physician verification on the network. It is not a security or commodity.

Are MEDX equivalent to shares?

No. Ownership of the token does not confer any rights to ownership, intellectual property, stake in or right to receive revenue from the MedCredits team. Once distributed to the public, MEDX are neither refundable nor controlled by the team.

How do you go from a dermatology app to an entire health care system?

At its core, healthcare is an interaction between a patient and a provider. A healthcare system is simply a collection of patients and providers operating in a designated setting such as a clinic, hospital

or virtual setting. By gradually recruiting patients and providers we will organically grow from a single-specialty platform into a multi-specialty system.

Why decentralize health care?

Centralized systems are generally less efficient than their decentralized counterparts. This can be secondary to middlemen fees, unequal distribution of resources, regulatory compliance issues of home country, etc. Telemedicine suffers from these barriers as well and is unlikely to flourish under these restrictions. By decentralizing telemedicine, middlemen fees are eliminated, physician resources are distributed worldwide, and healthcare regulation will adapt to keep up with the technological progress. We are already currently seeing these changes take place in regards to digital currency and financial regulations.



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Why would patients want to use MedCredits?

Our platform will lower the cost of medical care, increase convenience and give patients control over their health. Patients all over the world will have faster and easier access to the health care system, while avoiding unnecessary wait times and visits to the doctor. Patients will have access to and control their own medical records at all times. Finally, we expect an evaluation on the MedCredits platform to cost a fraction of the cost of a traditional office visit.

Why would health care providers want to use MedCredits?

Our platform will allow physicians to live wherever they like and not depend entirely on the local population of patients. Physicians will be able to evaluate patients globally from the comfort of their own homes. Furthermore, with a unified electronic medical records system, communication with other specialists and evaluation of new patients will become more efficient, allowing physicians to provide quality care to a greater number of patients.

What if a doctor on MedCredits gives me the wrong diagnosis?

The MedCredits platform will have mechanisms in place to mitigate the likelihood of this happening. With both a physician rating system and discounted second opinions, we hope to minimize the occurrences of mistakes. Nevertheless, doctors make mistakes in the current healthcare system too. Telemedicine is a well-studied field and there are appropriate and inappropriate uses of the technology.

Additional questions?

Please inquire on one of our community channels listed on <https://medcredits.io>! Also, be sure to look out for and participate in our telegram to ask any additional questions.



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9. TOKEN SALE T&C

These tokens are not an investment and give the buyers no ownership, rights or controlling interest over the MedCredits team. Participants in the token sale will receive early access to the MedCredits platform prior to public release. The MedCredits team is not responsible for any loss, hack or theft of tokens. Further Terms and Conditions will be given at the time of the token sale announcement.



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