Empowering the well-being of people

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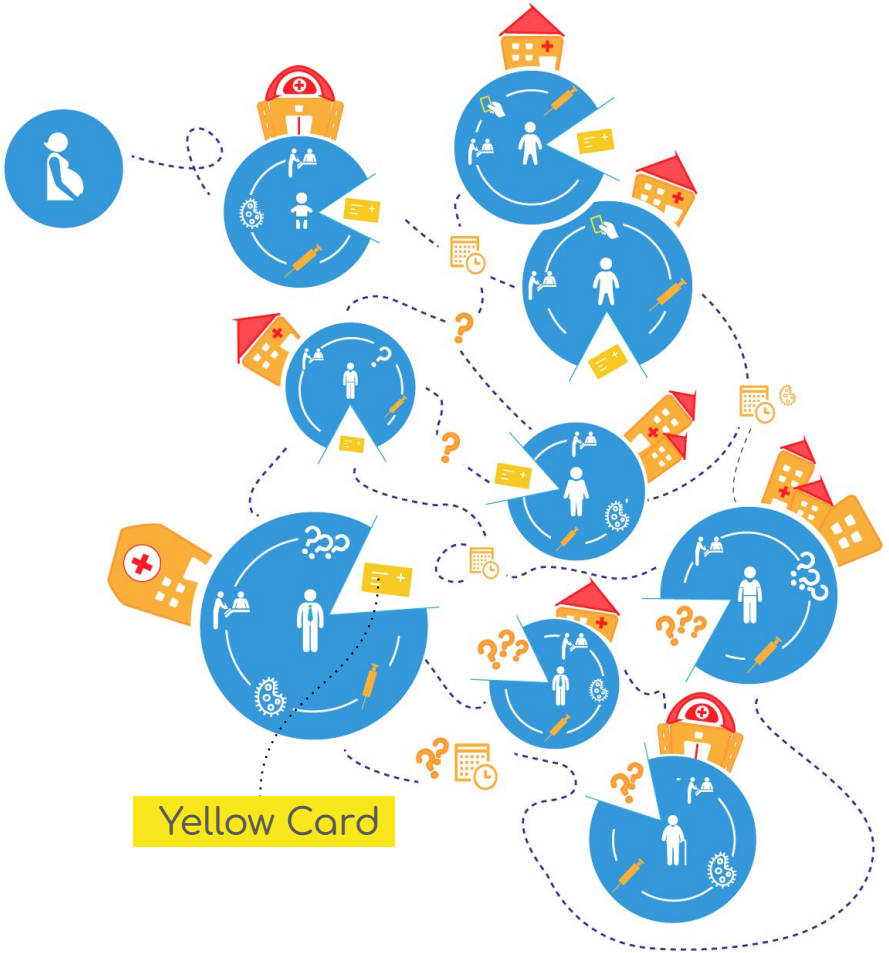
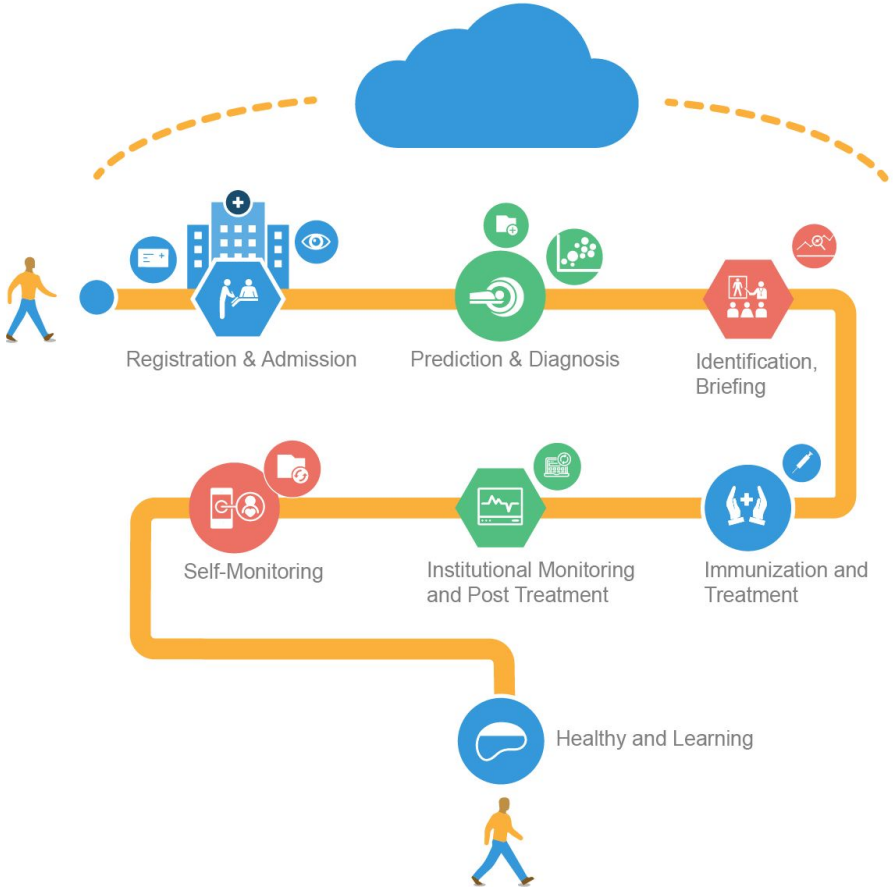
The Problem - Today

- The healthcare landscape is fragmented, siloed and frustrating for patients to navigate
- This problem persists with vaccination data that is stored on a paper-based system, the Yellow Card
- The card is easily misplaced, leading to the lost of valuable information
- This places the most vulnerable members of our society at risk from preventable illness



Introducing YellO - New Beginnings

- YellO is a blockchain-based vaccination record that allows individuals to store their vaccination history, much like a Yellow Card
- YellO leverages decentralized technology to support healthcare providers and citizens' needs for security and accessibility to their vaccination data
- YellO empowers the right care at the right time, placing patients in control of their vaccination history at any point of care



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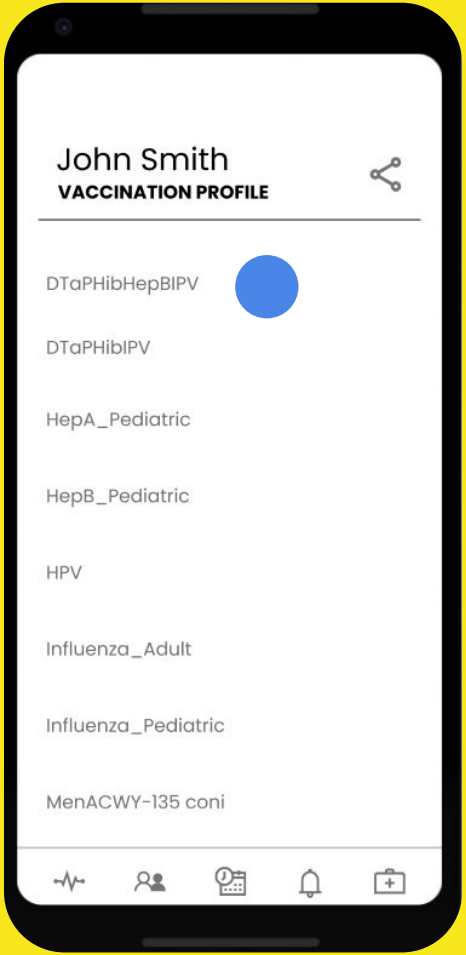
YellO Demo



Relevant links:

[GithubYello-mobile]
[Yello Doctor App Install - Android APK]
[Yello Patient App Install - Android APK]

Certificate of Authentication

Enter the transaction ID

0xc96e6b8cca07e7c8d903b29233b72a046303886f1737aefda278d0b9d71b6649

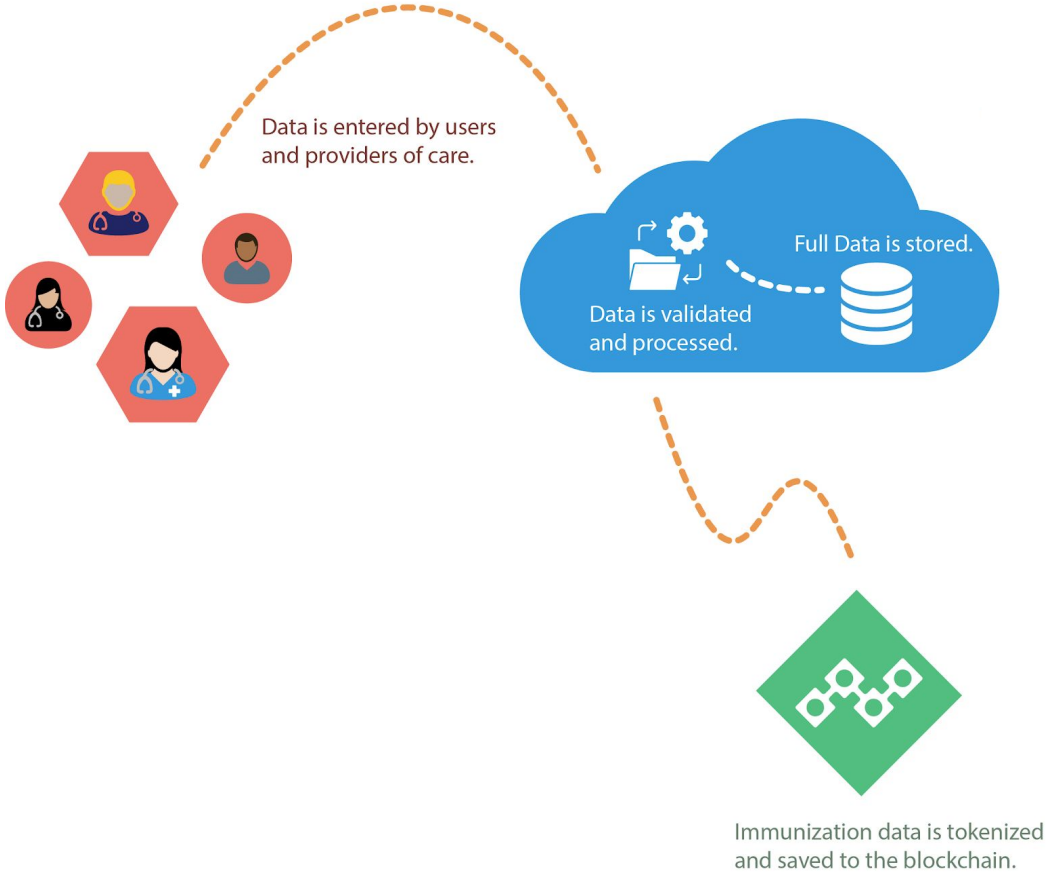
Submit

Verifier	*Patient*	*Vaccination*	*Recommended schedule*	*Vaccination date*	*Verified on*
Doctor Who	*Peter Parker*	*Measles, mumps, rubella and varicella vaccine*	*12 months; 18 months to 4-6 years;*	*27-10-2020, 15:21:58.792*	*27-10-2020, 15:22:18.837*

In application, the private and public keys will be used to create the hash key that will unlock immunization history

Technical Overview

- The architecture allows for private and personal information to remain "off-chain"
- Only data that does not contain any personal information is kept on blockchain (i.e. on-chain)
- The on-chain data is fully tokenized and also completely encrypted
- Data maintained internally (i.e. off-chain) is stored behind an IP restricted firewall, and is also encrypted



Market

Over 10,000 pharmacies across Canada

Serving 17M Canadian
0-19 Year: 8M
>60 year: 9M

1-3 shots a year @ $100 per shot

Vaccination Market $2-5 Billion

Who Will Pay?

- YellO enables pharmacies to track and administer vaccinations to patients
- Pharmacies make 20-30% markup per vaccination or $17-$36 gross profit, on the average $100 vaccine.
- For 30,000 vaccinations this is $1M in gross profit
- At 100,000 vaccinations at $10 per transaction, YellO would realize $1M in revenue

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If You Fund Us...

>>Version 0.01

- Integration to the pharmacy system / Electronic Health Record Systems
- Build out automated reminder and scheduler
- Portal for user to provide certification of vaccinations

Expression of interest:

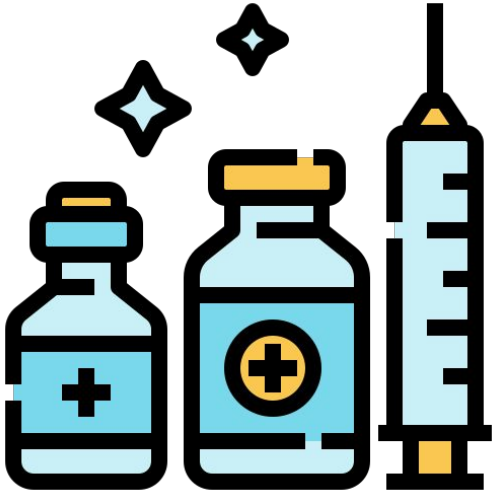
- Opportunity to present to the Red Cross of Canada on tracking the administration of COVID vaccine
- Test clinic confirmed

Thank you

Appendix

YellO - The Red Cross Potential

- The Red Cross of Canada will be working with the Federal Government to administer the COVID-19 vaccination
- Vaccine needs to be administered in 2 doses, making tracking and scheduling important
- YellO can provide the solution for tracking administration to patients
- The opportunity with Red Cross can accelerate adoption of YellO and help attain positive cash flow within a year



PLexity's History

- **From Jan 2018 to May 2019:**
  - Project conception
  - Market research
  - Worked with the eHealth Center of Excellence to develop proof of concept. Focus was eReferral
  - Specification only, no development
  - Project fell through due to funding limitations and change in government

- **September 2019- March 2020:**
  - Revisited idea, decided to focus on vaccination
  - Support from Ryerson University to build prototype
  - Developed specification/ application prototype (MVP)
  - Project stop due to time constraint of the team

- **October 2020 - Present:**
  - Entered Blockhack
  - Focused on redevelopment of the business opportunity
  - Market research: Connecting with individuals within the healthcare space to understand the revenue model and what the motivation of care providers would be to use this application
  - Creating a series of advisors to help navigate the healthcare landscape
  - Update of the app

Why Vaccination?

Pilot: Digitalization of the vaccination record (Yellow Card) on blockchain

Objectives:

- Demonstrate how blockchain technology can be leveraged to support healthcare providers and citizens' needs in terms of security, accessibility, and interoperability
- Understand the adoption challenges (e.g. integration, policy) and change management aspects
- Build a foundation that can be extended to support additional health information, stakeholders and healthcare processes

Vaccination Exploration Scenario

Currently being explored

Scenarios:

- Physician / Pharmacist wishes to review individual's vaccination record
- Physician / Pharmacist registers a new vaccination event record for the individual
- Patient has the ability to share record with providers.

Future Phase

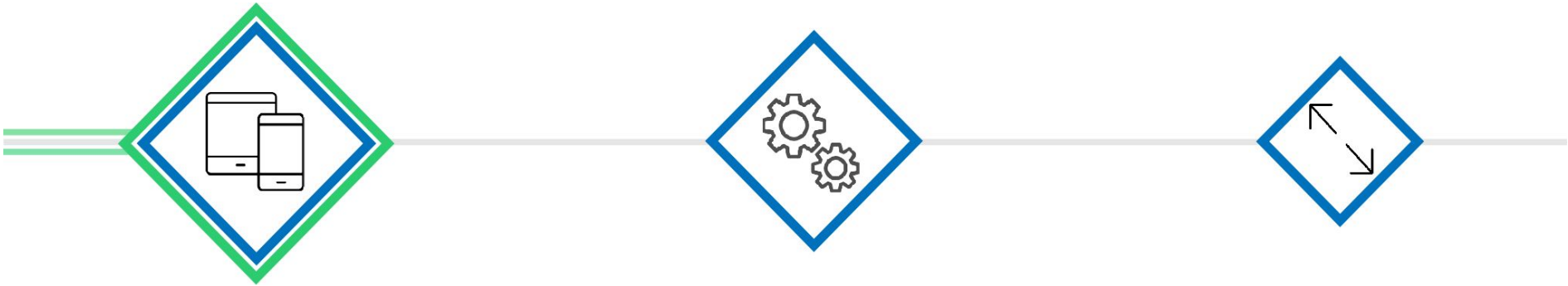
Identity:

- Physician / Pharmacist identity allows digital access to authorized portions of individual's data
- Identity also registers new vaccination event records as "authorized" or "valid", assuming the Provider has previously registered with the PLexity Healthchain.

Authorization:

- Individual / Guardian authorizes access to vaccination history, or some portion of that history

5-Year Roadmap



12 Months

- Focus on vaccination record
- Develop Proof of Concept (PoC) for the vaccination Record using blockchain
- Include the authentication of users and providers
- Test and validate in Limited Pilot release

12-18 Months

- Move to production for vaccination record
- Expand across Ontario
- Explore other components of the PHR: lab, drug, diagnostic imaging, and clinical health information
- Develop data structure for predictive health capabilities (analytics, predictive diagnostic, analysis of blood work, genomics)

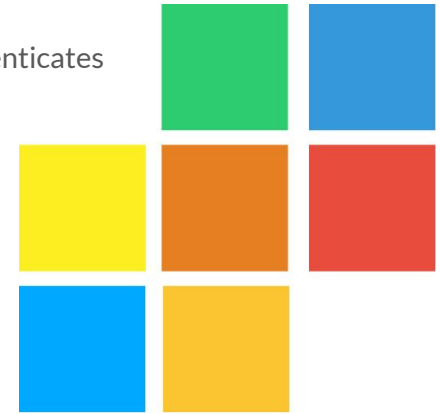
18-60 Months

- Continue to build user base
- Begin to build AI modules
- Introduction of remote monitoring/diagnostics through IoT technologies
- Ability for individuals to volunteer for trials (e.g. cryptocurrency based)

PLexity Building Blocks

PHR

- Development of a “Personal” Health Record (PHR) accessible at any point of care.
- Provide secure linkage that authenticates healthcare providers and users.



Monitoring
Promote self monitoring and independent care through IoT devices.

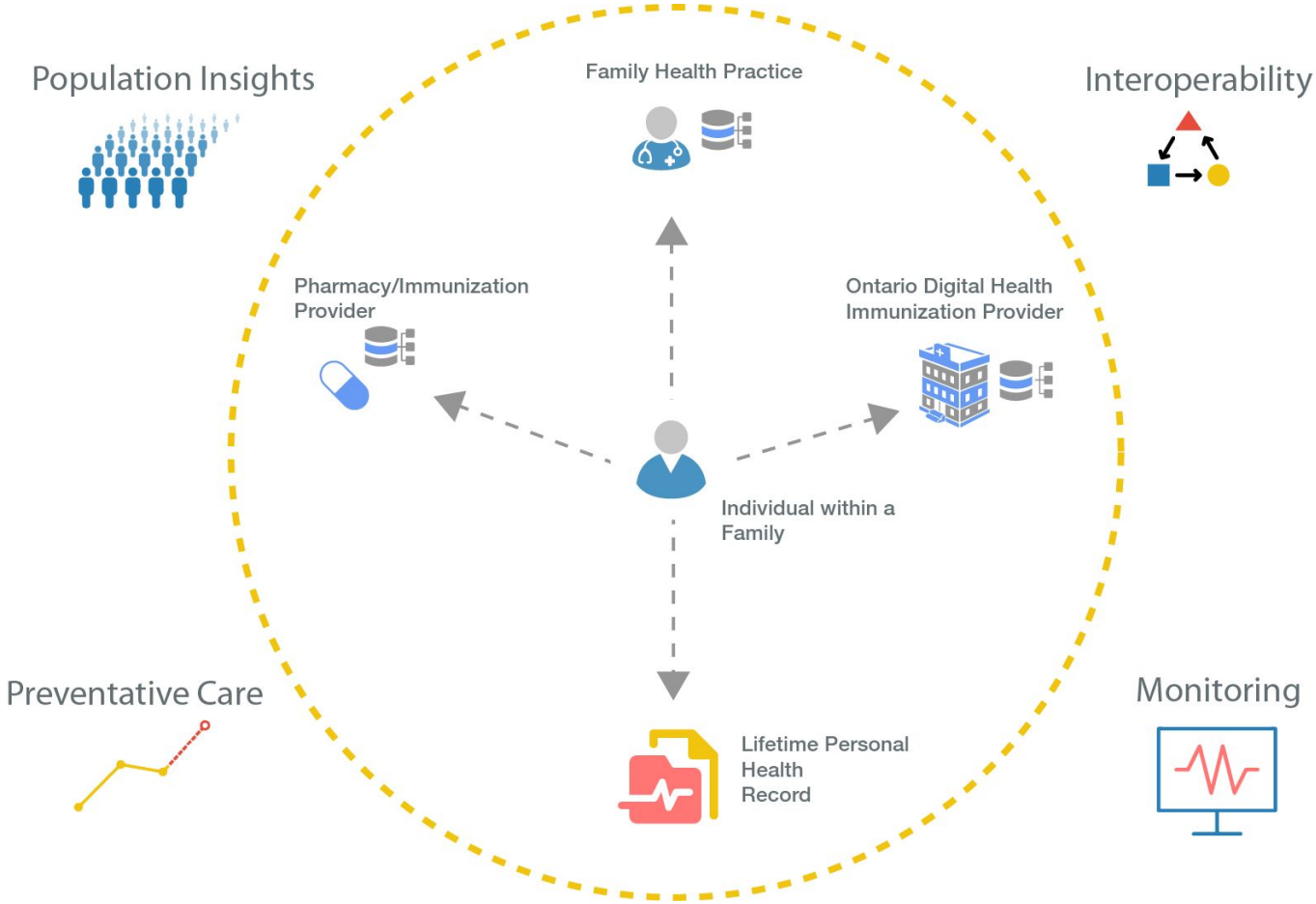
Predictive
Leveraging AI and Machine Learning to empower/self- promote personal care and wellness

Mission>> *The creation of a user empowered personal health record that is verifiable and secure at any point of care*
Vision >> *Empowering the wellbeing of people*

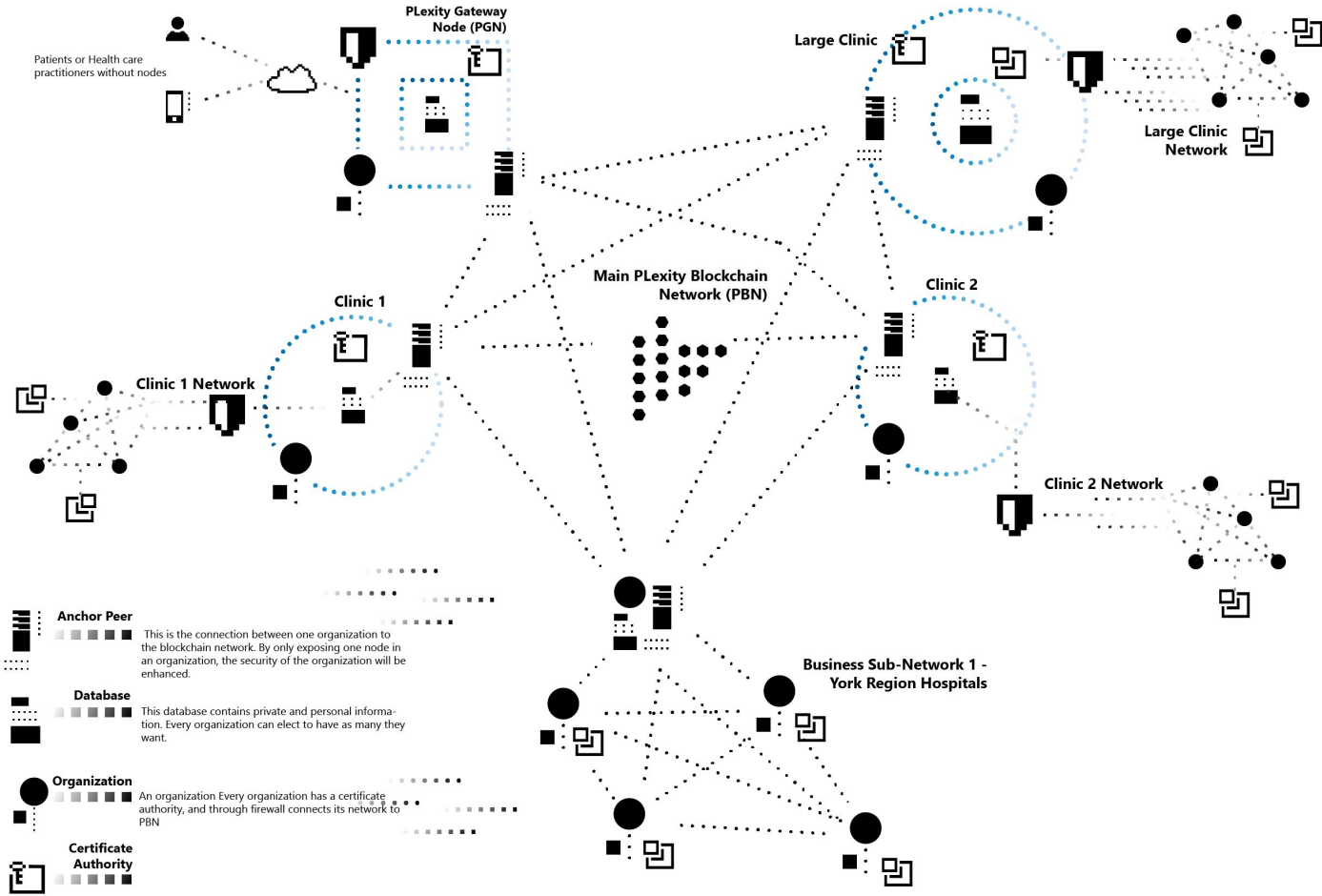
Benefits of YellO

- **Focusing on preventative care for high-risk individuals:**
  - Simplifying communications between patients and healthcare providers
  - Providing vaccinations to high-risk individuals in a timely manner
- **Putting patients in the centre of care:** Leveraging blockchain to enable and empower patients to own, and manage their own data
- **Reducing the cost of healthcare:** Reduction of complexities will lower costs
- **Creating a platform to develop future solutions for patients:** New services can be developed and introduced to the market

Future Vision



Future Vision - Decentralized Health Network



The development of a decentralized patient record accessible at any point of care

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Why Blockchain?

Blockchain is a secure and private means of connecting multiple diverses and health system stakeholders together to support their interactions and collaboration.

A secure, lifetime health record that can be carefully shared by patients and health service providers

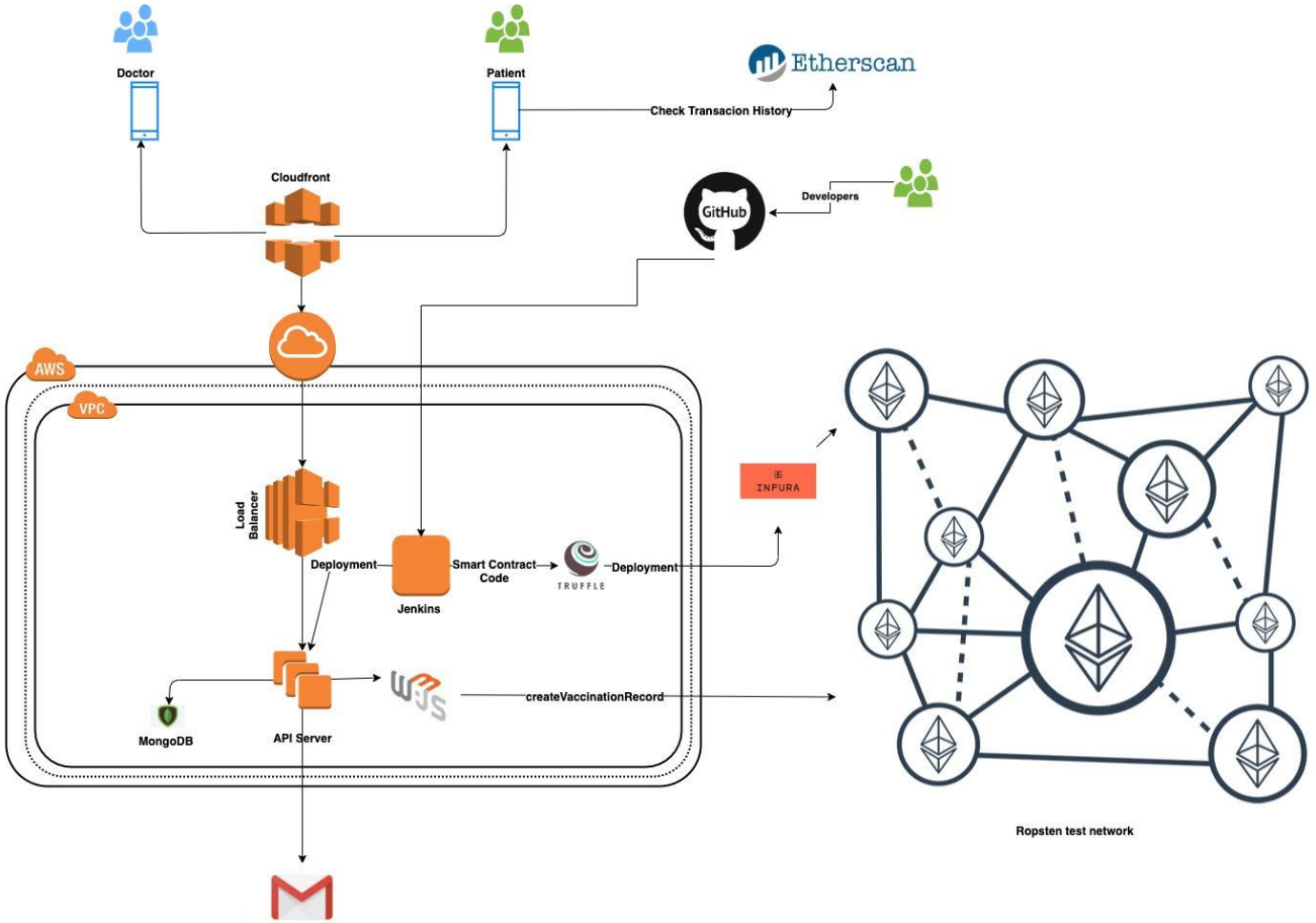
Trusted transactions across the health system that enable the appropriate use and value of the patient's health record in the care process

Secure authentication and identity management to ensure the right people have access to the right information to support patient care, while maintaining privacy

Interoperability across a diverse stakeholder and technology landscape to facilitate collaboration and flexibly "connect" across the health system.

Details - Technical

- Developed with React Native
- Uses MongoDB to save users
- Hosted in AWS
- Transactions are sent to the Ropsten Ethereum test network



Privacy

- Privacy issues are implicated as the proposed solution involves the access, use and transmission of personal health information of patients

- The solution will require legal authority under the *Personal Health Information Protection Act* (Ontario) and equivalent legislations in other provinces

- The PLexity team is consulting privacy lawyers to identify the necessary authority and resolve privacy issues

Details - Market

Province	Pharmacies	0 to 19 years	> 60 years	Total
Ontario	4,566	3,131,022	3,555,601	6,686,623
Quebec	1,907	1,780,056	2,310,609	4,090,665
Alberta	1,457	1,080,018	875,313	1,955,331
British Columbia	1,368	991,471	1,347,086	2,338,557
Other Prov & Terr	1,626	1,156,945	1,307,498	2,464,443
Total Market	**10,924**	8,139,512	9,396,107	**17,535,619**

Population	Cost per shot	Total Revenue
17,535,619	$100	$1,753,561,900
17,535,619	$200	$3,507,123,800
17,535,619	$300	$5,260,685,700

Sale Price	Mark up	Gross Profit	Mark up	Gross Profit
Price of shot	20%	20%	30%	30%
$100	$83	$17	$64	$36
$200	$167	$33	$128	$72
$300	$250	$50	$192	$108

Revenue Table

Per Vaccination	Pharmacy's gross profit from vaccination @$36 per transaction	Yello Revenue $5 per transaction	Yello Revenue $10 per transaction	Yello Revenue $15 per transaction
500	$17,949	$2,500	$5,000	$7,500
1,000	$35,897	$5,000	$10,000	$15,000
3,000	$107,692	$15,000	$30,000	$45,000
5,000	$179,487	$25,000	$50,000	$75,000
10,000	$358,974	$50,000	$100,000	$150,000
15,000	$538,462	$75,000	$150,000	$225,000
30,000	$1,076,923	$150,000	$300,000	$450,000
60,000	$2,153,846	$300,000	$600,000	$900,000
120,000	$4,307,692	$600,000	$1,200,000	$1,800,000
240,000	$8,615,385	$1,200,000	$2,400,000	$3,600,000

Assumption Average vaccination
Price: $100
Cost: $64
Gross Profit: $100-$64 = **$36**

Application Layout

Simple Flow

Step 1: Create profile
Key consideration: Profile transfer, transfer from guardian to child when the child comes of age

Step 2: Log-on need to allow the ability to share information with Doctor
Key Considerations: Linking to physician registry, verification of doctors.

Step 3: Update record
Key consideration: Linking to external database, and cost

Features:

- Scheduling reminders
- Outbreak risk based on location and vaccinations recorded (future)
- Locations to close office

Key/Legend

Administrator

Pharmacist

Doctor

Patient

Start/End

Decision

process

Manual process

Manual input

Stored data

Document

Loop

Input

Start/End

Other - Future use

Other - Future use

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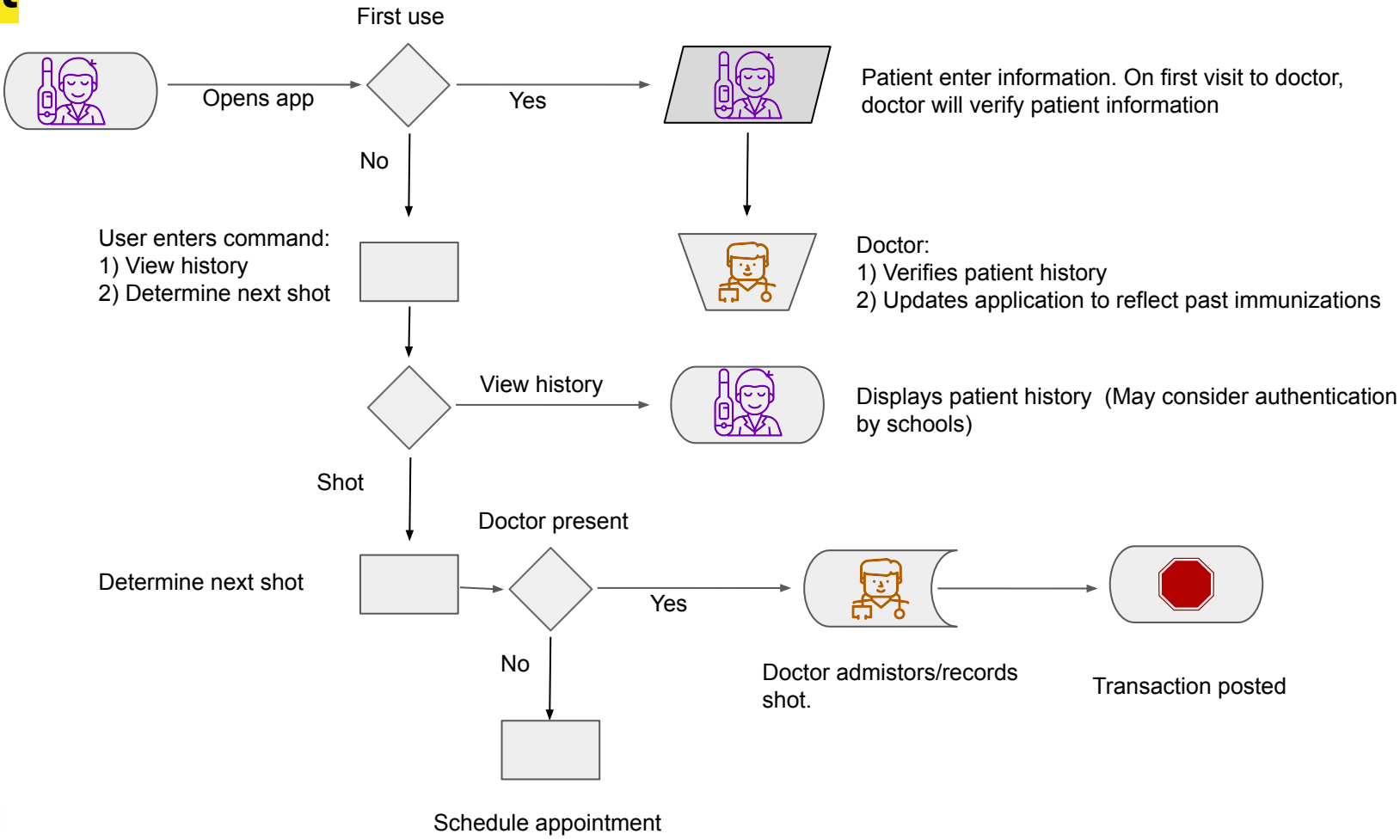
Patient



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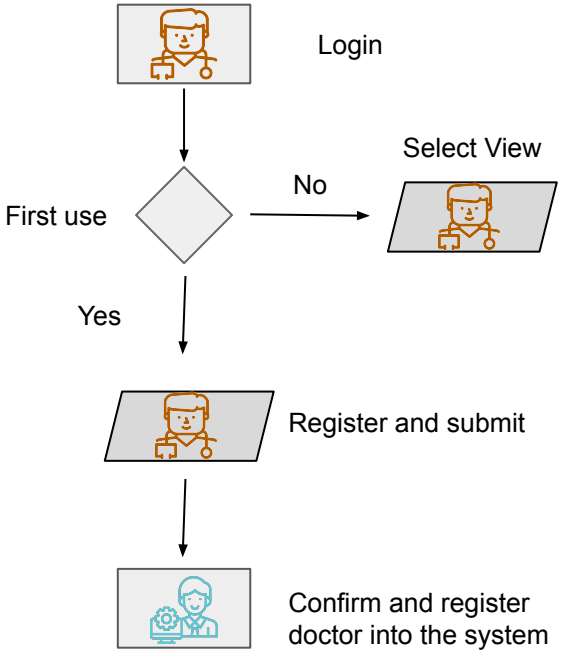
Doctor



- View past vaccinations administered by doctor
- Verify patient (if first time using system)
- Verify past vaccinations administered by doctor
- Review patient history - send request/accept request