VALIDATED USE CASES

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**Blockchain Health Applications**

**Supply Chain, Pharmacy & Custody**
- Chain of Custody
- Protocol Adherence
- Prescription Misuse / Fraud
- Asset Tracking

**Identity & Consent**
- Identity Verification
- Master Patient Index (MPI)
- Provider Directory
- Licensure & Credentials
- Data Access Tracking
- Informal to Informed Consent

**Operations & Administrative**
- Interoperability and Transparency
- Claims Auto-Adjudication
- Revenue Optimization & Recovery Authorizations
- Work Flow Optimization
- Clinical Decision Collaboration

**Govt & Regulatory**
- Regulatory Compliance
- Fraud Prevention
- Cross-Agency Data Sharing
- Mandatory Reporting
- Social Services

**Research**
- Intellectual Property Ownership
- Clinical Trial Recruitment
- Research Collaborations
- Investigator-CRO-Sponsor Data Sharing
DATA IS THE FOUNDATIONAL USE CASE

FOR CARE, FOR HEALTH, FOR LIFE
Identity, Health Profiles, and Consent
A GLOBAL SOVEREIGN HEALTH PROFILE
For People, Places, and Things

A COMMON IDENTITY TRUST FABRIC

MPI
Government ID
Health Record
Bank Account

Fitness Data
Public Records
Professional Credentials
Sovereign ID (s)

Diverse data sources form the basis for universal identity & profile management
Three Parts to Identity

• Claims
  • Identity claim made by the person our business

• Proofs
  • Evidence such as a document that provides evidence for the claim
  • Can come in all forms: Drivers license, passport, birth certificate, utility bill
  • Two key items to open a non resident bank account in Bermuda: Government ID and copies of utility bill to demonstrate residency.

• Attestation
  • Third party validation of the claim/proof
YOU CONTROL YOUR ONLINE PERSONA

Anonymous

Partial or Alias

Everything
GRANULAR INFORMED CONSENT

An Ecosystem of Managed Interactions, Data Sharing, and Monetization
Blockchain & Machine Learning for Provider Data
WHAT IS PROVIDER DATA?

• Contact Information
  • Multiple Addresses + Phone #s
• Professional Information
  • Training, Specialties and Credentials
• Network Status
• Panel Status
• $2B+ spent annually by health plans (CAQH)
• Provider directories are <50% accurate (CMS)
• 1 in 7 patients receive a surprise bill due to inaccurate network information (HCCI)
THE STATUS QUO

• Regulatory Actions
  • Federal fines ($25,000 per beneficiary)
  • Mandated reimbursements
  • Blocks on new enrollments
ORDERLY’S APPROACH

• 1B+ data points from public and proprietary sources
• Machine learning engine
• Results:
  • ≥90% accuracy
  • ≥75% cost-savings
CHALLENGES

- How do we securely store this data?
- How do we manage sharing this data?
- How do we create an audit trail for regulators?
Blockchain-Enabled Data Aggregation in Clinical Health Data Organizations
Colorado clinical health data organizations:

- Colorado Regional Health Information Organization (CORHIO)
- Quality Health Network (QHN)
- Colorado Community Managed Care Network (CCMN)

Required to provide quality metrics for state-run federally-qualified health programs
GOALS

• Share data for aggregated CQM reporting
• Protect data confidentiality
• Reduce administrative costs and burdens
• Data organizations partnered with BurstIQ in August 2018
• Placed clinical quality measures (CQM) on HIPAA-compliant blockchain
• Funded by Colorado State Innovation Model program
• First-of-its-kind project and partnership in Colorado
INTEROPERABILITY
True Data Liquidity Between Endpoints, Stakeholders & Systems
The blockchain-based platform allows:

• Interoperability across organizations
• Data consolidation and contextualization
• Data sharing without revealing individual data points to each other
• Data standardization without having to change internal organization standards
• Accessibility to complex set of stakeholders
Complex ownership and granular consent allows each organization to:

• Control own data

• Specify how data move between different stakeholders

• Automate permissible access and data uses
RESULTS

• Reducing administrative burdens of aggregating CQMs
• Simpler process for extracting and reporting organization-level and consolidated results
• More privacy and control over data
INITIAL CHALLENGES

• Questions about jurisdiction

• Need for:
  o Governance structures with layers of decision-making
  o Data management policies
  o Stakeholder and community education about blockchain
• Building out data ecosystems across other state agencies or health service providers
• More consumer-directed data sharing options (e.g., research, marketplace services)
• Research and public health surveillance:
  o Massive data sets for analysis without access to individual data points
  o Longitudinal analyses for trends