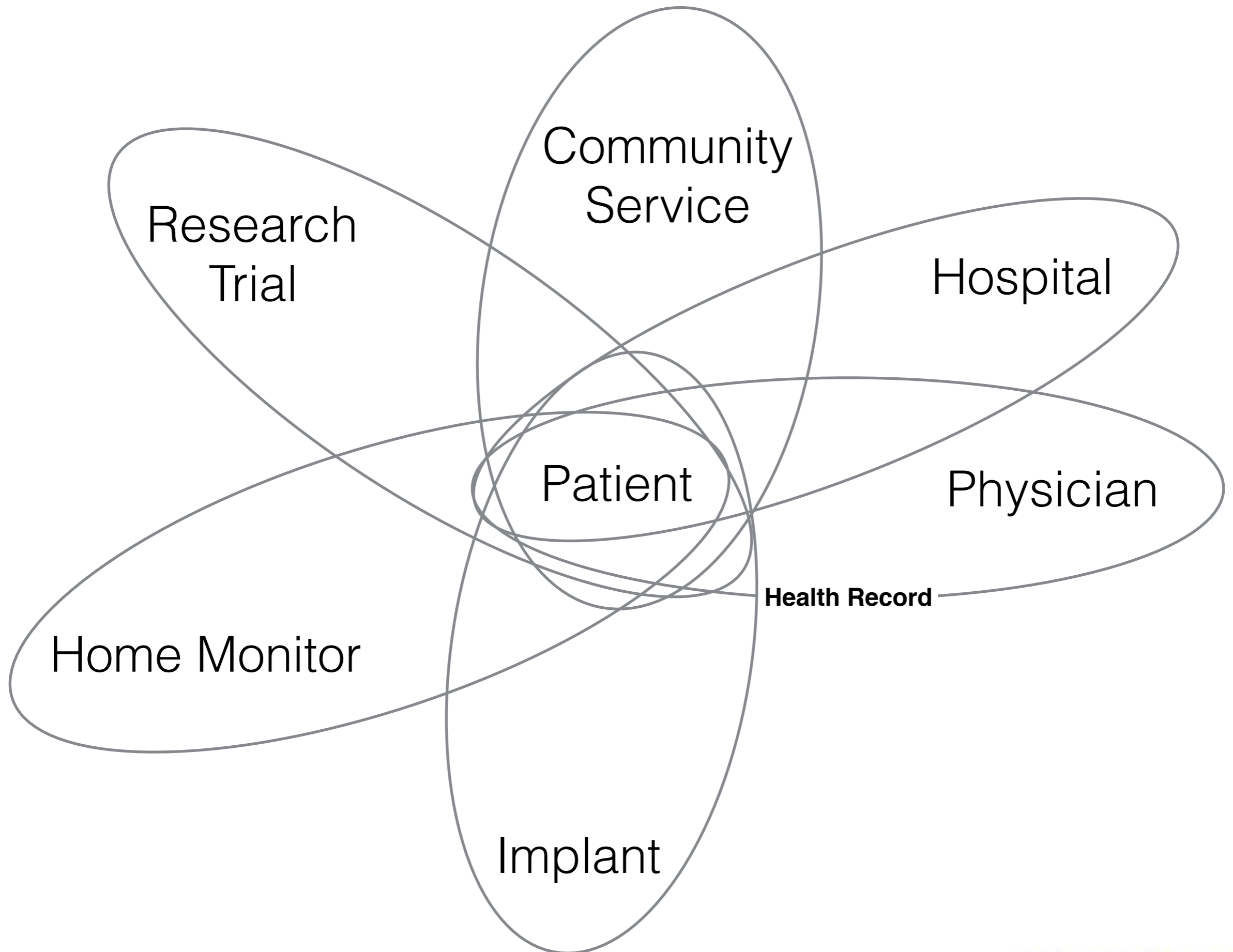


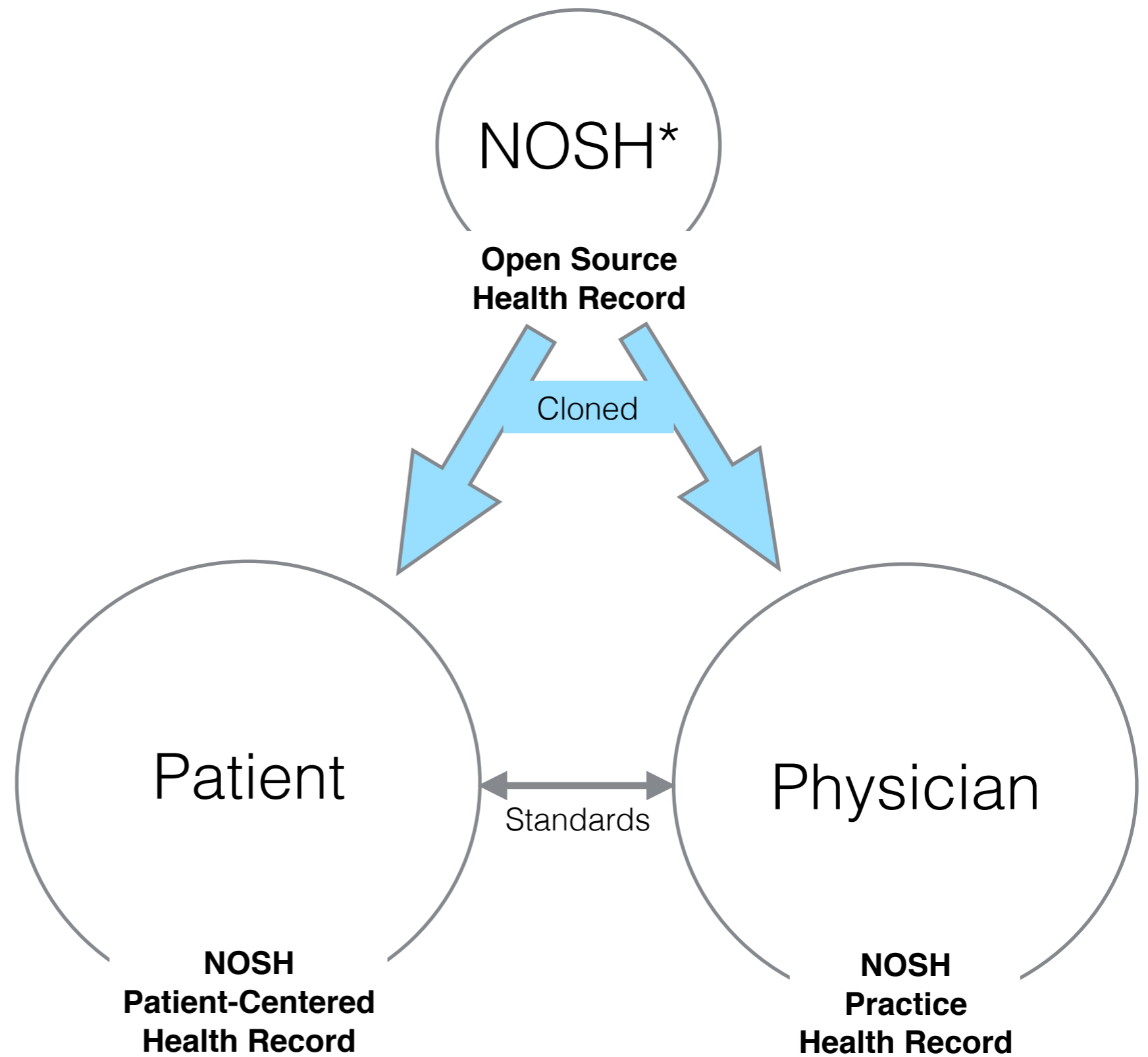
# **Application of Blockchains to Patient-Centered Health Records**

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McCombs School of Business Healthcare Initiative  
April 7, 2017







# Patient-Centered Health Record

## **Sign-in and access**

- Licensed professionals
- Standards-based EHRs
- Family and others

## **Single Sign-On and Trust**

# Blockchains for Non-Institutional Trust

- Single Sign-On
- Credentials
- Audit
- Authenticity
- Security
- Payment
- Sharing

Blockchains are a (Public) Ledger

Blockchains are a Ledger...

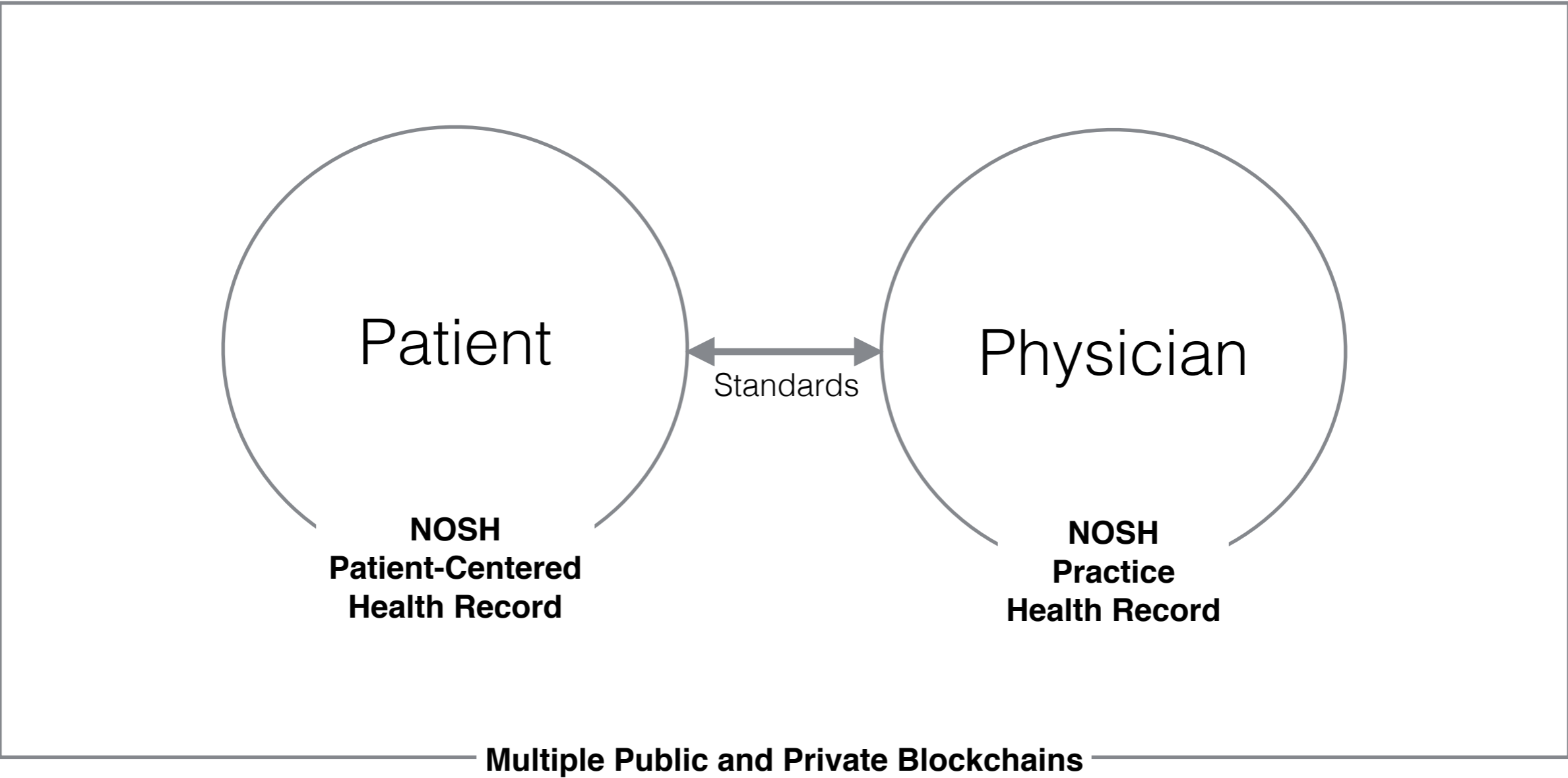
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# Blockchains for Non-Institutional Trust

- Single Sign-On - security
- Credentials - revocation
- Audit - tamper-proof
- Authenticity - tamper-proof
- Security - open source
- Payment - sophisticated cash
- ~~Sharing~~ - loss of control

# HIE of One\*



\* Health Information Exchange of One - [hieofone.org](http://hieofone.org)

Use Case: Write a prescription

# Prescription Steps

1. NOSH Patient-Centered EHR
2. Physician's Tablet
3. Physician single sign-on
4. Add a medication
5. Decision support (for physician and patient)
6. Biometric signature
7. Compliance
8. Pharmacy access
9. Payment
10. Optional adherence and adverse event reporting app

# HIE of One Timeline

2016

- NOSH Patient-Centered EHR based on FHIR, UMA, and OpenID standards
- Independent decision support at the point-of-care demo with GoodRx
- <http://hieofone.org> live
- HIE of One paper wins one of the ONC Blockchain Challenge awards
- Blockchain ID demo based on Ethereum pre-alpha uPort password-less SSO

2017

- NOSH 2.0 is tablet-friendly
- 
- Public uPort 1.0 app is available
  - Blockchain timestamps
  - Compliance and verified credentials
  - FHIR and HEART integration with standards-compliant EHR

April

2018

- Optional adherence and adverse event reporting app
- Clinical pilot underway

# Experience

- Standards are essential for patient-centered, longitudinal health records
- Physicians have given up control of their professional tools
- Physicians and patients have no market power for HIT
- Regulatory capture of standards drives information blocking
- Institutions fear transparency and this harms security, slows blockchain adoption
- Most blockchain health projects still assume institutional control
- Most blockchain health proposals confuse privacy with security
- HIE of One traction in segments ill-served by current EHRs
  - Start with behavioral health and community services

# Thank You!



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