

Morgan Lewis

# ***FAST BREAK:*** **HEALTHCARE BLOCKCHAIN**

Jonelle Saunders and Jake Harper  
March 28, 2018



# AGENDA



## **Blockchain 101:**

- Basics of Distributed Ledger Technology

## **Potential industry uses**

- EHR interoperability
- Identity Management

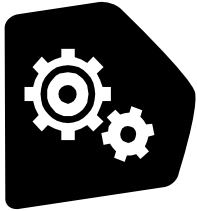
## **Limitations and challenges**

?

A 2017 survey from IBM reports that 16% of healthcare entities may already be working with blockchain

# BLOCKCHAIN 101

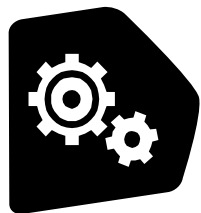
# Blockchain 101



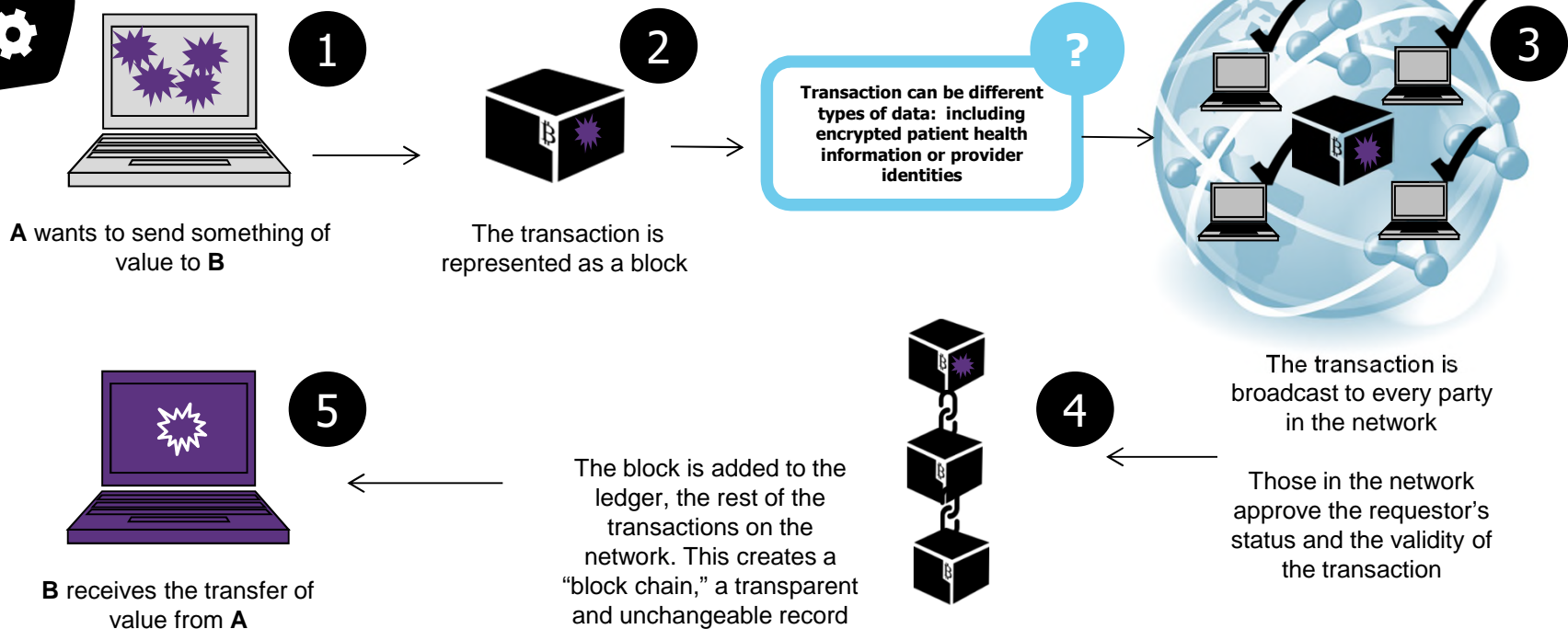
**What is blockchain?** A decentralized shared ledger for recording the history of transactions that cannot be altered

- Decentralized means it is distributed and no one is an owner
- A chain of computers approves transactions before they are verified and recorded
- Transactions are not valid until added to the chain
- Everyone on the network can see transactions
- Blockchain network is encrypted and secure

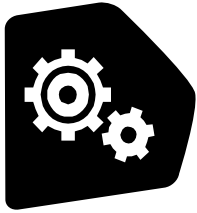
# Blockchain 101



## How does blockchain work?



# Blockchain 101

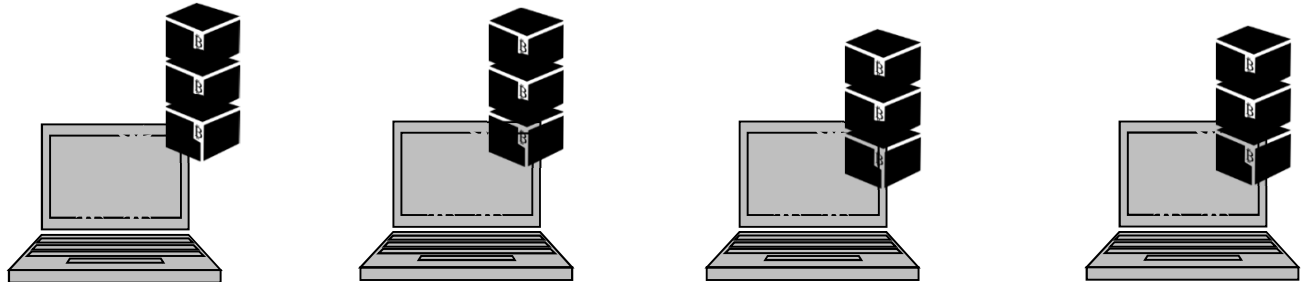


Present  
Data Silos

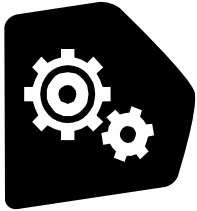
**Synchronized, distributed ledger with multi-level access  
and encryption control**



Blockchain  
Collective shared  
ledger



# Blockchain 101



## Why is blockchain relevant to healthcare?

- The type of transactions that can be added to a block varies
  - Patient's weekly nutrition log or a healthcare provider's credentials
- There is a growing trend towards personalized medicine, wearable health technologies and patient autonomy
  - Centers for Medicare & Medicaid Services (CMS) focus on value-based care and increasing patient access to healthcare data with the MyHealthEData initiative
- Technology is in its infancy
  - Stakeholders have the ability to be part of the move to empowering patients to be active healthcare consumers

# POTENTIAL INDUSTRY USES

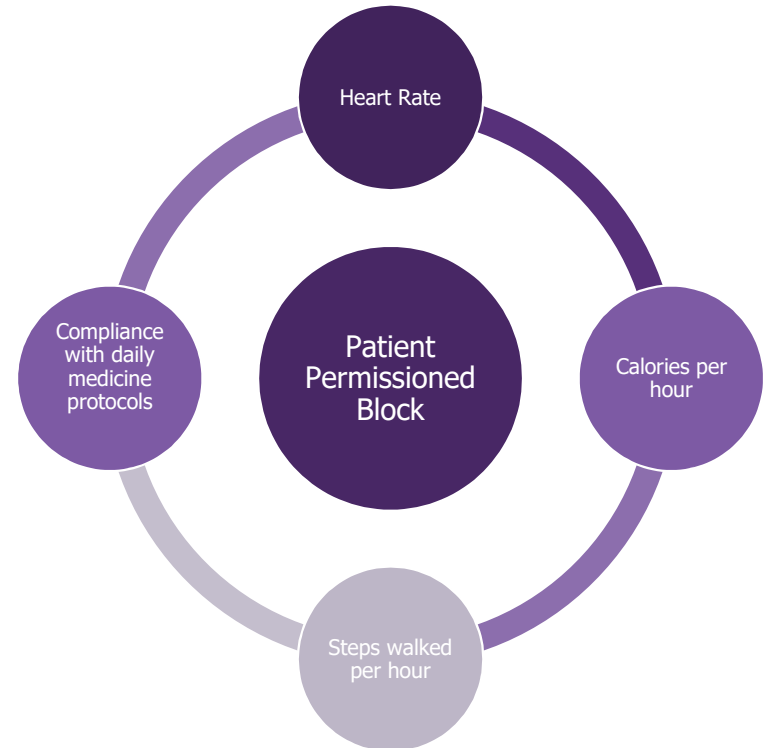


# Potential Industry Uses: EHR Interoperability

## *Wearable Devices and Integrated Healthcare*

### Problem

- Patient events are disparate, disconnected and uncoordinated
- Lack of patient control and autonomy
- Difficulty sharing medical information with stakeholders while ensuring data integrity and protecting patient privacy
- Growing focus on care coordination, EHR access and value based metrics

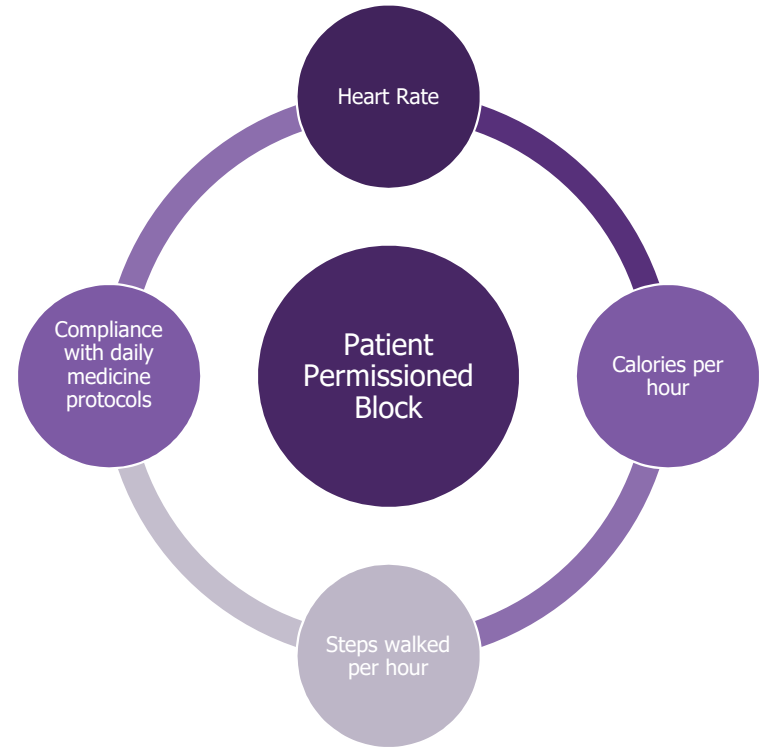


# Potential Industry Uses: EHR Interoperability

## *Wearable Devices and Integrated Healthcare*

### Opportunity

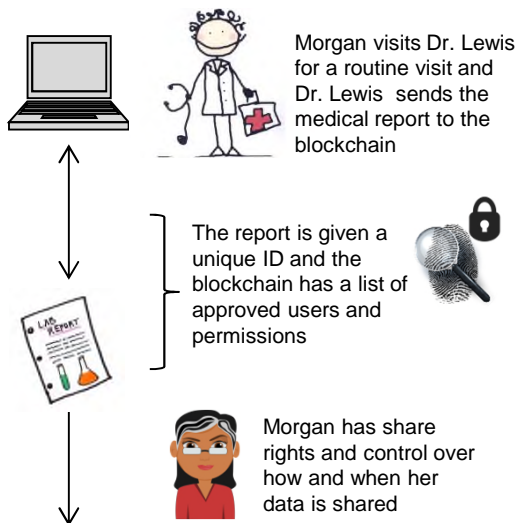
- Patient data from multiple devices can be securely recorded and protected
- Integrate data from patient based technologies with information from EMRs with permissions
- Information with digital signature can be collected and matched with the same digital signature
  - De-identifying patient information with an assigned unique patient identifier
  - Access test results, prescriptions, physician referrals



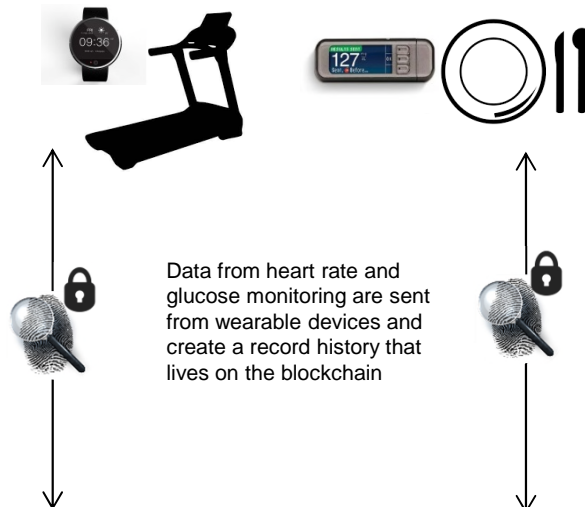
# Potential Industry Uses: EHR Interoperability

## Wearable Devices and Integrated Healthcare

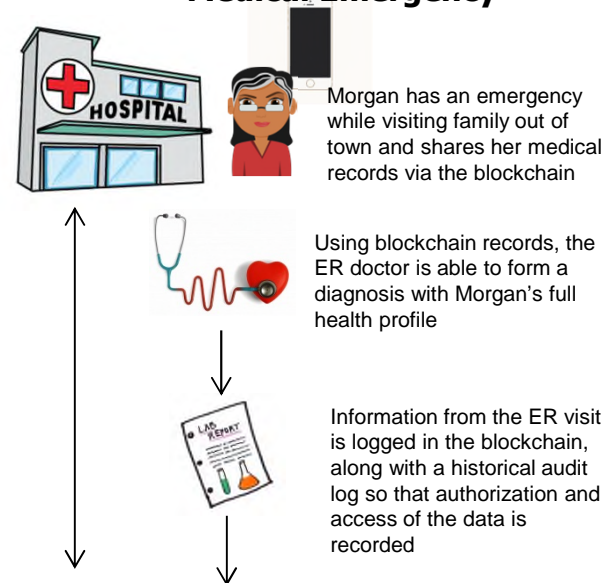
### Medical Record Creation



### Wearable Device Data



### Medical Emergency



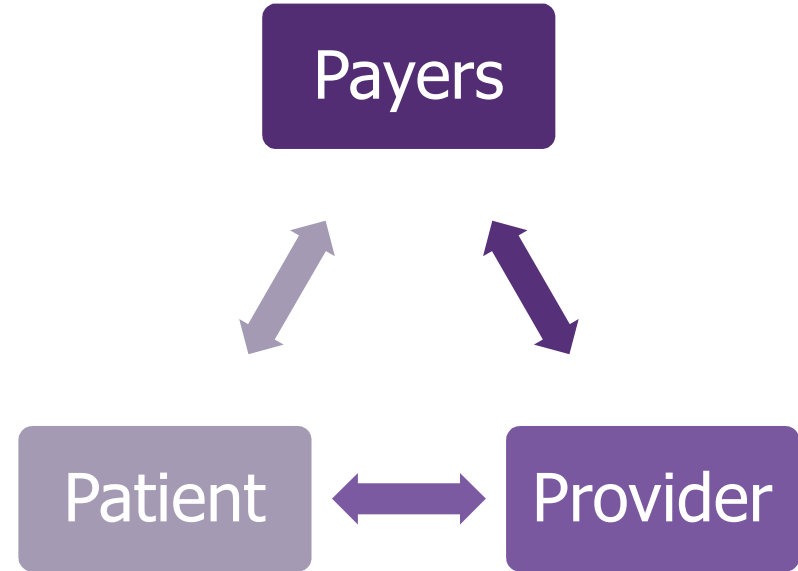
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# Potential Industry Uses: Healthcare Payments

## *Credentialing and Identity Management*

### Problem

- Healthcare providers must undergo a process of credentialing
- To receive reimbursement for services as an in-network provider, the insurer verifies the provider's education, training, experience, and competency
- Medical institutions review similar information before granting privileges
- Providers may have access to information that is not appropriate for them or may steal data

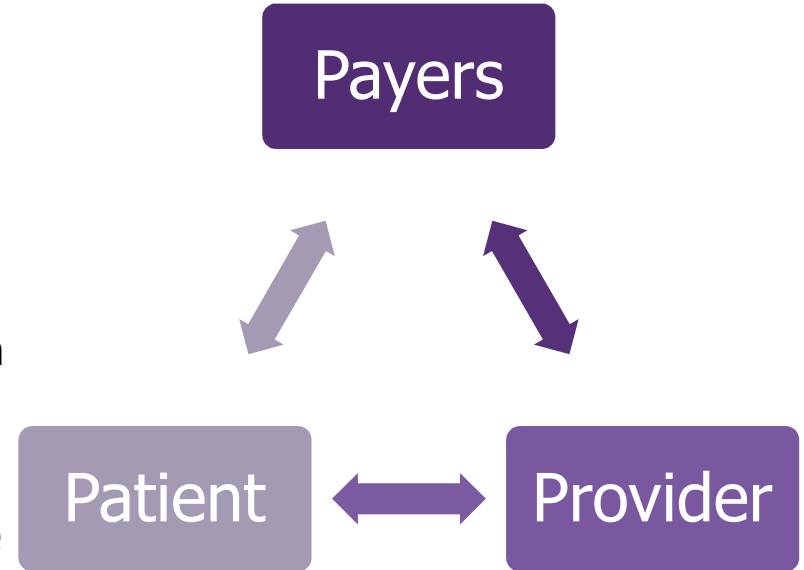


# Potential Industry Uses: Healthcare Payments

## *Credentialing and Identity Management*

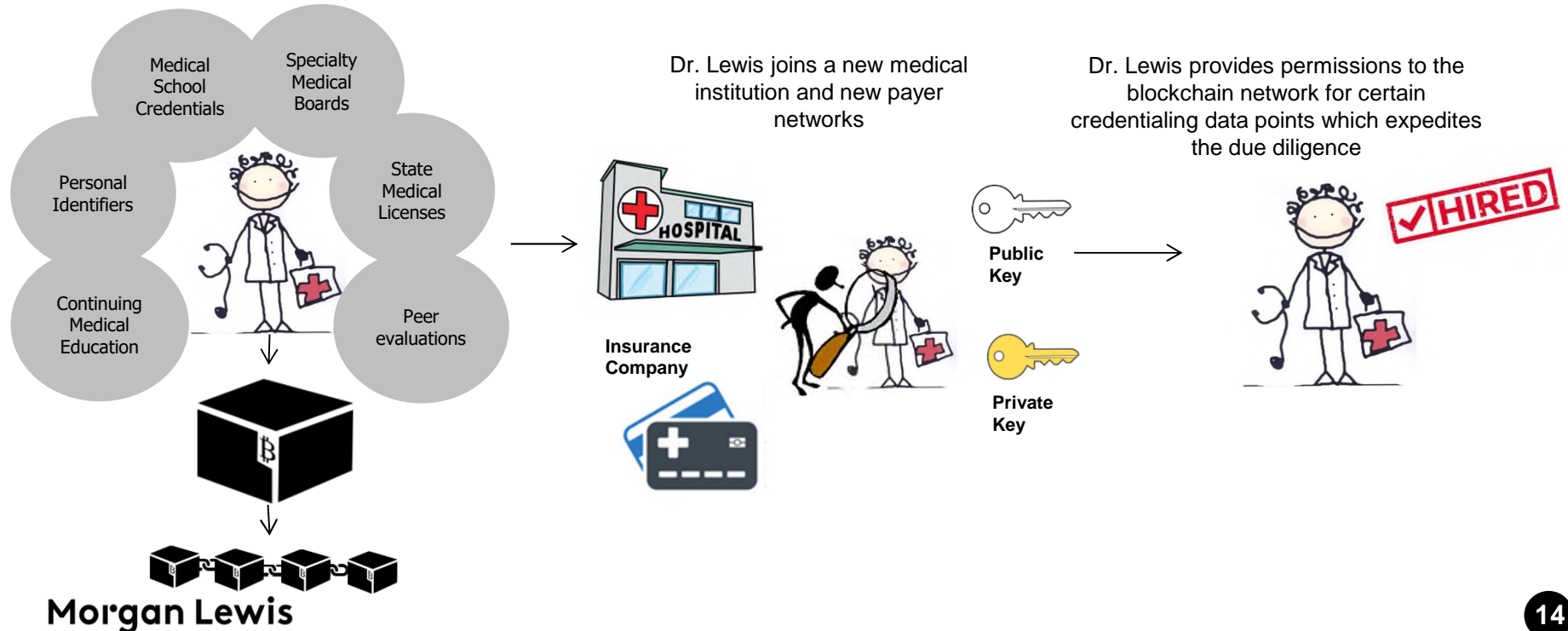
### Opportunity

- Blockchain Empowered Healthcare Identity
  - Verify data in a record without actually seeing the contents of the record
  - Understand user identities and run analytics on activities
  - Less administrative double recordkeeping
  - Easier access to relevant data to join insurance provider networks



# Potential Industry Uses: Healthcare Payments

## *Credentialing and Identity Management*



# Potential Industry Uses



e-estonia

Estonia developed a nationwide blockchain EHR system



Researching use of blockchain for storing and exchanging medical data



NOKIA

Pilot in Finland sharing daily steps and sleep hours through Nokia's wearable HR monitor smartwatch



Pilots with Illinois for Provider and Patient identity management



bron.tech

Healthcare data-sharing platform that issues identity tokens to practitioners



Provider of blockchain solutions for enterprise and health data synchronization



Application programming interface (APIs) for healthcare verticals such as claims, pharmacy, and identity management



System that interconnects with any EHR system for management of data



Personalized medicine through business applications for healthcare participants



Patient genomic information recorded for scientific use

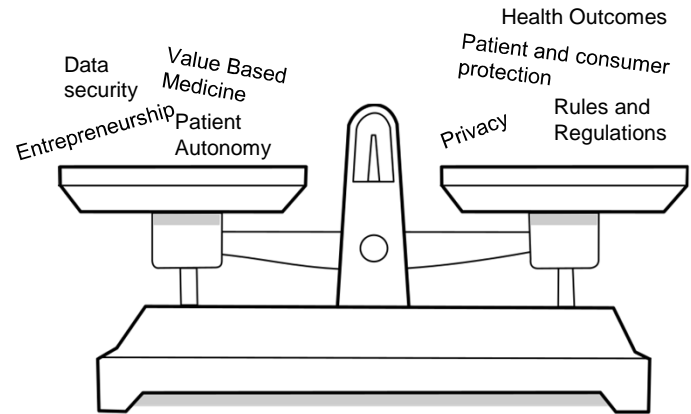
# **LIMITATIONS AND CHALLENGES**



# Limitations and Challenges

## Costs and Scalability

- CMS has spent over \$30 billion dollars since 2011 towards EHR adoption
  - New approaches will need to work alongside current technologies – bridge solution
- As users add data the blockchain grows
  - Storage costs and computational power demands
  - Too much data
- New technology inertia



# Limitations and Challenges

*Blockchain technology may not fit into current legal and governance frameworks*

## Data Security

- IP rights and offensive remedies for first movers
- Responsibility for compromised files
- Supporting infrastructure of blockchain technologies will need to be secured

## HIPAA

- HIPAA compliance, reporting and notifications
- Privacy and security protections
- Governance models for removing data
- Decentralized nature lessens the ability that any single institution can be robbed or hacked to obtain large amounts of patient records

# Thanks!



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[Click Here for full bio](#)

Jonelle is part of our litigation and healthcare teams providing services in a wide range of areas. Jonelle advises clients on general litigation matters, corporate investigations, and regulatory enforcement and compliance. She also provides counsel to stakeholders across the healthcare industry on regulatory and litigation matters, including federal and state fraud and abuse matters.

# Join us next month!

Please join us for next month's webinar:

*"Fast Break: The Wild West of Health Insurance Coverage"*

Featuring Molly Lane and Lisa Veasman

➤ Wednesday April 25, 2018 3:00 PM (EST)