

# HIMSS17

## Cross Organizational Patient Identity Management: Challenges and Opportunities



In Collaboration with the CCC

# The Sequoia Project's Role

The Sequoia Project is a trusted, independent convener of industry and government

Works to address the challenges of secure, interoperable nationwide health information exchange (HIE).



**SECURE**



**INTEROPERABLE**



**NATIONWIDE**

# The Blind Spot: Cross Organizations Patient Matching

## Why is Patient Matching still an unsolved problem?

All organizations perform patient matching and have controls in place to keep track of patient identity  
This is key to **providing care** while **ensuring privacy**



## Matching across organizations is *different* than identifying the patients locally

- **Vastly different data characteristics**
  - Data quality
  - Data completeness
  - Data field consistency
  - Default or temporary values
  - Vocabulary adoption and versioning
- **Vastly different scope of data (specialty practice vs. large integrated delivery network)**
  - Presence/absence of an enterprise-wide active master patient index (MPI)
  - Use of multiple MPIs
  - Research Institutional Review Board stipulations
  - Legal jurisdictions and requirements (minors, reproductive health, etc.)
- **Organizational size, resource allocation, project timelines, commitment, skill levels**
  - Corporate cultures (being “friendly” to clients vs. being meticulous for registries)
  - Different tolerances in terms of matching accuracy
  - Different patient matching rules and algorithms
  - Human and system workflows (latency, variations, definitions, etc.)
  - Consent, security, sensitive data sharing, and other policies
- **Vendor engagement, version updating strategy, staffing**
  - Software (vendors, update lifecycle, configuration)
  - Change management
  - Internal enterprise software architecture
  - Services levels/response times
  - Data exchange latency

# Framework for Cross-Organizational Patient Identity Management Released

- **Case Study:** How Intermountain Healthcare and exchange partners increased matching success rates from 10% to over 95%
- **Proposal:** Patient Matching Maturity Model
- **Proposal:** Patient Matching Minimal Acceptable Principles

**Download the paper:**

<http://bit.ly/1O1nixl>



Framework for  
Cross-Organizational  
Patient Identity Management

# Cross-Organizational Maturity Model

A tool to assess and adopt more advanced patient identity management in a methodical manner



## Level 0

- Ad hoc
- No oversight
- Unpredictable



## Level 1

- Data quality
- Basic processes
- Limited oversight



## Level 2

- Increasing algorithm use
- Quality metrics gathered
- Standards use



## Level 3

- Advanced technologies
- Management controls quality metrics
- Community involvement



## Level 4

- Ongoing optimization
- Active management
- Leadership

# Cross-Organizational Minimal Acceptable Principles

## Overview of Proposed Framework



### Traits & Identifiers

- Specific identifiers
- Temporary/default identifiers
- Assumptions



### Matching Algorithms

- Normalizing
- Tracking Changes



### Exception Handling

- Consent
- Revoke
- Decommissioning

# Cross-Organizational Minimal Acceptable Principles

## A list of rules that set the “floor”

- ✓ **Do** make clear corresponding responsibilities on both partners to an exchange of patient data
- ✓ **Do** use normalized traits
- X **Don't** use exact character-by-character matching
- X **Don't** rely on any specific identifier (such as a social security number)
- X **Don't** make assumptions about the life cycle of a patient identifier

## Language to elevate the “floor”



At Level 1 rules are interpreted as SHOULD or SHOULD NOT



By Level 4 rules are interpreted as stringent pass/fail standards, becoming MUST or MUST NOT

# Traits and Identifiers

## Patient Discovery Initiating Gateway



### Should:

- Use consistent, unchanging, and individualized patient identifiers
- Query using all traits required by underlying specifications
- Query using all high-quality optional traits

### Should Not:

- Require use of specific identifier\*
- Transmit any temporary/ default value for patient traits
- Make assumptions about expiration of partner's identifiers
- Supply more than one patient identifier per assigning authority



# Traits and Identifiers

## Patient Discovery Responding Gateway



### May:

- Return multiple ambiguous matches per assigning authority

### Should:

- Use consistent, unchanging, and individualized patient identifiers
- Handle multiple ambiguous matches per Assigning Authority

### Should Not:

- Require use of specific identifier\*
- Transmit any temporary/ default value for patient traits
- Make assumptions about expiration of partner's identifiers
- Require identical traits on subsequent requests
- Return duplicate patient records in such a way that a duplicate record will be created

# Matching Algorithms

## Patient Discovery Responding Gateway



### Should:

- Track patient identity trait changes and respond based on prior or current demographics
- Match based on normalized traits
- Use case insensitive matching

### Should Not:

- Use exact character-by-character matching

# Exception Handling

## Patient Discovery Initiating Gateway



### Should:

- Permanently decommission the identifier or identifiers formerly used to represent the patients after merging/ unmerging

### May:

- Use the XCPD “revoke” transaction to indicate that a previous correlation made by a partner should be revoked

### Should Not:

- Reuse a patient identifier

# Exception Handling

## Patient Discovery Responding Gateway



### Should:

- Permanently decommission the identifier or identifiers formerly used to represent the patients after merging/ unmerging

### May:

- Accept the XCPD “revoke” transaction
- Return an error indicating additional patient consent may allow different information to be returned

### Should Not:

- Reuse a patient identifier

## In Summary

- The Patient Matching Minimal Acceptable Principles is a list of rules based on real-world production experience
- The purpose of the rules is to:
  - Create a “floor” for data sharing behavior
  - Clarify corresponding responsibilities on both partners to an exchange of patient data
  - Increase cross-organizational patient match rates nationwide through standardized identity management practices
- We encourage public feedback on the rules proposed to-date and participation in developing further principles
- As a non-profit organized for the public good, we view this as a key area where we can assist in capturing and sharing knowledge



# Invitation!

- The Sequoia Project is facilitating a broad patient matching workgroup post-HIMSS.
- Open to all, with voting rights for those people and organizations participating in Sequoia initiatives (eHealth Exchange, Carequality, RSNA Image Share Validation Program).
- If interested, please let us know by sending an email to [admin@sequoiaproject.org](mailto:admin@sequoiaproject.org)
- Initial charter:
  - Complete dispositioning of public comments on white paper
  - Provide feedback to CHIME on their Hero-X \$1m prize criteria
  - Broad scope, but limited to items that can be operationalized



## Discussion

Thank You!



# Other Concepts – Cross Organizational Patient Matching

- Improved patient matching via novel analysis of all commonly available patient matching traits
- Using dynamic logic to determine what traits uniquely identify a person
- Creating a (draft) authoritative list of the traits needed to match people with a certain confidence interval
- Publish various industry and or academic papers analyzing various novel patient matching strategies using public and semi public patient matching
  - Database has been procured of 139m persons with many demographic traits representing 250m million households
- Various impact analysis (quantified)
  - Patient safety considerations of patient matching errors
  - False positive, false negative costs
  - Unlink and unmerge costs
- Piloting other national system approaches such as the previous French system

## Today's Agenda

- **Patient Matching & Rules of the Road**
- *The Proposed Principles in Detail*
- *Framework Proposals & Next Steps*
- *Questions & Discussion*



# Will You Join Us in the Proposal Process?

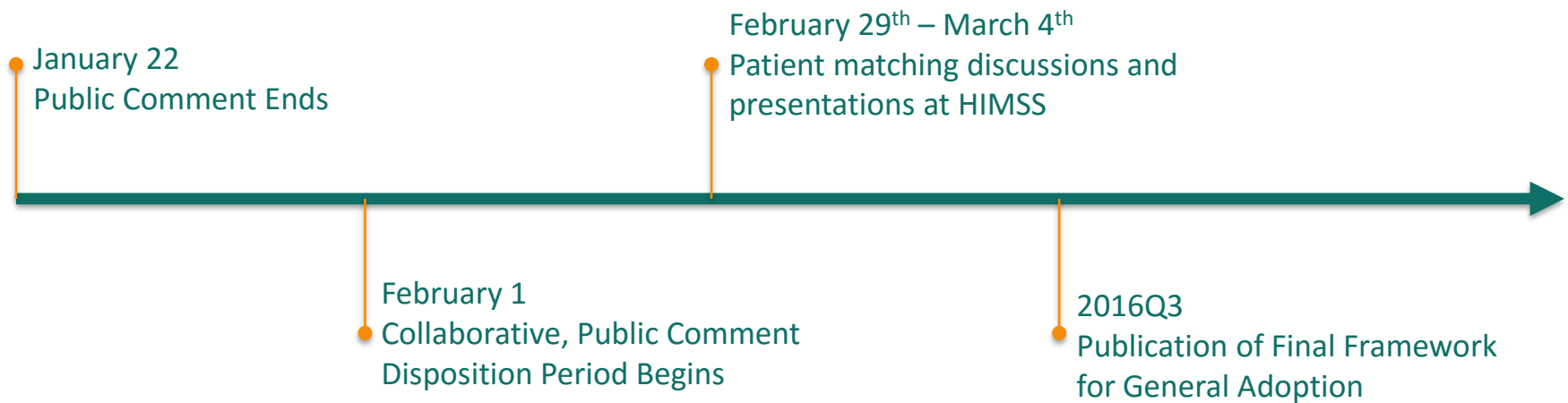
## How to Provide Public Comment

1. Request a copy of the proposed framework  
[www.SequoiaProject.org](http://www.SequoiaProject.org)
2. Review the proposals and keeping in mind your own experiences and capabilities
3. Complete the feedback form at the end of each framework proposal within the document
4. Submit completed forms to  
[feedback@sequoiaproject.org](mailto:feedback@sequoiaproject.org)

## How to Get Further Involved

- ✓ Provide public comment
- ✓ Volunteer in public comment disposition process
- ✓ Contribute to the final framework
- ✓ Spearhead adoption of the framework at your organization
- ✓ Encourage your exchange partners to adopt the framework

# Next Steps



# Questions?

# How Can I Get More Involved?



## Survey:

Tell us how this webinar was helpful or can be improved so we can better serve you.



## Future Webinars:

Register for technically-focused webinars on proposed minimal acceptable principles



Update

Keep up-to-date as the challenge progresses.

*#NPIDCHALLENGE*