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## Unlocking EHRs: How APIs Usher in a New Data Exchange Era

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# Conflict of Interest

- Ben Moscovitch, MA
- Jeff Smith, MPP

Have no real or apparent conflicts of interest to report.

# Agenda

- Introduction to APIs
- Progress with patient-facing APIs
- The future: “Open” APIs
- Recommendations
- Discussion

# Learning Objectives

- Describe current federal government policies on the use of application programming interfaces (APIs) to exchange data
- Summarize congressional legislation related to APIs
- Analyze actions that health IT developers and hospitals can take to ensure that APIs effectively advance interoperability
- Discuss the role of APIs in empowering patients and enabling research
- Identify potential barriers and unintended consequences to realizing an API-driven ecosystem to improve care



# Interoperability and APIs



Application programming interfaces facilitate communication between two electronic systems, similar to how servers convey a diner's order to restaurant cooks and then deliver the requested dish.



# Unlocking EHRs with APIs

- APIs allow access to data stored within EHRs
- APIs enable the development of new tools to improve care

Patient  
access to data



Interoperability



Clinical decision  
support



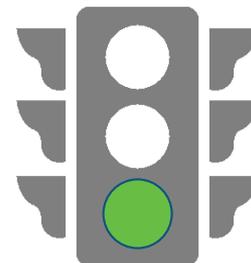
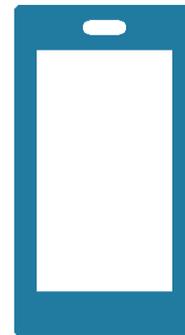
# What Does “Open” Mean?

- Proprietary APIs
  - Restrictions apply to use
- “Open” APIs
  - Documentation available to developers
  - Not necessarily a standard API
  - Security and authentication still required



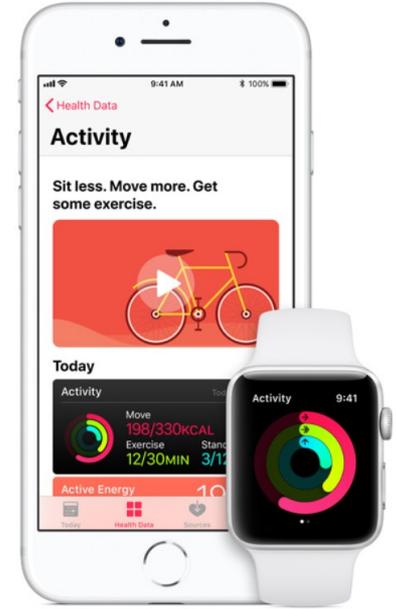
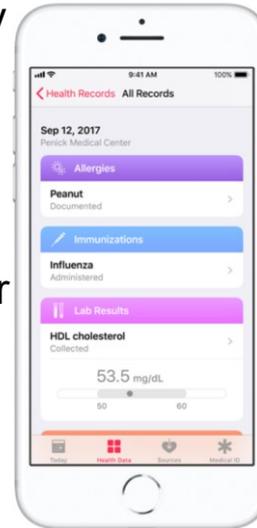
# Government's Priority: Patient-Facing

- ONC regulations: 2015 Edition
  - Patient-facing APIs
  - Common Clinical Data Set
  - Leveraged by technology developers
  - Argonaut makes it work!
  
- CMS requiring use of 2015 Edition EHRs
  - Spurring availability
  - Hospitals not necessarily turning on this capability



# APIs in Action: Consumer Tech

- Intense focus on consumer-facing APIs
  - Apple launched their Health app in February 2018 with 15 partner hospitals
    - Over 50 partner hospitals by late April; more than 100 currently
    - Leverages standards
      - HL7's SMART on FHIR
      - OAuth
    - Serves as a platform for other apps to capture and present information
      - MediSafe example
  - HumanAPI



# APIs in Action: Research

- All of Us Research Program
  - 1,000,000 person cohort
  - Donate data for science
- Sync 4 Science
  - Enables patients/participants to donate data to research
  - Enables researchers to have access data
    - Allergies, labs, immunization, meds, procedures, problems, vital signs, etc.
  - Gives providers a HIPAA-compliant way to offer patients ability to participate in research studies



# APIs in Action: Clinical

- App Stores and Galleries are now common across many Certified EHRs
  - Advance Directive information Exchange
  - ASCVD Risk Calculator
  - EHR data exports directly into clinical research data capture systems
  - HIPAA Security Risk Analysis Software
  - Patient onboarding
  - Hereditary cancer risk analysis

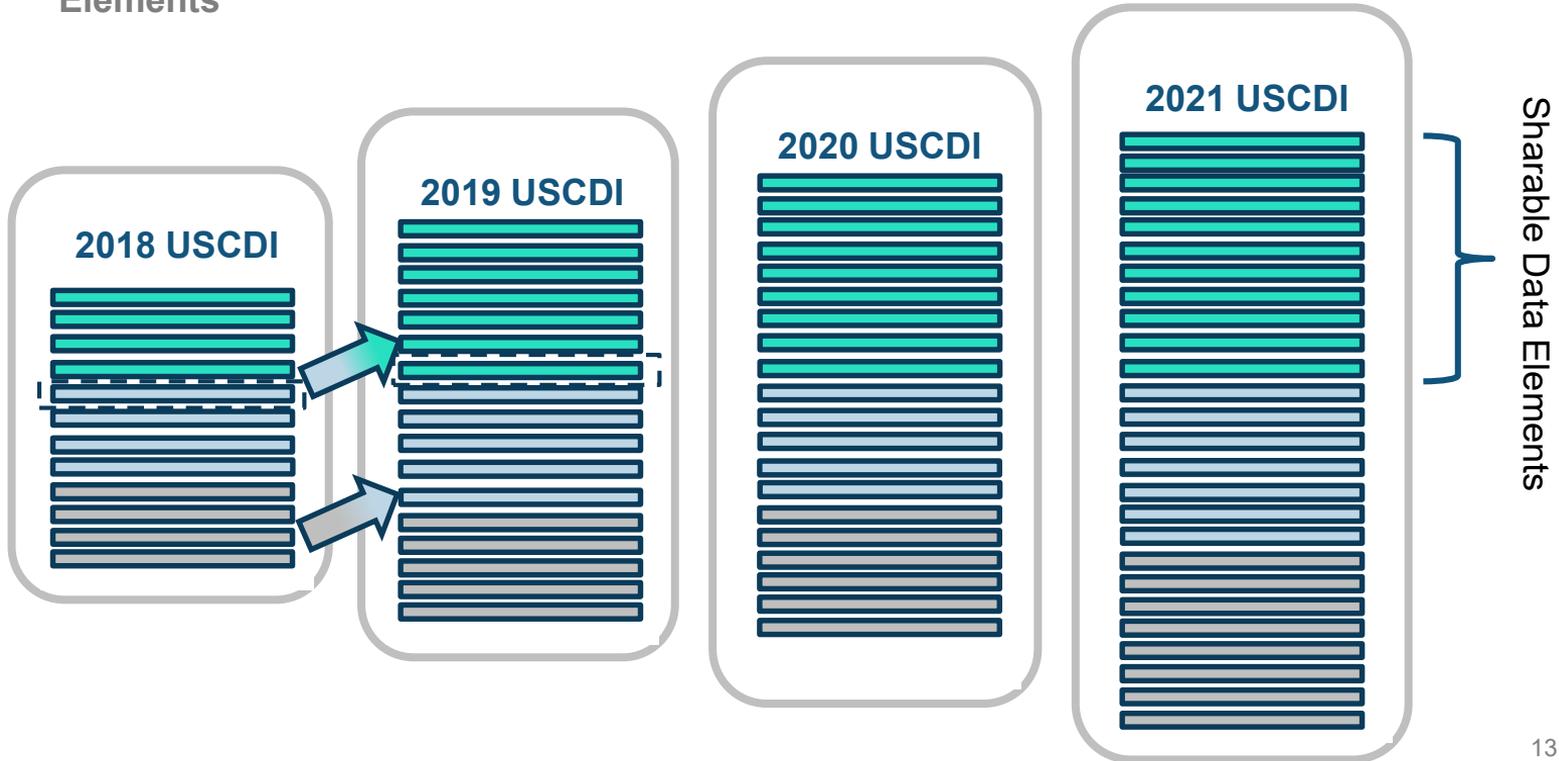
# The Near Future: “Open” APIs

- 21<sup>st</sup> Century Cures Act
  - Passed into law in 2016
  - Sets new conditions of certification for API availability
  - “All data elements”
  - “Accessed exchanged and used without special effort”
  - Beyond patient access—other use cases, too
- ONC data indicates FHIR is spreading
  - In October 2018, 32 percent of certified EHRs using FHIR Release 2 and 51 percent using some version of FHIR combined with OAuth 2.0.
  - HL7 recently announced FHIR Release 4
    - Normative = stable and forward-facing



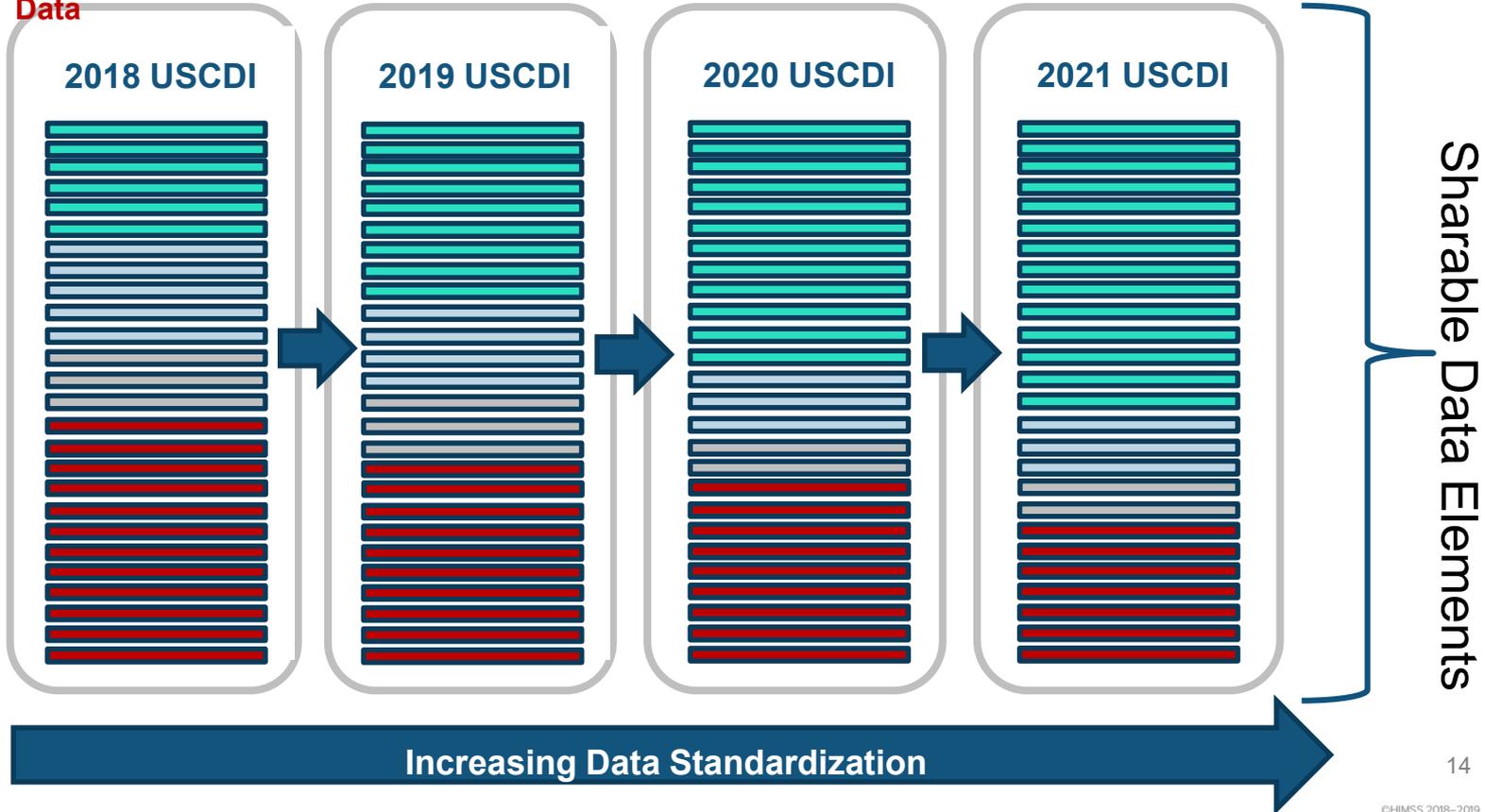
# USCDI: Current Approach

Supported Data Elements | Candidate Data Elements | Emerging Data Elements



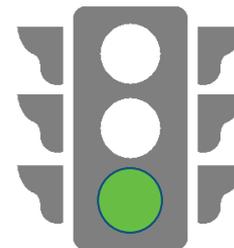
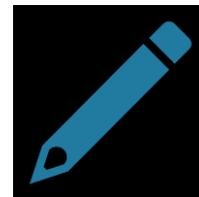
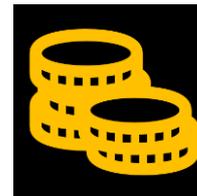
# Alternative: Share, Then Standardize

Supported Data Elements | Candidate Data Elements | Emerging Data Elements | **Unstructured Data**



# Potential Barriers & Recommendations

1. Extract “all data elements” regardless of standardization
2. FHIR version A v. FHIR version B
3. Longitudinal data, not a subset of time
4. Fees and policies should not be barriers to API use
5. Clinical content and semantic meaning
6. Future: Consider “write” as well as “read” capabilities
7. CMS must also require use of these “open” APIs
8. Incentivize collaboration between standards developers and implementers



# Discussion

1. What capabilities do patients need out of API-enabled apps?
2. What capabilities do clinicians need out of API-enabled apps?
3. What are the barriers currently being experienced to using APIs?
4. How do the ONC regulations effectively advance API use? How do they fall short? How do they introduce challenges?
5. What will it take for hospitals to use “open” APIs?
6. How should the government think about privacy in an API-driven app ecosystem where apps are not bound by HIPAA?
7. What security concerns, if any, exist in an API-driven ecosystem?



# Thank you!

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