Setting the (Public Health) World on FHIR

NACCHO Informatics Champions Initiative

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Learning Objectives

- Describe the nature of the HL7 organization
- Explain the basics of the FHIR standard
- Illustrate example usages of FHIR
- Identify ways you can engage with FHIR

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HL7 Overview

Health Level 7

A not-for-profit, ANSI-accredited standards developing organization (SDO) with a vision of a world in which everyone can securely access and use the right health data when and where they need it

HL7 ®
International

http://www.hl7.org/

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HL7 Overview

Health Level 7

- Where many healthcare related interoperability standards get created

- Interoperability standards can drive improved sharing of healthcare data

- These standards often show up in regulations

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http://www.hl7.org/

HL7 Overview

- HL7 is organized into Work Groups
- Most groups meet weekly or every couple of weeks (virtually)
  - Public Health meets Thursdays from 4-5PM Eastern
- HL7 holds special events three times per year
  - FHIR Connectathons
  - Working Group Meetings

Health Level 7

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HL7 Product Families

- HL7 has developed several product families

- Each has a "base standard" which defines what can be done

- Base standards are very broad and are relatively free of restrictions

HL7 V2

HL7 CDA

HL7 FHIR

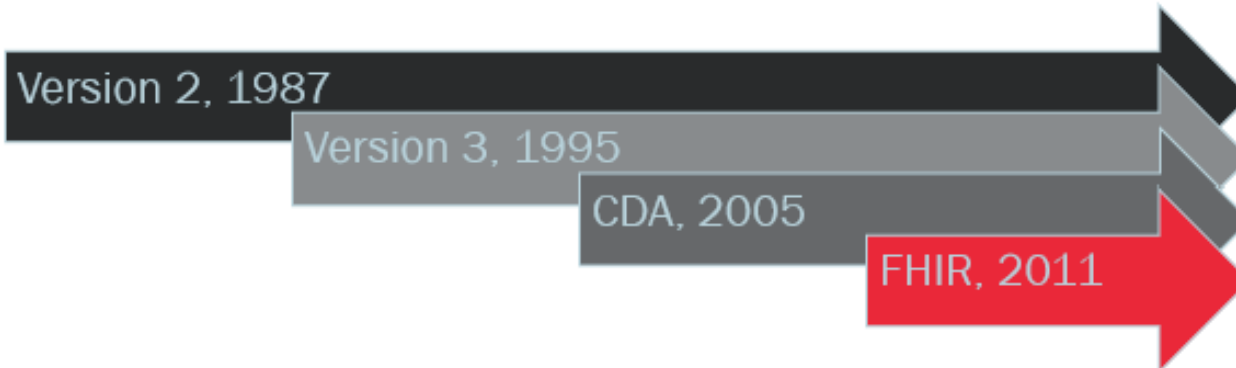Version 2, 1987

Version 3, 1995
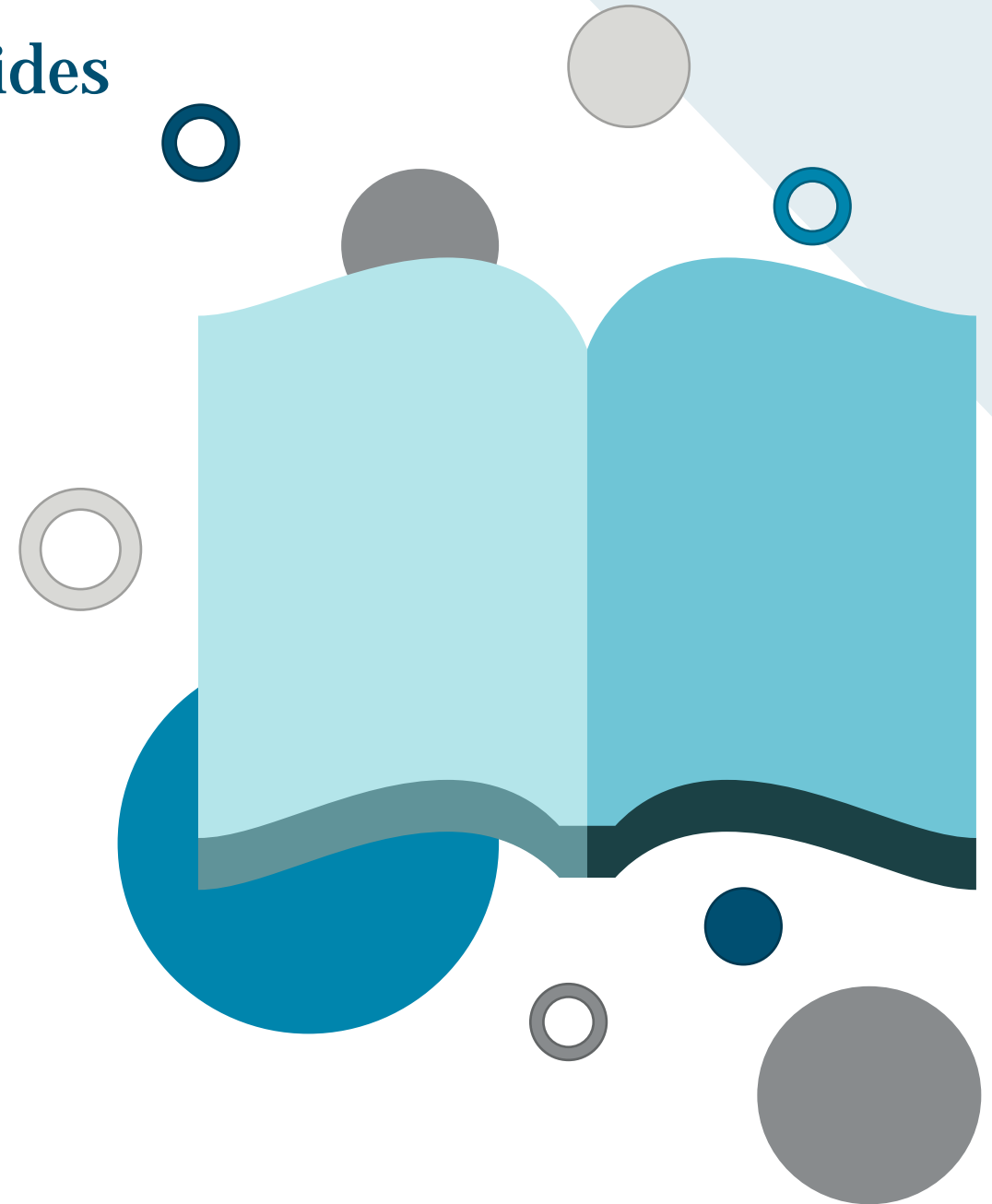
CDA, 2005

FHIR, 2011

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HL7 Product Families

- Each has its uses
  - V2 – point-to-point messaging
  - CDA – documents
  - FHIR – various

- The intent is not to "rip and replace" what is working today but rather to offer new opportunities

Version 2, 1987

Version 3, 1995

CDA, 2005

FHIR, 2011

HL7 V2

HL7 CDA

HL7 FHIR

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Profiles and Implementation Guides

- The base FHIR specification is relatively open ended
  - Few data elements are "required"
  - Many value sets are "example"
- Resources can be "profiled" to meet a specific purpose
- Implementation Guides (IGs):
  - Describe workflows
  - Define profiles to meet those needs

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Implementation Guides Examples

- HL7 v2
  - Electronic Laboratory Results (ELR)
  - Laboratory Results (LRI)
- CDA
  - Consolidated CDA (C-CDA)
  - Electronic Case Reporting (eCR)
- FHIR
  - Payer Data Exchange (PDex)
  - Vital Records Death Reporting (VRDR)
  - Electronic Case Reporting (eCR)

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The who, what, when, where, why, and how of FHIR!

What is FHIR?

Next generation interoperability standard combining the best features of previous standards while leveraging the latest web standards and applying a tight focus on implementability

Fast
Healthcare
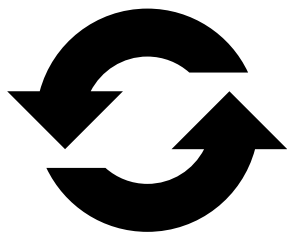**I**nteroperability
Resources

```
"name" : [{
    "use" : "official",
    "family" : "Chalmers",
    "given" : "Peter"
}],
"gender" : "male",
"birthDate" : "1974-12-25",
"deceasedBoolean" : false,
"address" : [{
    "use" : "home",
    "line" : "534 Erewhon St",
    "city" : "Pleasantville",
    "state" : "VA"
}],
```
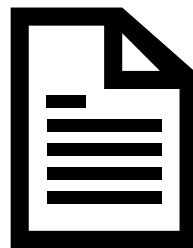
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Why use FHIR?

- Flexible
  - Offers new ways to share data
- Secure
  - Industry standard authentication based on OAuth2
- Scalable
  - Can be scaled like any other web application
- Accurate
  - Based on well-defined data models
- Modular
  - Built on a wide variety of "resources"
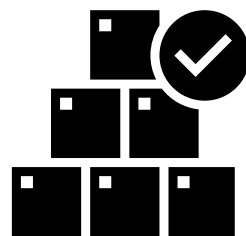
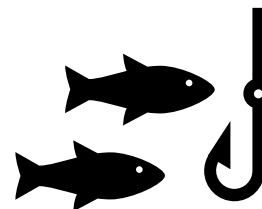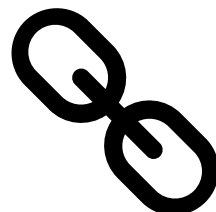# How is FHIR Different?
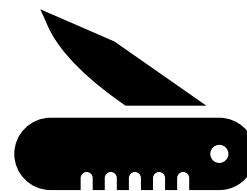

Messaging

Documents

RESTful API Query

Bulk

Hooks

Health Links

Operations

Subscriptions/Polling

How is FHIR Different?

With so many new options available to us, it can be challenging to select the correct tool for the job at hand

That may be FHIR, but it may not be

Messaging

Documents

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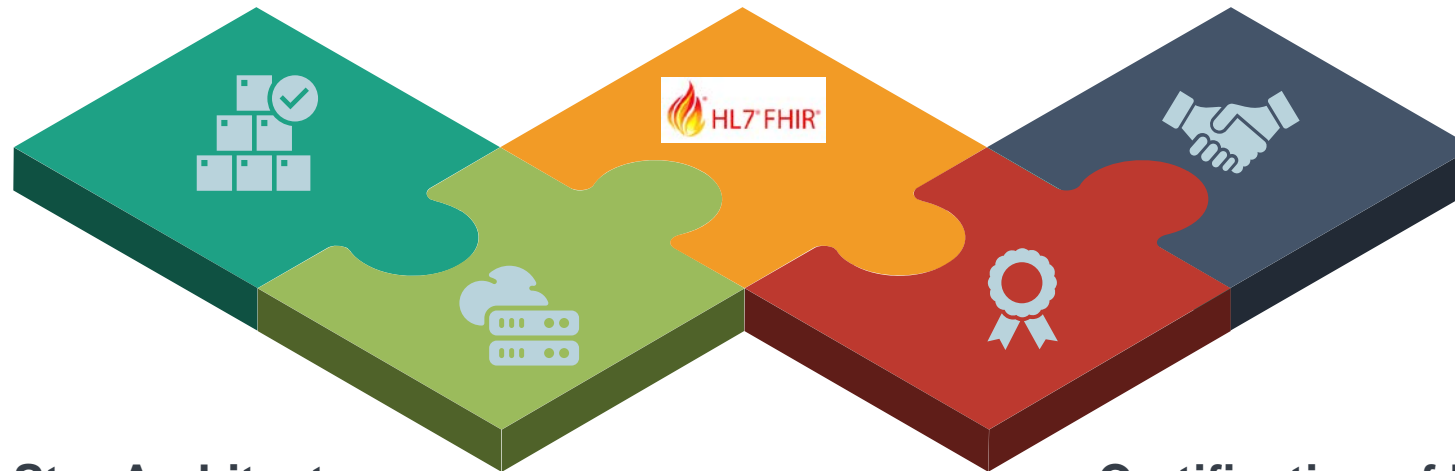Altarum

Where does FHIR fit?

USCDI & USCDI+

Prioritize and harmonize data most crucial to the needs of public health and beyond

FHIR Advancement and Strategy

Adopt standards that can be more easily extended and reused as conditions change

TEFCA

Develop common, pre-negotiated agreements to simplify data exchange nationwide

HL7® FHIR®

North Star Architecture

Help public health jurisdictions share and analyze data with each other and CDC

Certification of IT & Data Systems

Ensure IT & data systems used by public health are sustainable and meet baseline requirements for security and functionality

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Who is FHIR?

- A broad community of developers, implementers, standards people, subject matter experts and more

- Public health initiatives such as Helios or PHFIC

- STLT programs and IT staff

- You!

HL7 FHIR

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When is FHIR happening?

- Real-world use is accelerating
- Public health is ramping up
- Now!

Why is this important to me?

- Opportunity to access new data sources
- New approaches to getting data when and where you need it
- The technical expectations are changing
- All levels of public health and healthcare are actively working with FHIR
- FHIR is central to many federal and local initiatives on public health data access

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FHIR in the wild

FHIR Resource Types

Patient	Specimen
Service Request	Device
Observation	Organization
Care Plan	Practitioner
Goals	Care Team
Encounter	Provenance
Immunization	Message Definition
Condition	Value Set

Helios FHIR Accelerator

Helping public health to align with and benefit from the widespread standardization and transformation that is happening around digital health data

| Focusing on Impact | Bringing People Together | Aligning Efforts |

Helios FHIR Accelerator

Delivering Aggregate Information to Public Health

Get Involved - The Aggregate Data Project Team meets every other Wednesday at 1PM Eastern.

Making Data in Public Health Systems Accessible in Bulk

Join us - The Bulk Data Project Team meets every other Monday at noon Eastern.

Employing Query and Response to Address Public Health Data Needs

Join us - The Query & Response Priority Area meets every other Thursday at 1PM Eastern.

Details on all project team calls is available on the HL7 Conference Call Center

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https://confluence.hl7.org/display/PH/Helios+FHIR+Accelerator+for+Public+Health+Home
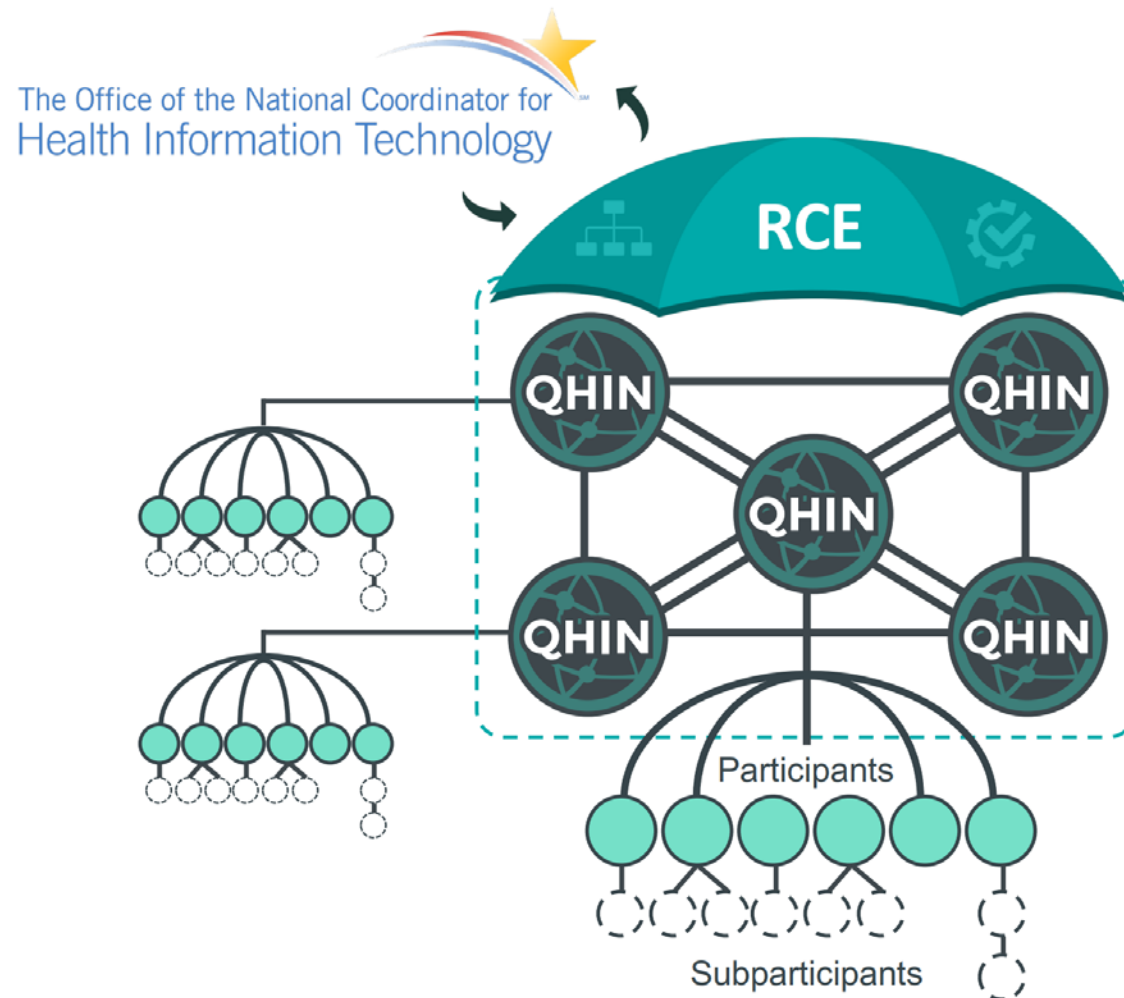
Public Health FHIR Implementation Collaborative (PHFIC)

- Provides a forum for peer-to-peer learning and developing FHIR tools to support pilots

- Gathers STLT steering committee and partners, such as ASTHO, CSTE, NACCHO

- Identifies key implementation challenges and drives use case selection and implementation

- Provides an opportunity to take part in training and learning activities, such as workshops

What is TEFCA?

- Trusted Exchange Framework and Common Agreement
- Goal is to establish a universal floor for interoperability across the country

- Trusted Exchange Framework - high-level principles that networks should adhere to for trusted exchange
- Common Agreement - a legal agreement that will enable network-to-network data sharing

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What is TEFCA?

The Office of the National Coordinator for
Health Information Technology

RCE

QHIN QHIN
QHIN
QHIN QHIN

Participants

Subparticipants

ONC defines overall policy and certain governance requirements.

RCE provides oversight and governing approach for QHINs.

Qualified Health Information Networks (QHINs) connect directly to each other to facilitate nationwide interoperability.

Each QHIN connects Participants, which connect Subparticipants.

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Does it do FHIR?

- Not quite yet...
- TEFCA has started with document-based query and message delivery
- But they have a stage-based FHIR roadmap
    - FHIR content support
    - Network-facilitated FHIR exchange
    - Network-brokered FHIR exchange

https://rce.sequoiaproject.org/three-year-fhir-roadmap-for-tefca/
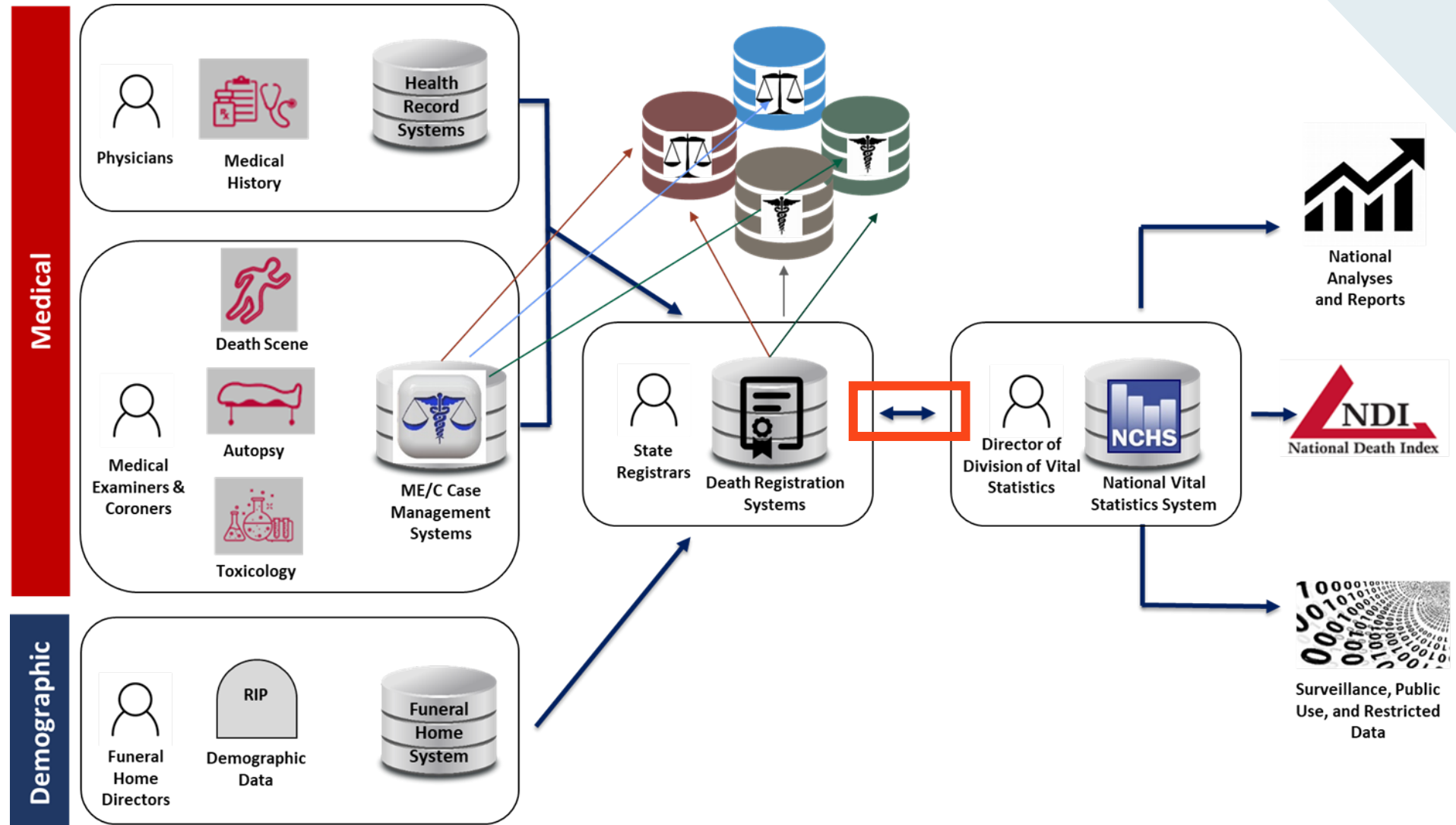
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Proof of Vaccination

- Provides a digital COVID-19 verification record as a 2-D barcode
- Utilizes the FHIR SMART Health Card standard

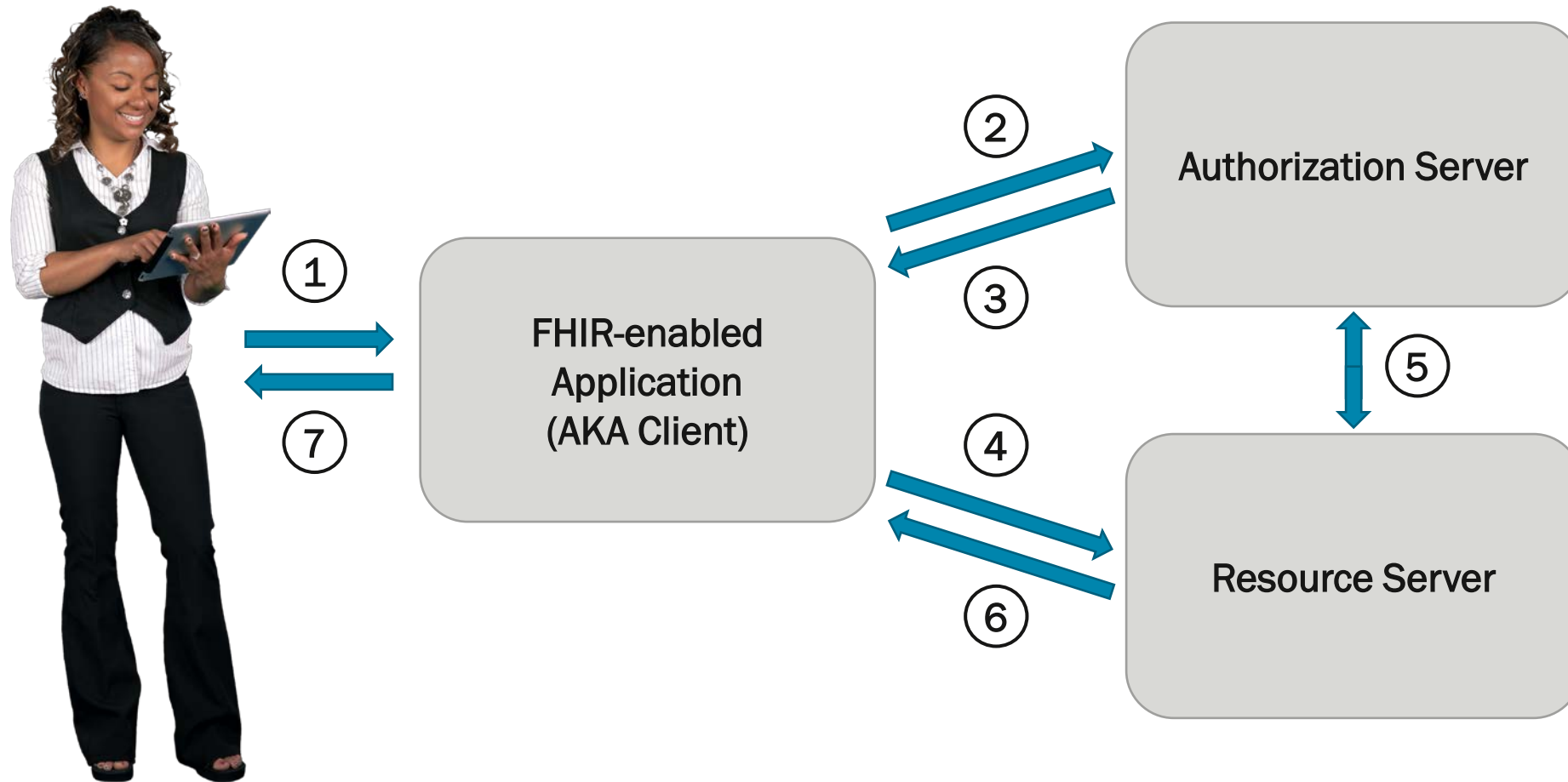As of April 2022

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Vital Records

Using Query FHIR to Access Data

What Next?

- Assess your status and your needs
  - Where are you and where do you need to be?
  - How to do you get from here to there
- Build leadership buy in

What Next?

- Identify resources at your disposal
  - FHIR 101 and 201 training session
  - FHIR demo at NACCHO360
  - TEFCA Public Health Educational Guide
  - [PH Interoperability Training Catalog](#)
  - Formal training offered by HL7

What Next?

- Participate in FHIR educational groups
  - FHIR CoP members are encouraged to use the CoP-created FHIR Training Resources
  - These tools are available on the [FHIR SharePoint site](#)
    - [FHIR Training Resources](#)
    - [FHIR Checklist](#)
    - [PHFIC Public-Health-FHIR-Playbook](#)

What Next?

- Join the community
  - [HL7 Public Health Work Group](#)
  - Be active in public health associations
    - American Immunization Registry Association (AIRA)
    - Newborn Birth Defect Prevention Network (NBDPN)
    - National Association for Public Health Statistics and Information Systems (NAPHSIS)
  - NACCHO Informatics Champions Initiative

Is it That Easy?

- Of course not (but maybe it's not that hard)

- Is all of the data public health needs from EHRs actually available?
  - Honestly, we're not sure but much of it probably is

- Do I still need an agreement with the trading partner?
  - Of course you do…

Call to Action

Talk to your Colleagues

Find out what is happening in your area and beyond

Learn More

Interoperability training opportunities abound

Create a Plan

Be part of your agency's strategy for FHIR

Get Involved

Lend your voice and come test with us

Thank you

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