Standards-Based Interoperability: Building for the Future

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Increasingly, public health is being expected to process more data, much more quickly, from many more sources.
“Public health must therefore build for the future, designing systems capable of integrating traditional (e.g., vital statistics), expanded (e.g., health records), and novel (e.g., social media) data signals. The application of artificial intelligence and machine learning methods to these data can help generate the kind of timely, granular, and actionable information needed to better tailor the essential services of public health (e.g., disease monitoring) to specific community and population contexts.”

https://jamanetwork.com/journals/jama/fullarticle/2782635?resultClick=1
Complement and Evolve What Exists
Heroic Efforts Have Been Made, But Ongoing Challenges Persist In Achieving Interoperability

"We spend inordinate amount of time babysitting and doing QA on our data streams."

"We want to describe what’s happening in our community and efficiently target our efforts, but the data is too messy."

"We're not sure what our intervention shows because the data is so far behind."

"If we can’t answer the questions our executives have, they go elsewhere to get the information and pass up public health."

Manual Work

Messy Data

Out-of-Date Information

Turn to Alternatives
Critical Questions to Consider When Building for the Future

**ADAPT**
How could public health systems be more flexible and resilient? What “building blocks” would allow these systems to evolve more easily and continuously? How can new approaches help yield “compounding interest” over time?

**AUTOMATE**
How can we minimize dependencies on human entered data and manual processes? How can public health accommodate large influxes of data from sensors, smartphones, and other widely distributed sources?

**ALIGN**
How can public health be more compatible and connected with healthcare and the private sector? What standards could make it easier to create scalable solutions that are tailored to the needs and workflows of public health?
Areas of Focus for Standards-Based Interoperability: What’s in Reach Now and What’s on the Horizon

- **Plug-in-Play Tools**
  - Standardize and Make Data Assets Accessible via Open-Access, FHIR-Based APIs.
  - Co-Develop Tools that Plug Seamlessly into Ubiquitously Adopted APIs.

- **Brokered Exchange**
  - Define Optimal Paths Forward for Public Health to Participate in TEFCA.
  - Leverage QHINs and Enhance Intermediaries As Appropriate.

- **Federated Query**
  - Access, Query, and Process Rich Information From Sites Across the Country that Support FHIR and BulkFHIR APIs.

Compatibility & Sustainability

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Adopt & Contribute to Standards that Enable a Culture of Continuous Evolution

Start small. Figure out what works in a public health context. Focus on delivering value faster.

Address long standing pain points and deliver greater value. Make it easier for public health to adapt to changes in policy, technology, and the marketplace.

Align public health with healthcare and the private sector. Be more intentional about when & how to pivot.

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Areas of Focus Within Related Efforts

**Helios** - Focus on **Exchanges** with Healthcare, Other Sectors, & The Public

- How can open APIs and FHIR-based tools help healthcare and other partners to **provide public health the data they need to see** and not more than authorized?
- How can these APIs and tools **help improve the experience of the public** and provide individuals (and their care team, when authorized) the information they need to get better care?

**FHIR Test Collaborative** - Focus on Public Health **Integrations and Exchanges**

- How can FHIR help STLTs **integrate data more easily** in their environments?
- How might open APIs and FHIR-based tools **help local health departments** to access data held by state health departments regarding residents in their jurisdictions?

**Federated Query** - Focus on **Potential Usefulness** of BulkFHIR-Based Approaches

- How might authorized users **access and manage data** from BulkFHIR APIs—including unstructured text and clinical notes—and turn them into **actionable intelligence suitable for public health**?
- How can we **identify and address any unknowns or misconceptions** about public health authority to access data? How can we **ensure the data are put to use in ethical ways**?
**Fundamental Building Blocks**

**Governance & Trust**
- Data agreements made are upheld and “baked into” the technology to protect against unauthorized use & disclosures. Access to authorized users is guaranteed.

**Actionable Data**
- Data needed for public health action and automated processing are available, timely, and usable. Unnecessary or unauthorized information is “filtered out”.

**Sustainability**
- Systems and tools used by public health officials are easier to upgrade and modify. Coalitions help make these systems & tools more open & public health centric.
Questions to Consider When Determining if a Standards-Based Activity is Sustainable Long-Term

Who else is using the standard beyond public health? What marketplaces have been built on top of the standard? How diverse and vibrant are those marketplaces? Are they growing, stagnating, or dwindling?

Is the supply of people who are learning and applying the standard growing, stagnating, or dwindling? To what extent are users of the standard active online? In what ways do they make themselves and their work products available to help others learn?

How flexible and ubiquitous is the standard? To what extent would adopting the standard help support advanced analytics and plug-and-play interoperability for multiple user types across multiple sectors?

Which laws, regulations, or policies facilitate or mandate the use of the standard? Which may complicate its use? What pathways exist to advance the standard through common agreements or sub-regulatory guidance?
Strengthen Every Link in the Chain

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Questions & Discussion