



# Distributed Population Queries

Richard Elmore

Digital Learning Collaborative

Institute of Medicine

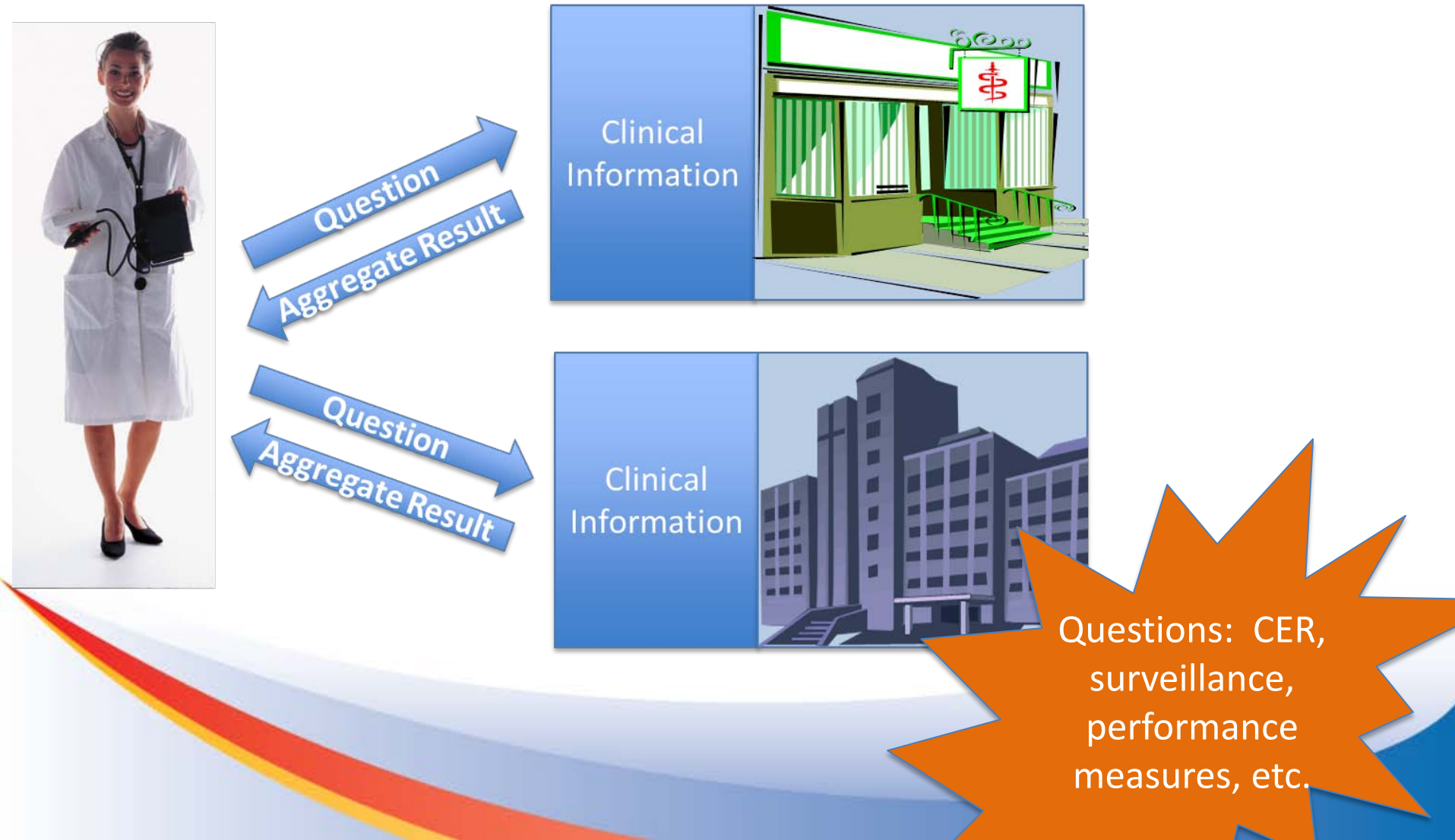
August 18, 2011

# Topics

---

- Strategic Rationale
- Summer Concert Series
- Query Health
- Alignment

# Strategic Rationale: “Bringing Questions to the Data”



# Strategic Rationale: The Situation

---

- High transaction and “plumbing” costs
  - Variation in clinical concept coding, even within organizations
  - Lack of query standards
  - Business gaps
    - Best practices for data use / sharing arrangements
    - Etc.
- Centralizing tendency
  - Moves data further away from source
  - Increases PHI risk exposure
  - Limits responsiveness to patient consent preference
- Limited to large health systems
  - With larger IT or research budgets
  - Few notable exceptions

# Strategic Rationale: Opportunity & Response

---

## *The Opportunity:*

The nation is reaching critical mass of deployed Electronic Health Records (EHRs) with greater standardization of information models, data elements and vocabularies in support of health information exchange and quality measure reporting.

## *The Response – Query Health:*

Bringing questions to the data: Standards and services for distributed population queries

# Summer Concert Series

“Concerts”
PopMedNet
hQuery
UPHN
caGRID
Population CCR
Hub Population Health System
DARTnet
Distribute and BioSense
Regenstrief
OMOP
PEDSNet
i2b2/SHRINE

- Experts in distributed queries
- Environment scan
- Establishes
  - Themes
  - Challenges
  - Leveragable assets

# Summer Concert Series: Themes (example)

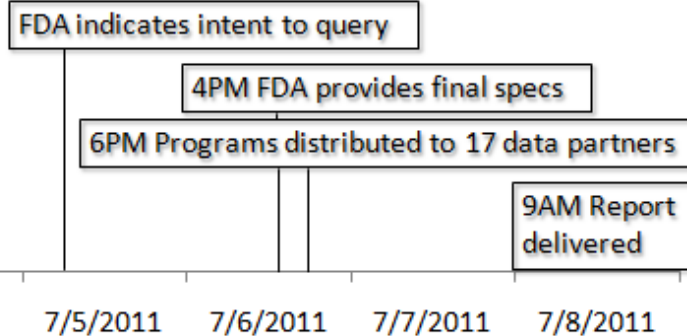
## Speed, Adaptability and Patient Coverage

Mini-Sentinel

Rich Platt and Jeff Brown



### Drug A and Cardiac Outcomes



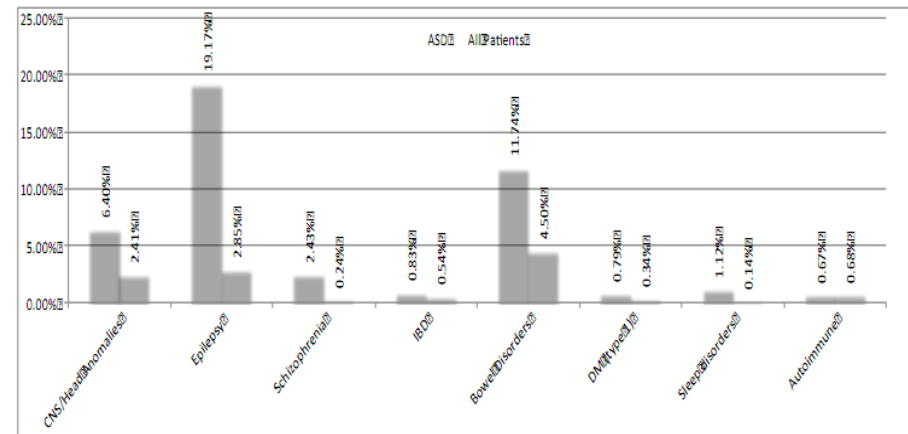
info@mini-sentinel.org

1

i2b2 / SHRINE

Zak Kohane and Shawn Murphy

### Co-morbidities in autism vs. hospital population



i2b2

Informatics for Integrating Biology & the Bedside

A National Center for Biomedical Computing

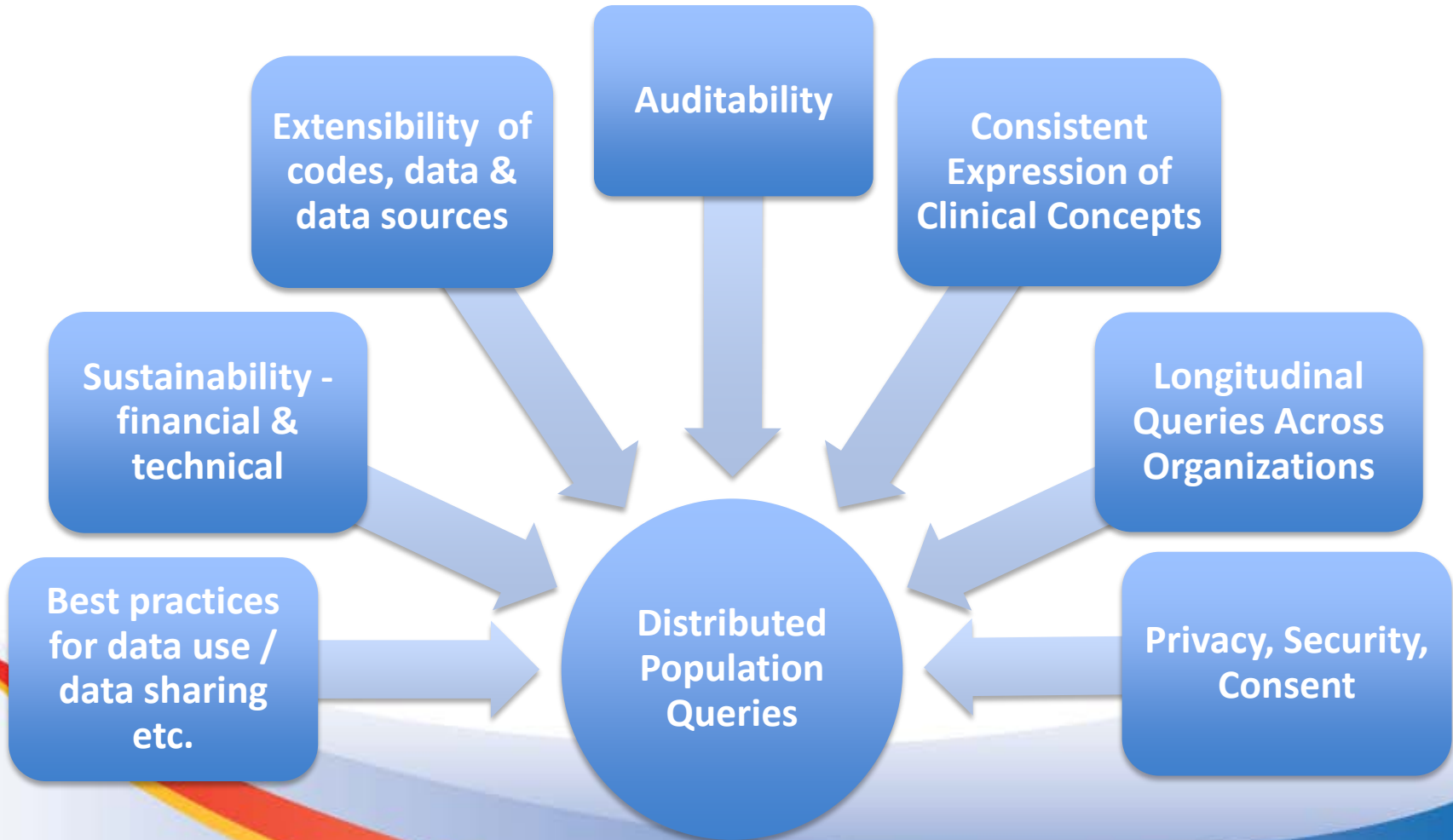
References:

[http://wiki.siframework.org/file/view/ONC+Summer+Series-+Query+health\\_Brown+PlattV1.pdf](http://wiki.siframework.org/file/view/ONC+Summer+Series-+Query+health_Brown+PlattV1.pdf)

[https://cbmi.med.harvard.edu/shrine2011/sites/cbmi.med.harvard.edu.shrine2011/files/Harvard%20Catalyst%20SHRINE\\_%20Zak%20Kohane\\_0.pdf](https://cbmi.med.harvard.edu/shrine2011/sites/cbmi.med.harvard.edu.shrine2011/files/Harvard%20Catalyst%20SHRINE_%20Zak%20Kohane_0.pdf)

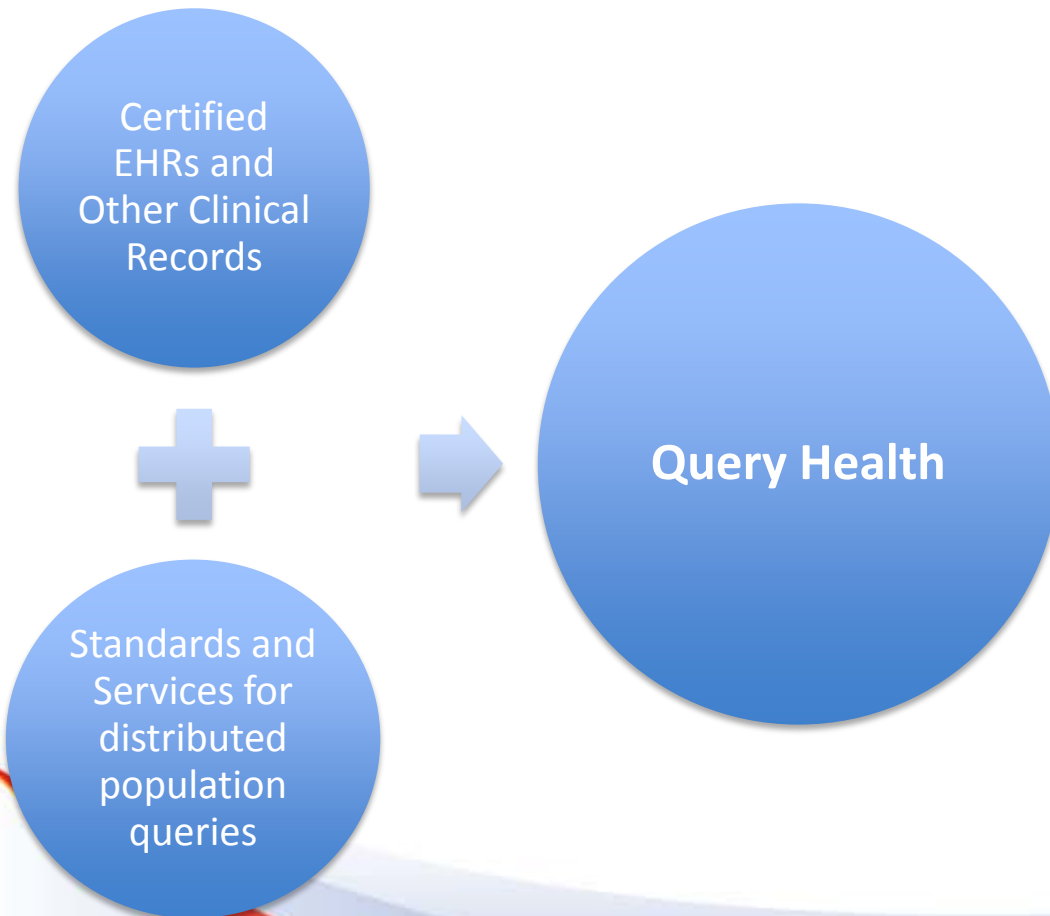
# Summer Concert Series: Challenges

---



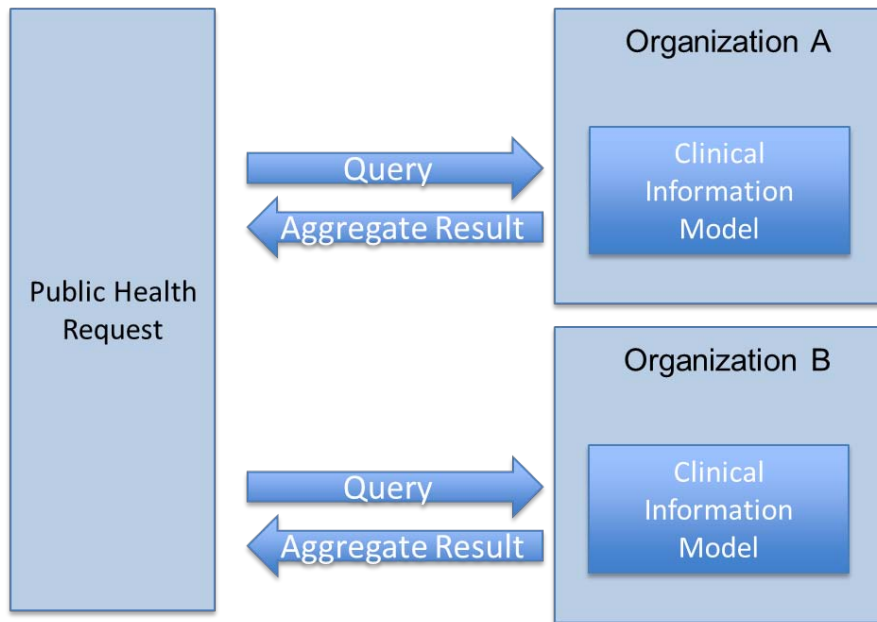


# Query Health



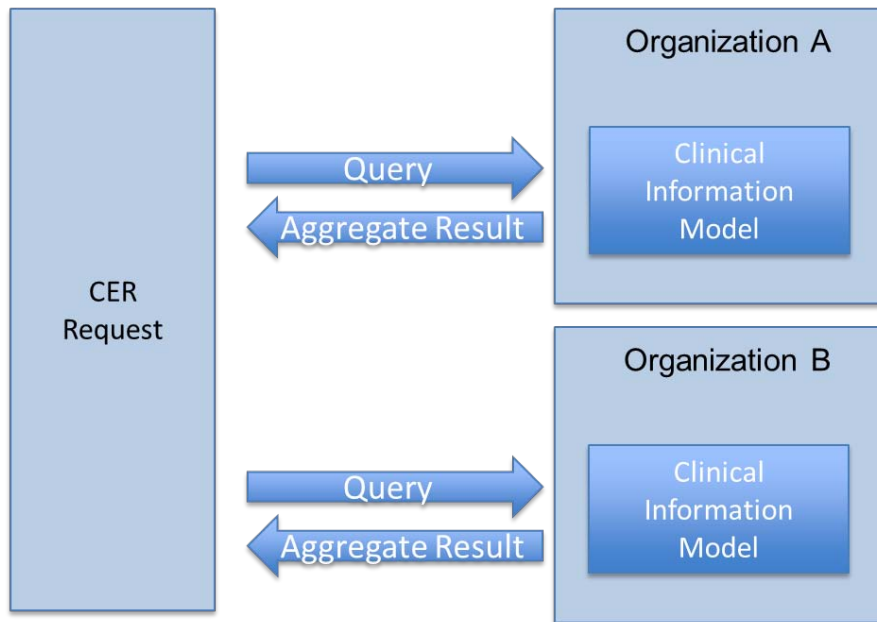
- Public/private partnership
- Community driven
- ONC sponsored
- Consensus based, ultra-transparent
- Practice drives standards
  1. Rough consensus
  2. Running code (open source)
  3. Pilot
  4. Specifications
  5. Standards

# Query Health: User Story – Vaccines and Influenza Like Illness



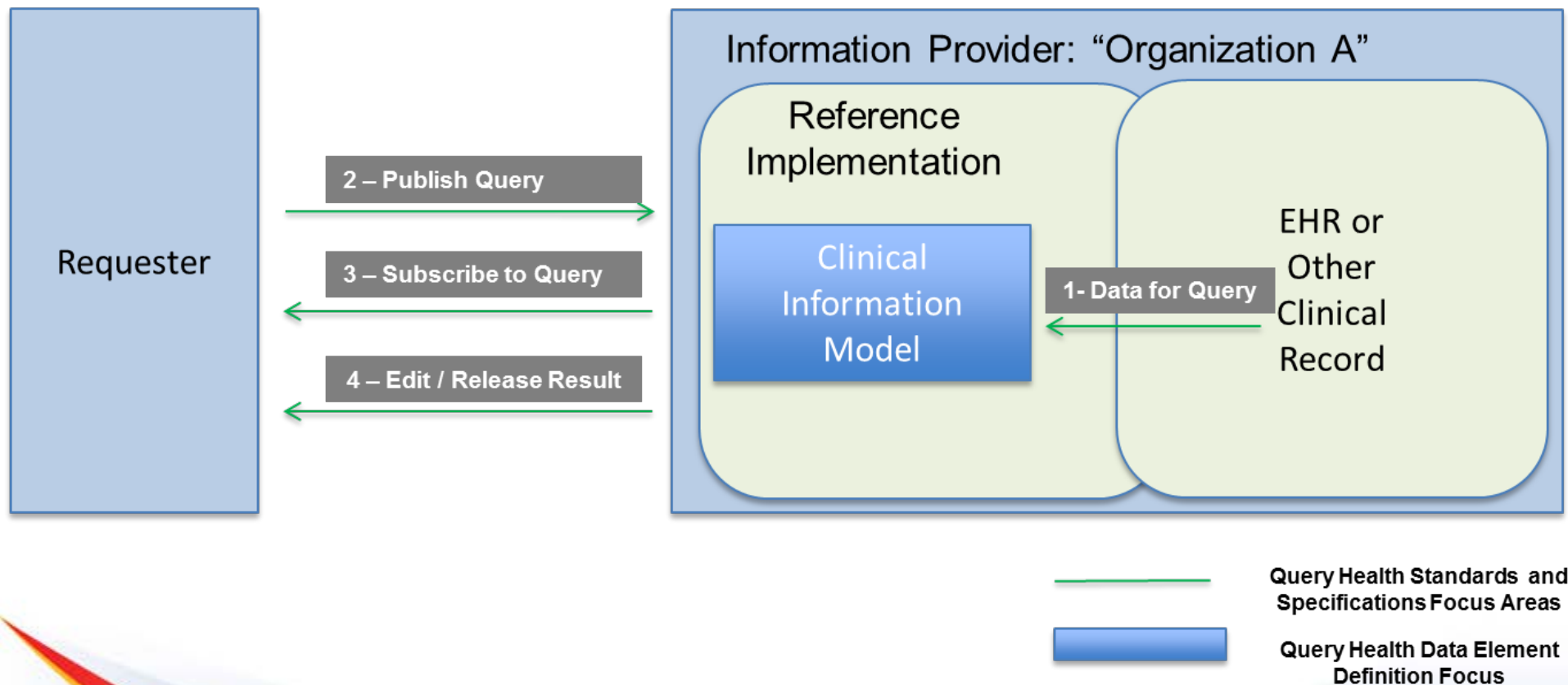
1. Quality Measure – Elderly that received flu vaccine
2. Surveillance – Patients with ILI symptoms
3. 2 x 2 of Vaccine and ILI
4. Refine Query (for example for H1N1).
  - Specify H1N1 vaccine
  - Add GI symptom
  - Repeat steps 1-3

# Query Health: User Story – Statins and Hyperlipidemia



1. Quality Measure – Statin (e.g., Lipitor) compliance
2. Surveillance – Patients with hyperlipidemia
3. 2 x 2 of Statin and Hyperlipidema
4. Refine Query
  - Select a different statin (e.g., Mevacor)
  - Repeat steps 1-3

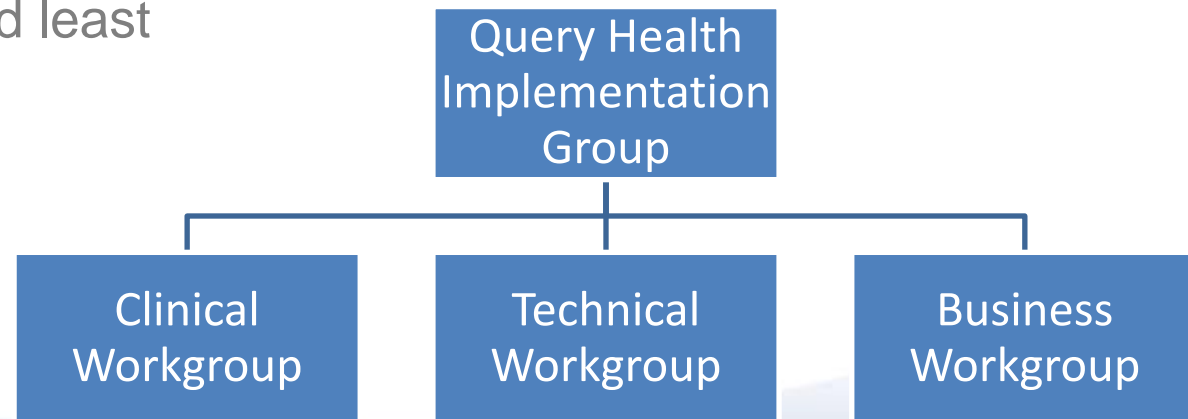
# Query Health: Simple scalable secure use case (drill-down)



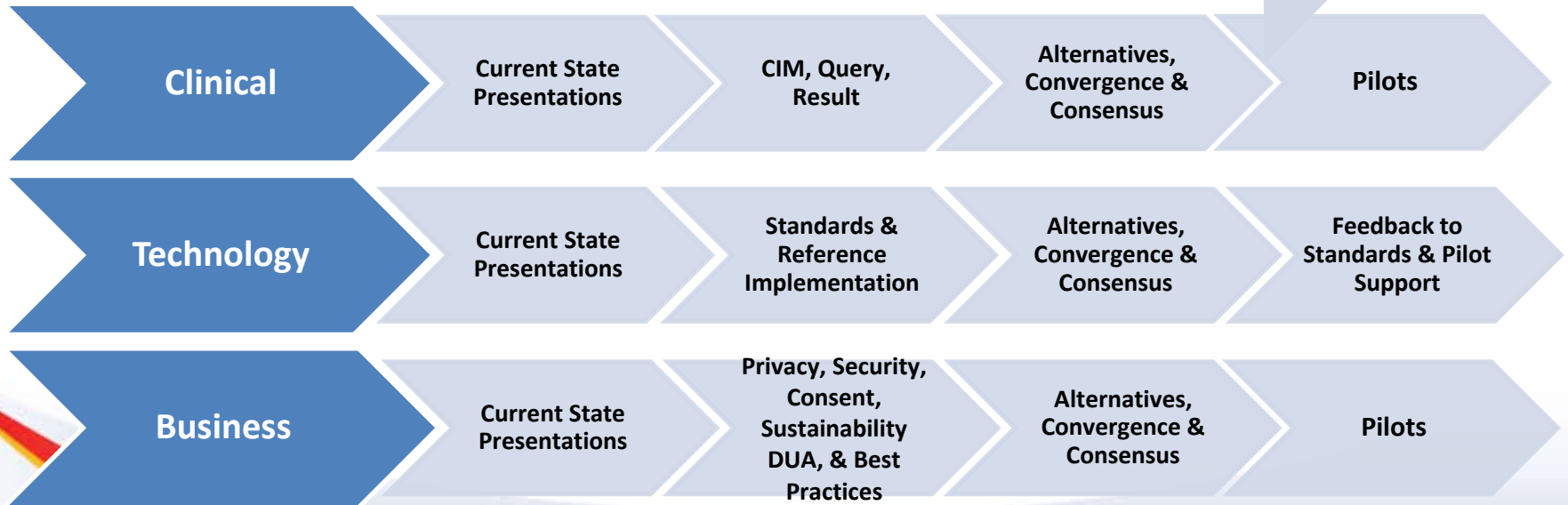
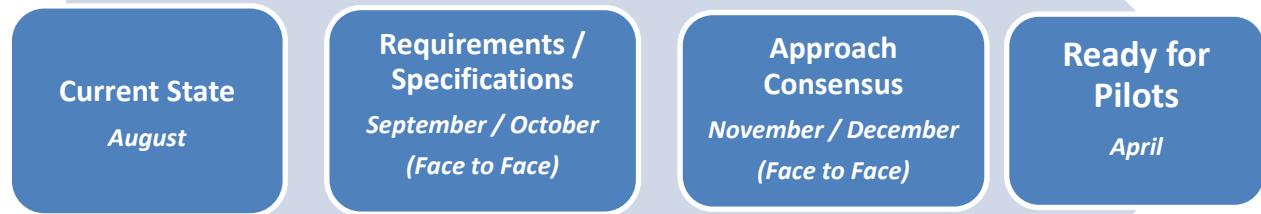
# Query Health: Principles and Organization

---

- Minimize burden to providers
- Data close to the source
- Standard clinical info model
- Leverage existing IP and standards (plus MU Stage 2)
- Leverage internet tech for scale
- Report in aggregate and least identifiable form
- KISS



# Query Health: Timeline



# Goals Alignment with: S&I Framework

---

## S&I Framework Governance

- Open Government Initiative
- Engaging leaders from providers, health IT vendors, states / HIOs, federal partners, and research community

## Meaningful Use and Standards

- Standardized information models and terminologies (e.g., SNOMED, LOINC) – e.g. vocabulary value sets associated with patient care and quality metrics
- CIM model to support user stories, leveraging S&I initiatives and existing distributed query models
- Transport approach may leverage the Direct Project

# Goals Alignment with: Digital Infrastructure for a Learning Health System

- ☑ Build a shared learning environment
- ☑ Engage health and health care, population and patient
- ☑ Leverage existing programs and policies
- ☑ Embed services and research in a continuous learning loop
- ☑ Anchor in an ultra-large-scale systems approach
- ☑ Emphasize decentralization and specifications parsimony
- ☑ Keep use barriers low and complexity incremental
- ☑ Foster a socio-technical perspective, focused on the population
- ☑ Weave a strong and secure trust fabric among stakeholders
- ☑ Provide continuous evaluation and improvement



# Discussion

---

## **Implementation Work Group:**

Tuesdays 3:00pm-4:30pm EDT (Starting 9/6)

## **Technical Work Group:**

Wednesdays 11am-12pm EDT (Starting 9/7)

## **Clinical Work Group:**

Wednesdays 12pm-1pm EDT (Starting 9/7)

## **Business Work Group:**

Thursdays 11am-12pm EDT (Starting 9/8)

## **First Face to Face:**

Mid October (provisionally October 17-19)

