

# Sentinel Initiative Public Workshop

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# **Sentinel Initiative Public Workshop Panel: Overview of Enhancements Underway to Mini-Sentinel**

Overview of changes in Mini-Sentinel data querying capacity, tools, systems and data

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# Mini-Sentinel Operations Center (MSOC)

Planning

Finance

Project Management

Science

Methods

## MSOC Data Group

### Management, Oversight, and Strategic Planning

Distributed  
Database &  
Communications

Infrastructure

Programming

Production

Data Group staff, other HPHC staff, RSDC, external programmers, vendors, data partners support each team

## Growing demands require ongoing **system upgrades** and **expansion of capabilities**

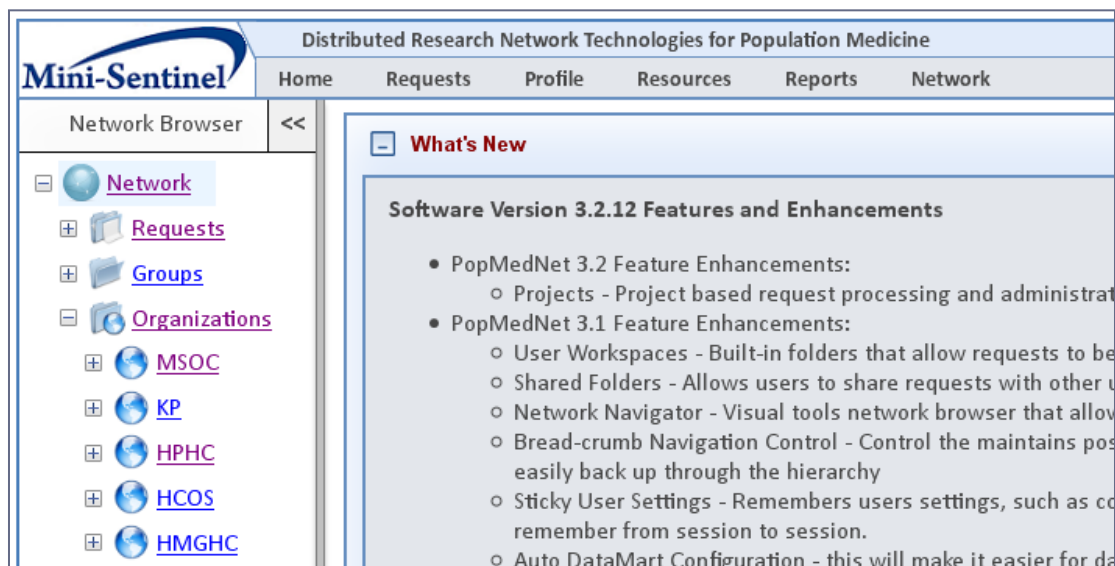
- ❑ Increased use of rapid response querying
- ❑ New types of surveillance (eg, PROMPT)
- ❑ More workgroups expanding into new areas
  - Laboratory results
  - Inpatient data
  - External linkages

# System Upgrades (selected)

- ❑ Standard operating procedures
- ❑ Standardization to improve throughput and support reporting tools
- ❑ Secure infrastructure
- ❑ Query tracking and query metadata tracking
- ❑ Mechanisms to bring lessons learned and network information closer to the investigators

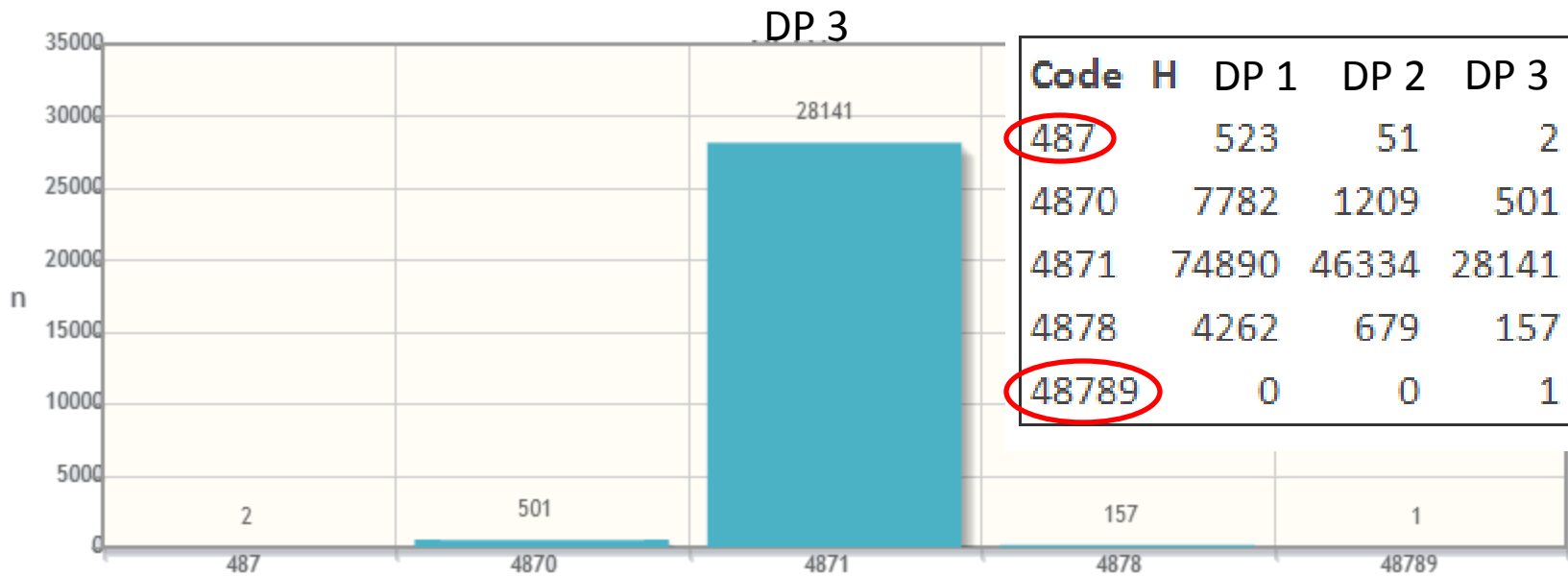
# Distributed query tool

- ❑ Software to enable secure distributed querying
- ❑ Now used by NIH, PCORI, and others to build networks
- ❑ New features
  - Improve query tracking and reporting functions
  - Query metadata searching (who has queried what)
  - Rapid data characterization queries across data partners



# Data checking query: Diagnosis code review

Quickly investigate codes by partner



Sample data (influenza)

# Expansion of Modular Program Capabilities (selected)

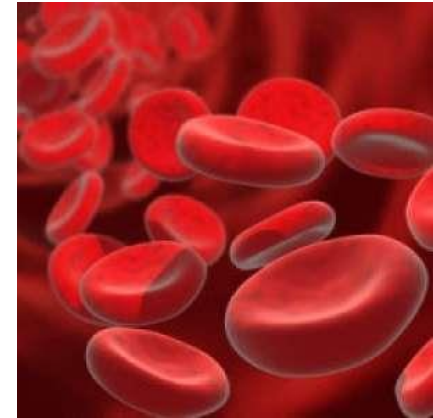
- ❑ Attrition tables in standard output
- ❑ Availability of laboratory results
- ❑ Incidence risk ratio from Modular Program results
- ❑ Event rate during concomitant medication use
- ❑ Highly-flexible exposure and outcome definitions (Combo Tool)



# Planned Enhancements

- ❑ Testing environment and processes
- ❑ Query creation and report processing
- ❑ Add new data elements into existing tools
- ❑ Query metadata capture and reporting
- ❑ Streamline request execution
- ❑ Report automation
- ❑ Training material (videos, documentation)

# Blood Safety Continuous Active Surveillance Network (BloodSCAN)



<http://www.newsrx.com/images/sized/uploads/topics/blood1-300x300.jpg>

- ❑ Develop an active surveillance system for regulated blood component and blood-derived product use
- ❑ Identify and verify potential safety concerns
  - Recipient safety
  - Non-infectious complications

# Feasibility/Test Case Evaluation

- ❑ Identify data sources
  - Inpatient electronic health data with blood components & blood-derived products
- ❑ Evaluate the granularity and completeness of the inpatient data
- ❑ Transform relevant data elements into a Common Data Model
- ❑ Test this data source using an exposure outcome pair that would occur during a single hospitalization

# Hospital Corporation of America

162 hospitals

4-5% of all inpatient care in US

20 states



# Hospital Corporation of America Test Case

- ❑ Goal: Evaluate rates of transfusion-related acute lung injury (TRALI) after transfusion of red blood cells, platelets and plasma, using inpatient EHR data
- ❑ Exposure: red blood cells, platelets, plasma
- ❑ Outcome: TRALI
  - TRALI occurs within first 6 hours after a transfusion
- ❑ Chart confirm exposure and outcome

# Ongoing Work

- ❑ Create and populate new inpatient data tables in the Mini-Sentinel Common Data Model
  - These will apply to other potential sources of inpatient EHR data
  - Capture inpatient blood component and blood-derived product data
- ❑ Test case: assess incidence of TRALI after blood component transfusion
- ❑ Assess utility of new inpatient data

# Post-licensure Rapid Immunization Safety Monitoring system (PRISM)

- ❑ Establish a national system for active vaccine safety surveillance within Mini-Sentinel
- ❑ Address key gaps in existing vaccine safety monitoring capabilities
  - Building capacity to study the safety of vaccines in pregnant populations

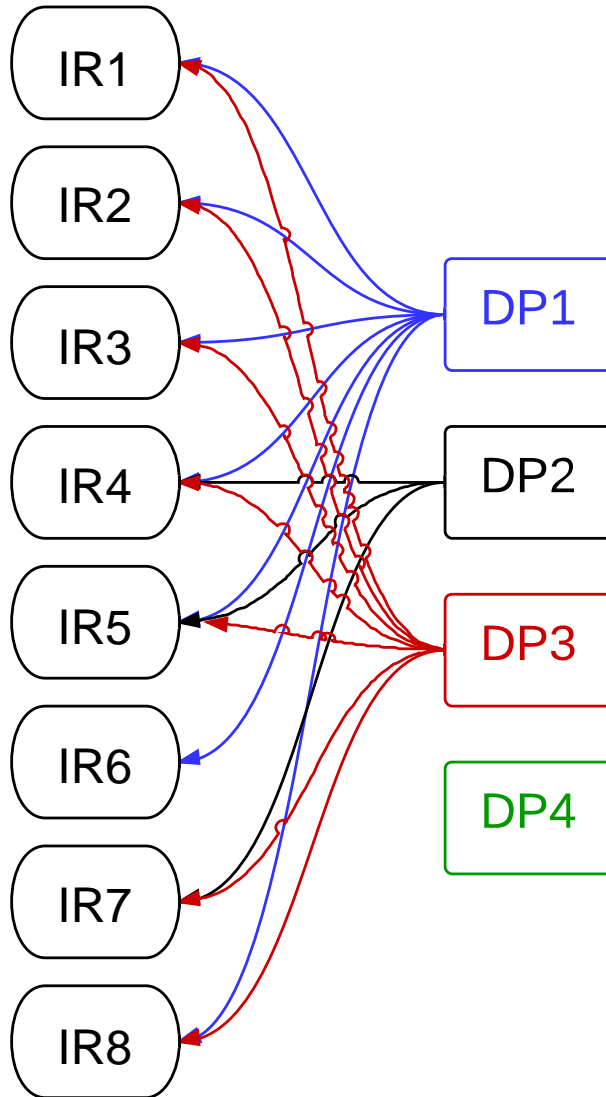
# Vaccine Safety in Pregnancy

- ❑ Our knowledge of the safety of medication and vaccine use during pregnancy is limited
- ❑ Birth certificate and fetal death report data provide information on factors that may affect adverse pregnancy outcomes and birth outcomes



Immunization  
Registries

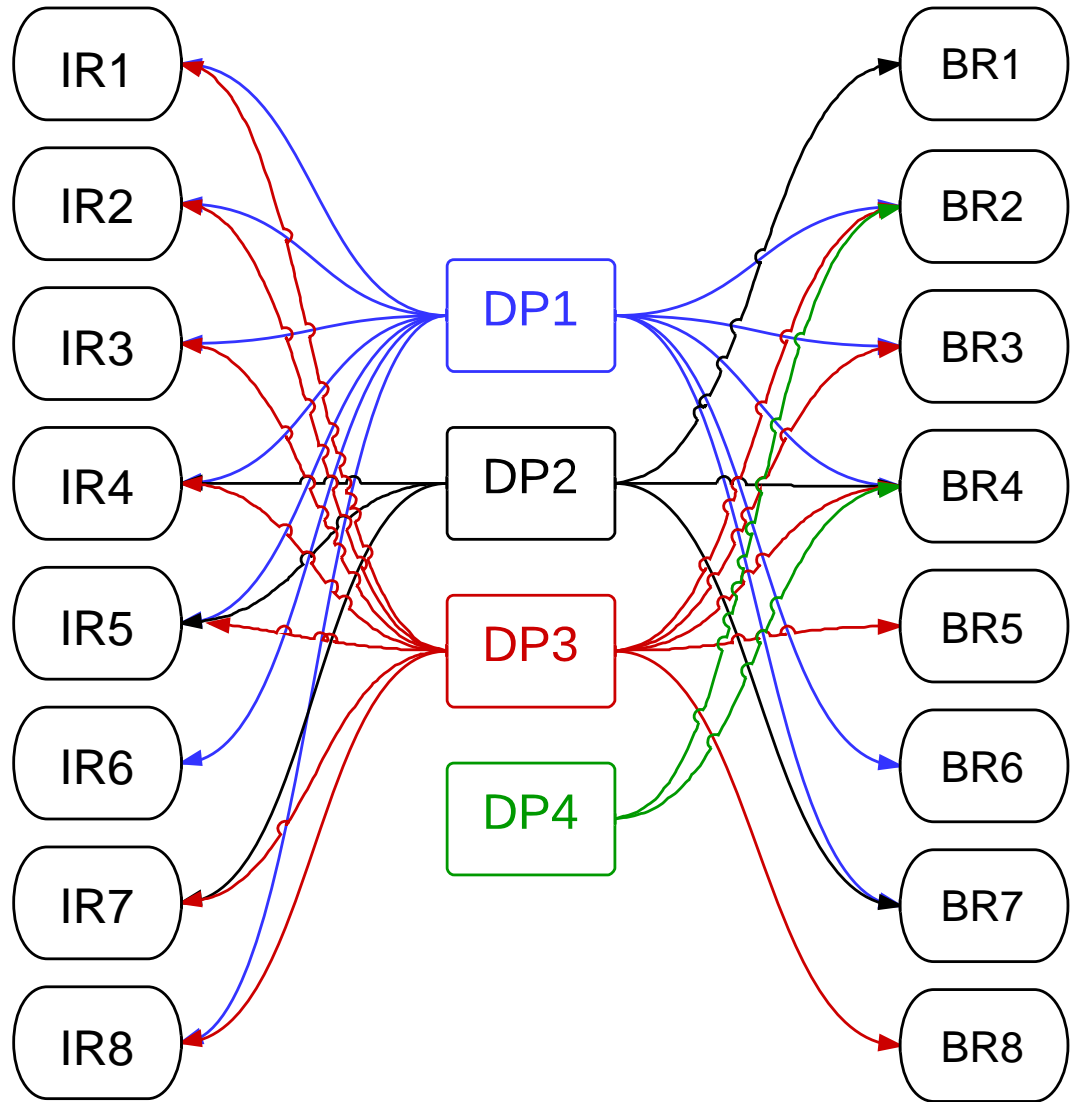
PRISM  
Data Partners



Immunization  
Registries

PRISM  
Data Partners

Birth/Fetal Death  
Registries



# Current Progress and Ongoing Work

- ❑ Developed standard file structures for birth and fetal death data
- ❑ Linkage accomplished for 2 states
  - Assessment of matching underway
- ❑ Linkage with 8 immunization registries completed
  - Assessment of contribution of immunization registries underway

Thank you