MDPHnet: Real-time Public Health Surveillance

Ounce of Prevention Conference

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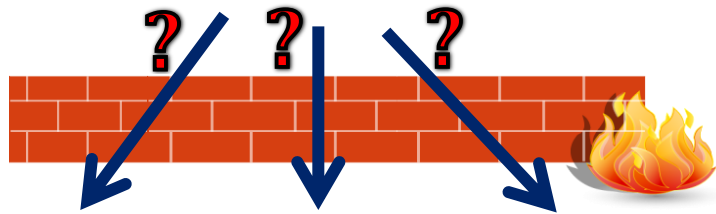
Overview of MDPHnet

- Ambulatory data
  - Patient visits, pharmacy and labs
- Collaborative effort
  - MDPH, Atrius Health, Massachusetts League of Community Health Centers, Cambridge Health Alliance
- Online query builder tool
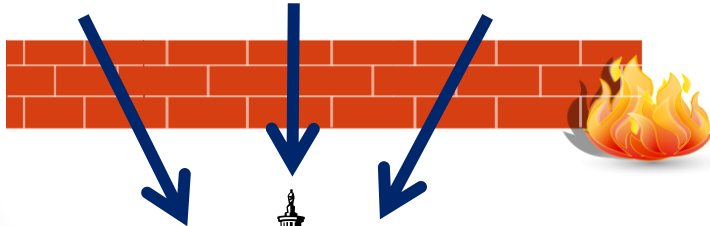 - Complex querying also available

MDPHnet

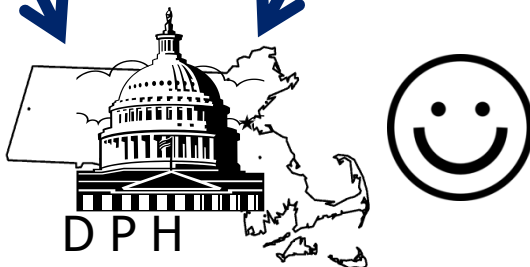**Step 1.** Health department or other user creates a query through the MDPHnet system.

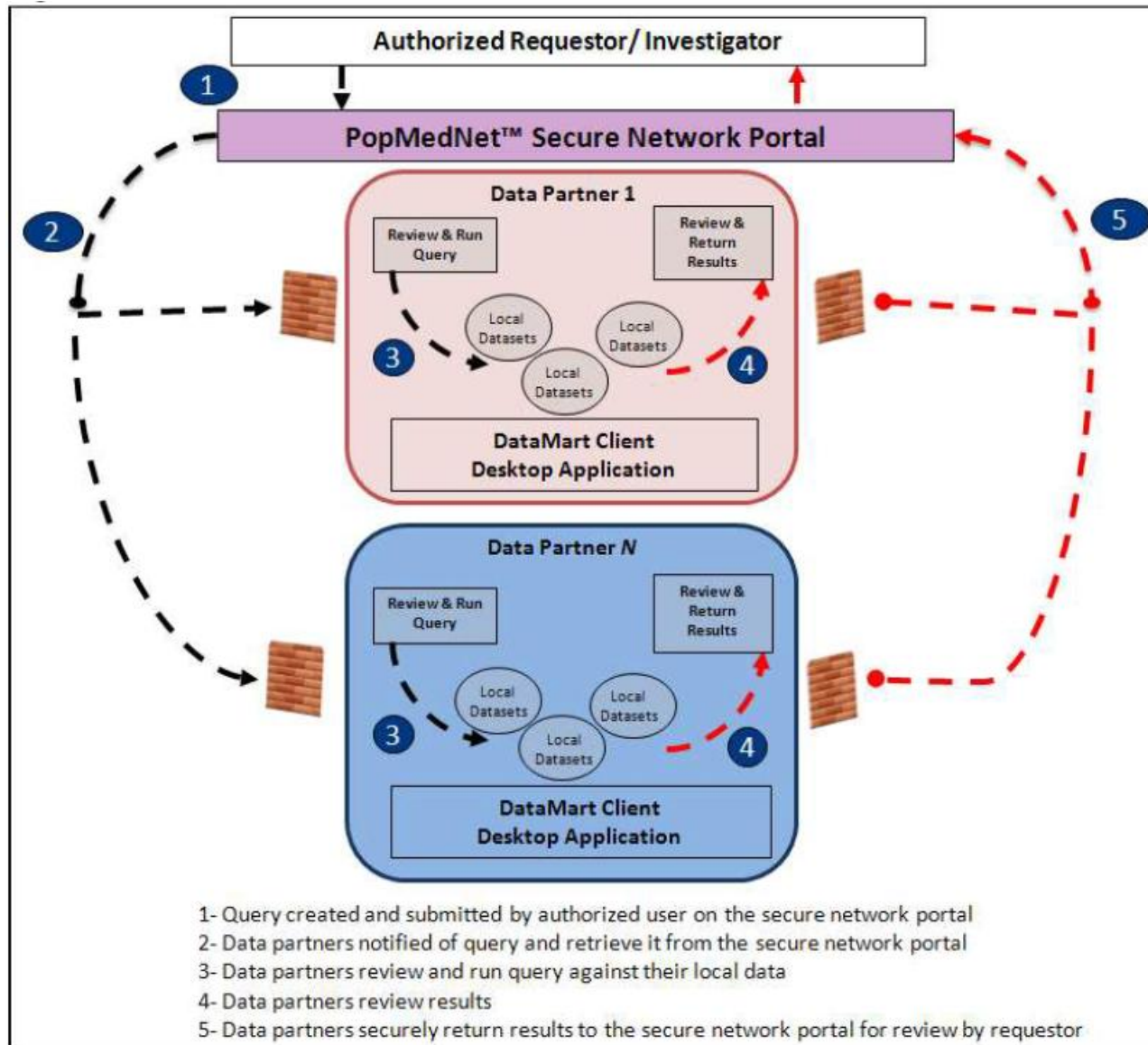**Step 2.** MDPHnet distributes queries to practices participating in the network.

Step 3. Practices review queries behind a secure fire wall and authorize execution against their local ESPnet tables.

Step 4. MDPHnet integrates results and returns them to the health department.
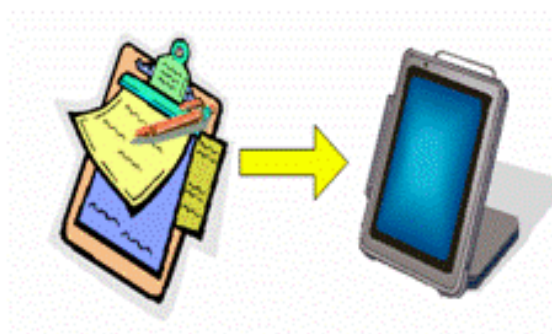
Images from clipartlord.com

Am J Public Health 2014;in press

Architecture of MDPHnet

Authorized Requestor/ Investigator

PopMedNet™ Secure Network Portal

Data Partner 1

Review & Run Query

Review & Return Results

Local Datasets

Local Datasets

Local Datasets

DataMart Client Desktop Application

Data Partner N

Review & Run Query

Review & Return Results

Local Datasets

Local Datasets

Local Datasets

DataMart Client Desktop Application

1- Query created and submitted by authorized user on the secure network portal
2- Data partners notified of query and retrieve it from the secure network portal
3- Data partners review and run query against their local data
4- Data partners review results
5- Data partners securely return results to the secure network portal for review by requestor
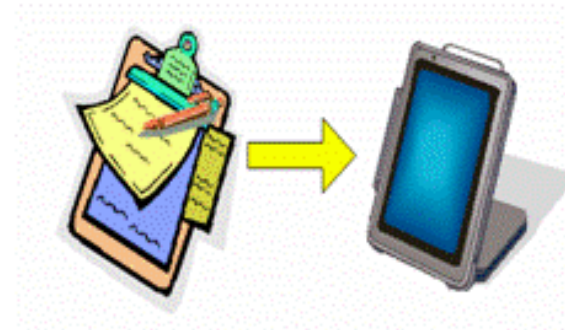
Features of MDPHnet

- Privacy
  - Data stays with the providers
- All ICD-9 codes available
  - Many possibilities, new information
- Reportable diseases
  - ILI and Diabetes
  - Smoking and Asthma
- SQL Submission
  - Enables querying of entire data model

Features of MDPHnet

- Scheduled Queries

- ZIP code stratification

- Cohorts

Interoperabilty

- Atrius uses different EMR system from Mass League and Cambridge Health Alliance
- Built with the Query Health standard
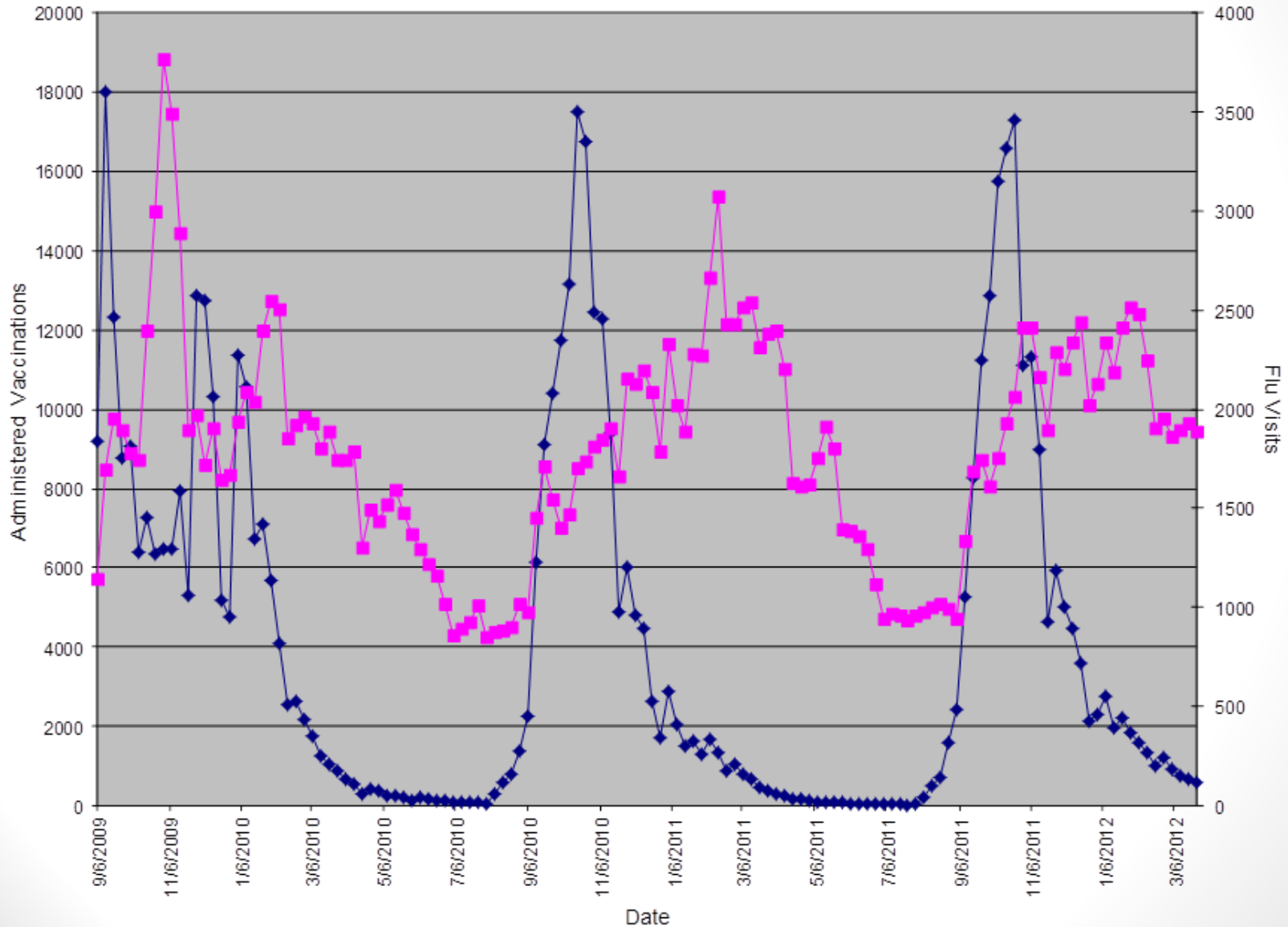
MDPHnet Usage

- 15% of epidemiologists at the department registered
- Monthly usergroups
- Proof-of-Concept queries
  - Diabetes
  - ILI

MDPHnet Data

Flu vaccinations and visits based on data from MDPHnet

MDPHnet vs. Existing Tools

MDPHnet

Diabetes

8.36%

Tobacco Use

16.9%

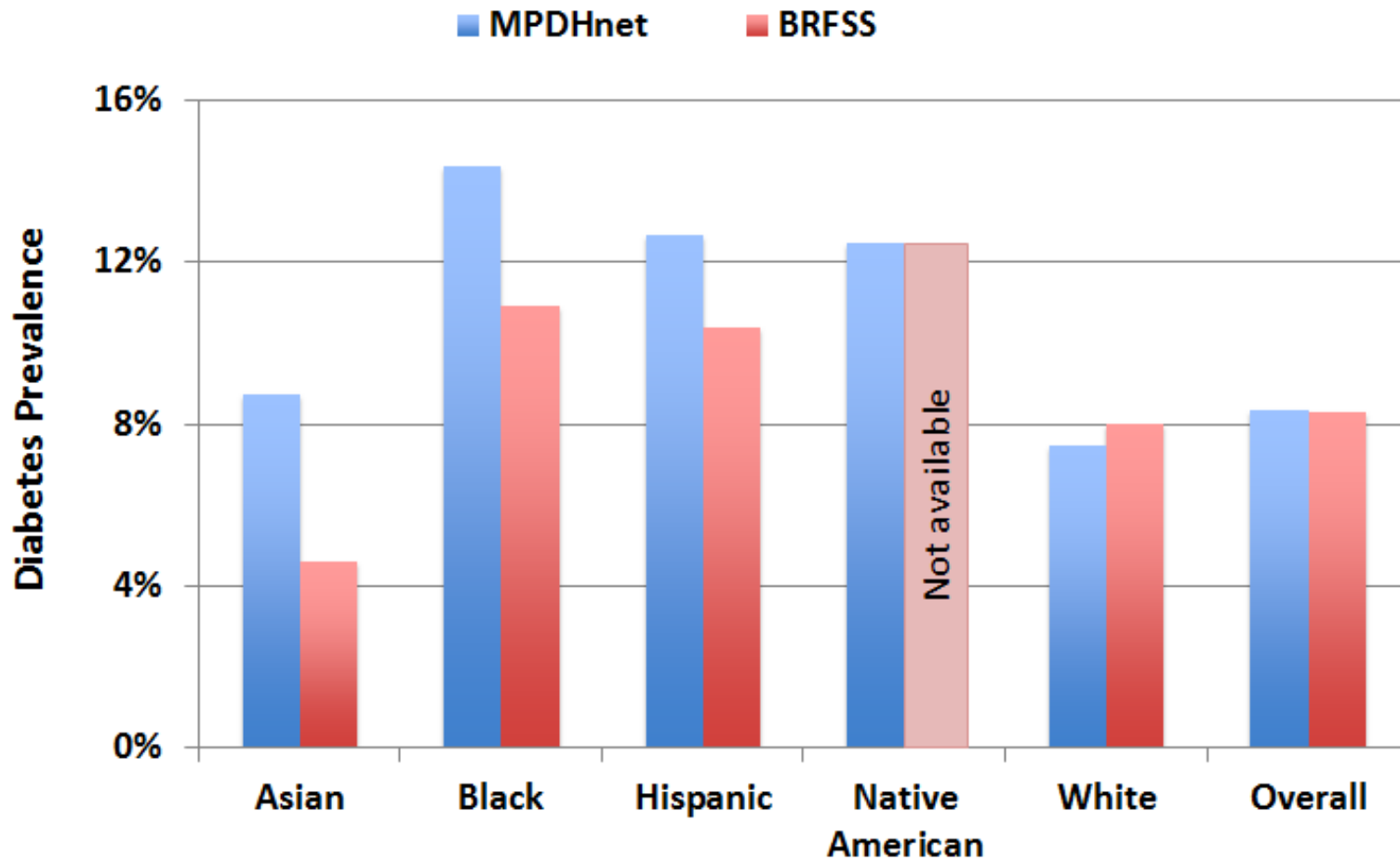## BRFSS (2012)

Diabetes

8.30%

Tobacco Use

16.4%

MDPHnet vs. Existing Tools
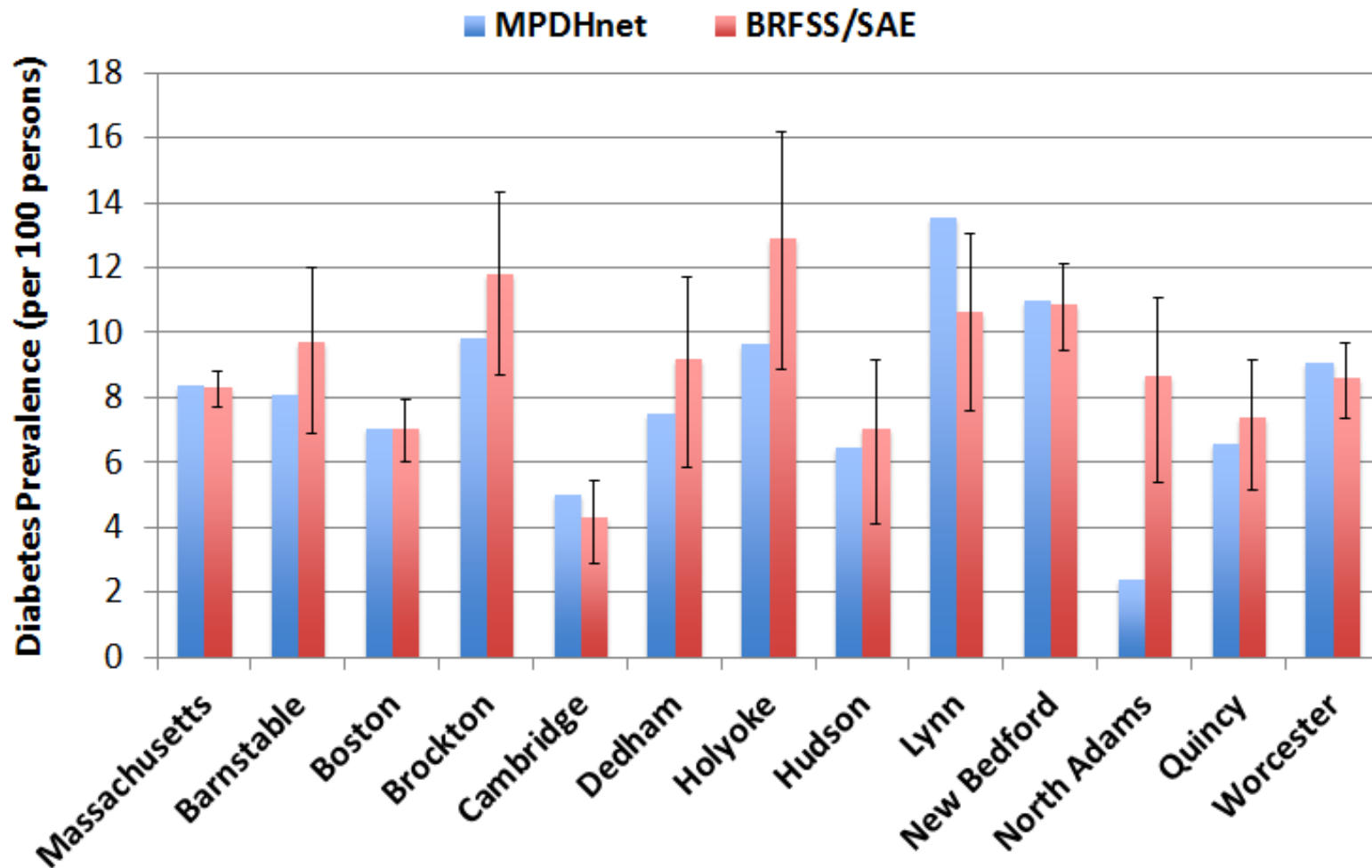

Diabetes Prevalence by Race/Ethnicity
MDPHnet vs BRFSS

MDPHnet vs. Existing Tools
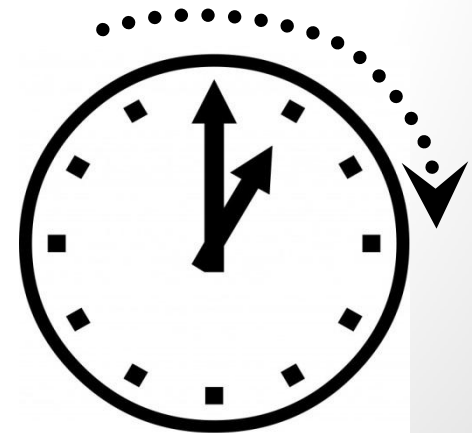

Diabetes Prevalence
MDPHnet vs BRFSS/SAEs

Governance

- Representatives from each partner
- Monthly meetings
- Governance document
  - Response times
  - Suppression rules
- Funding and support structure

Future

- Statistical extrapolation to state prevalence estimates

- Linkages

- Basis for cloud-based tools at DPH

- Multiple towns condition projection

- Algorithms to track mental health issues and opioid prescriptions

- Smoking enhancements

More Information

- Systems like this have potential nationwide
- Other pilot projects are currently in various stages
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