Using Data to Improve Health Care

Connecting California to Improve Patient Care in 2012

Practical Solutions for Health Information Exchange and Quality Analytics

Thursday, July 19, 2012
Doubletree Hotel - Sonoma Wine Country
Rohnert Park, California

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Prior to Leading DISO in February 2012
Deputy Director for Information Science and BioSense Program Manager
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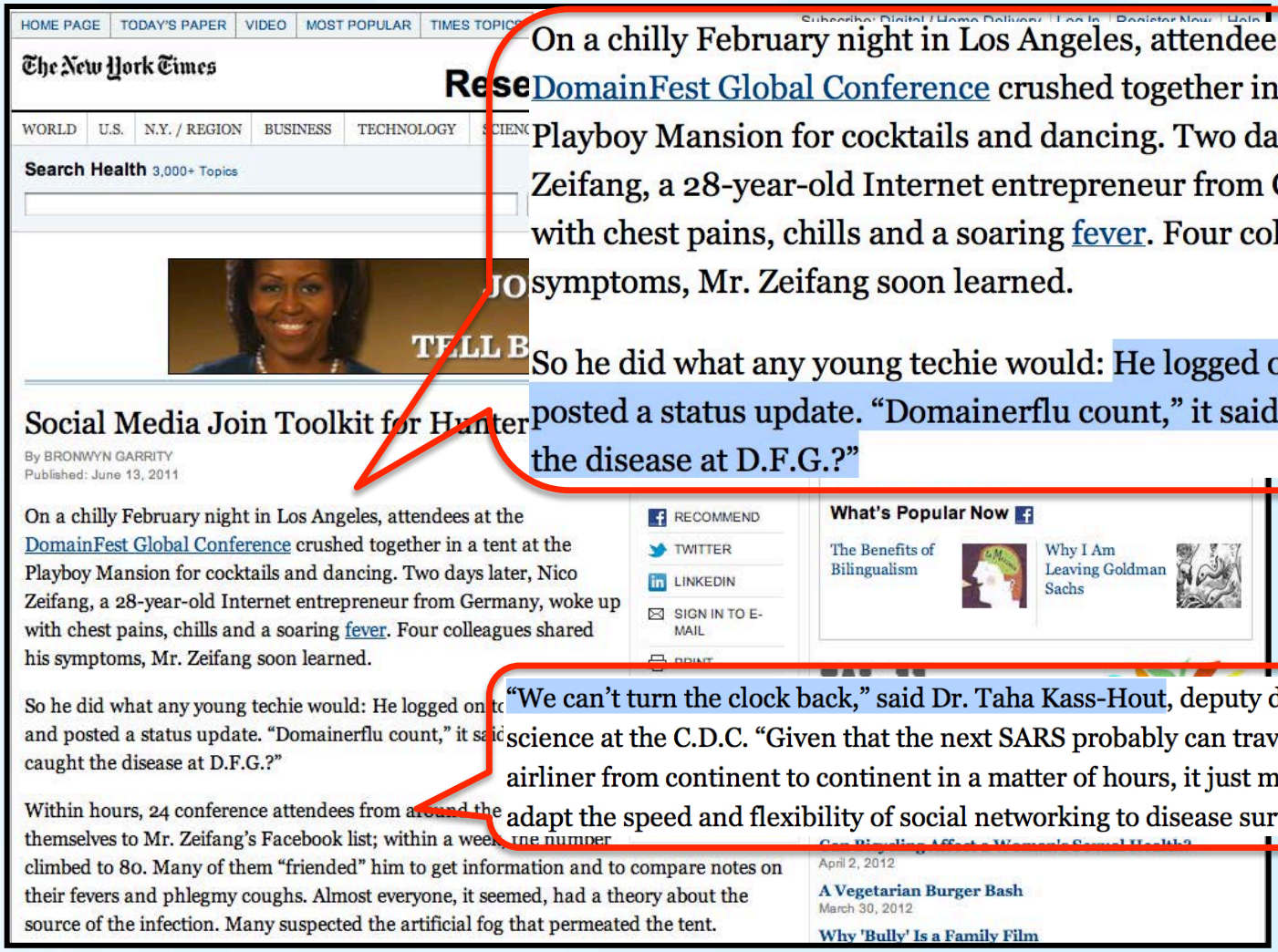
Public Health Surveillance and Informatics Program Office (PHSIPO, *Proposed*)
Office of Surveillance, Epidemiology, & Laboratory Services (OSELS)

Disease Detection



On a chilly February night in Los Angeles, attendees at the DomainFest Global Conference crushed together in a tent at the Playboy Mansion for cocktails and dancing. Two days later, Nico Zeifang, a 28-year-old Internet entrepreneur from Germany, woke up with chest pains, chills and a soaring fever. Four colleagues shared his symptoms, Mr. Zeifang soon learned.

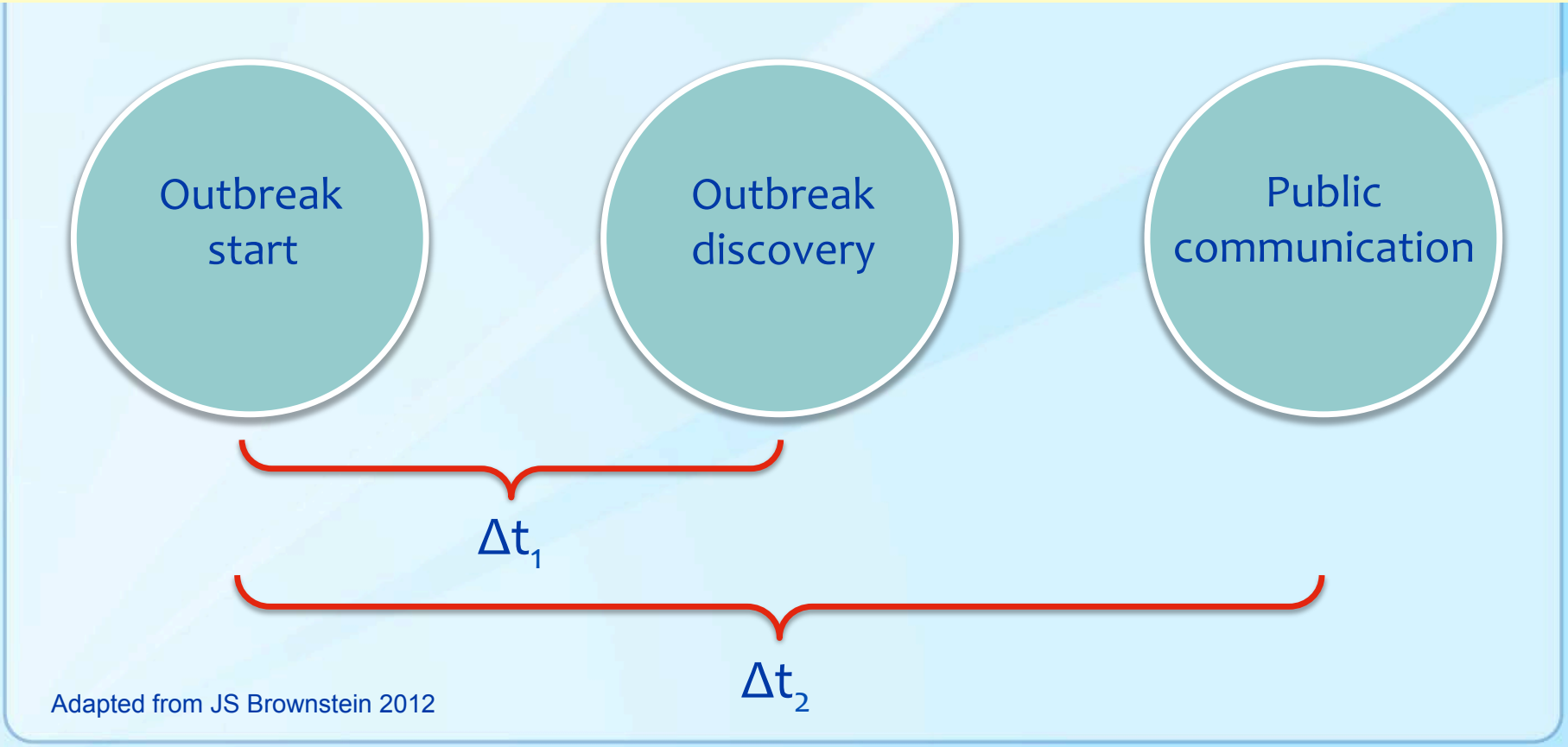
So he did what any young techie would: He logged on to Facebook and posted a status update. "Domainerflu count," it said. "Who else caught the disease at D.F.G.?"

"We can't turn the clock back," said Dr. Taha Kass-Hout, deputy director for information science at the C.D.C. "Given that the next SARS probably can travel at the speed of an airliner from continent to continent in a matter of hours, it just makes perfect sense to adapt the speed and flexibility of social networking to disease surveillance."

http://www.nytimes.com/2011/06/14/health/research/14social.html?pagewanted=all

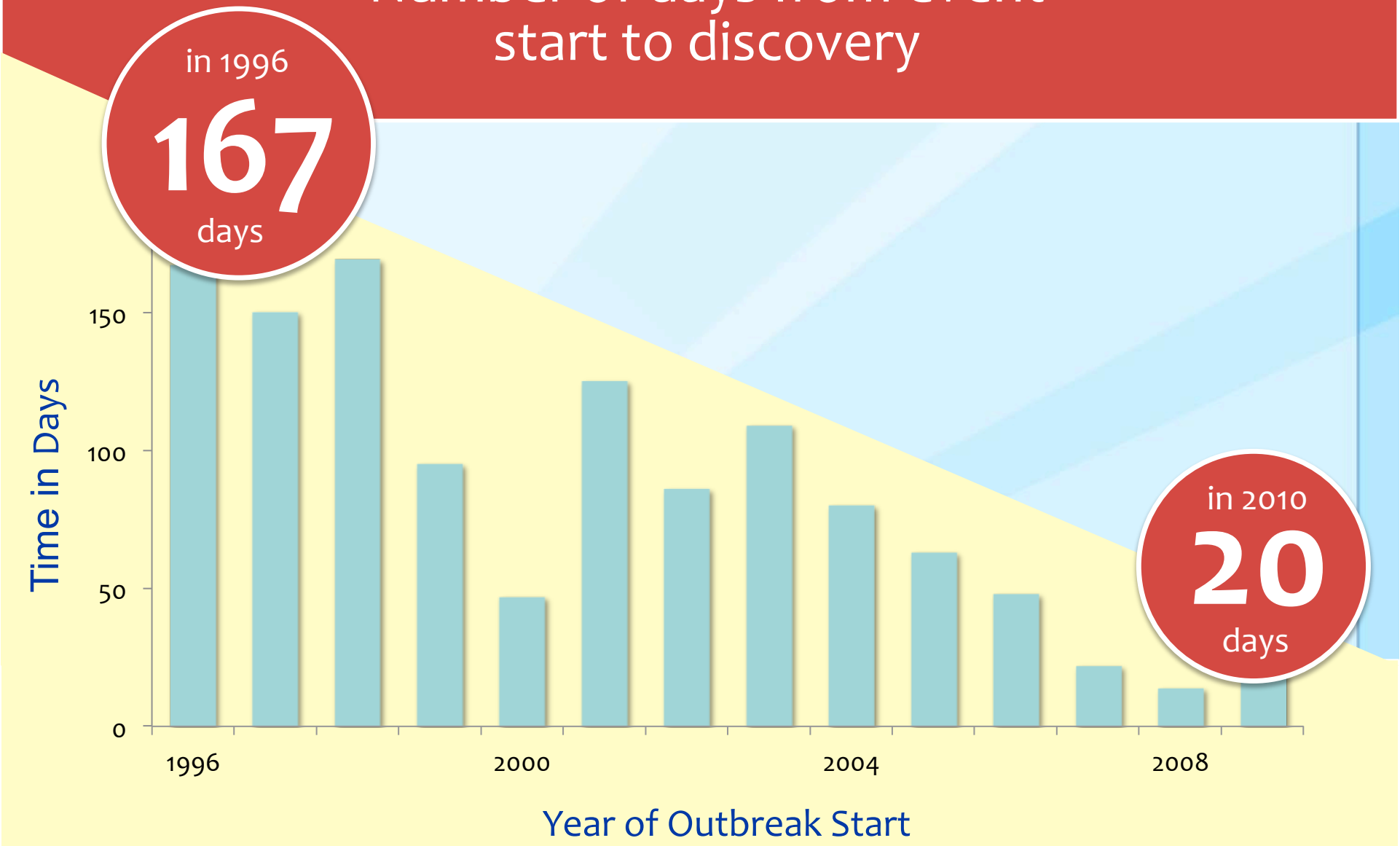
Surveillance Capacity Assessment

Characterize spatial-temporal trends in the timeliness of events detection, reporting and response



Adapted from JS Brownstein 2012

Number of days from event start to discovery



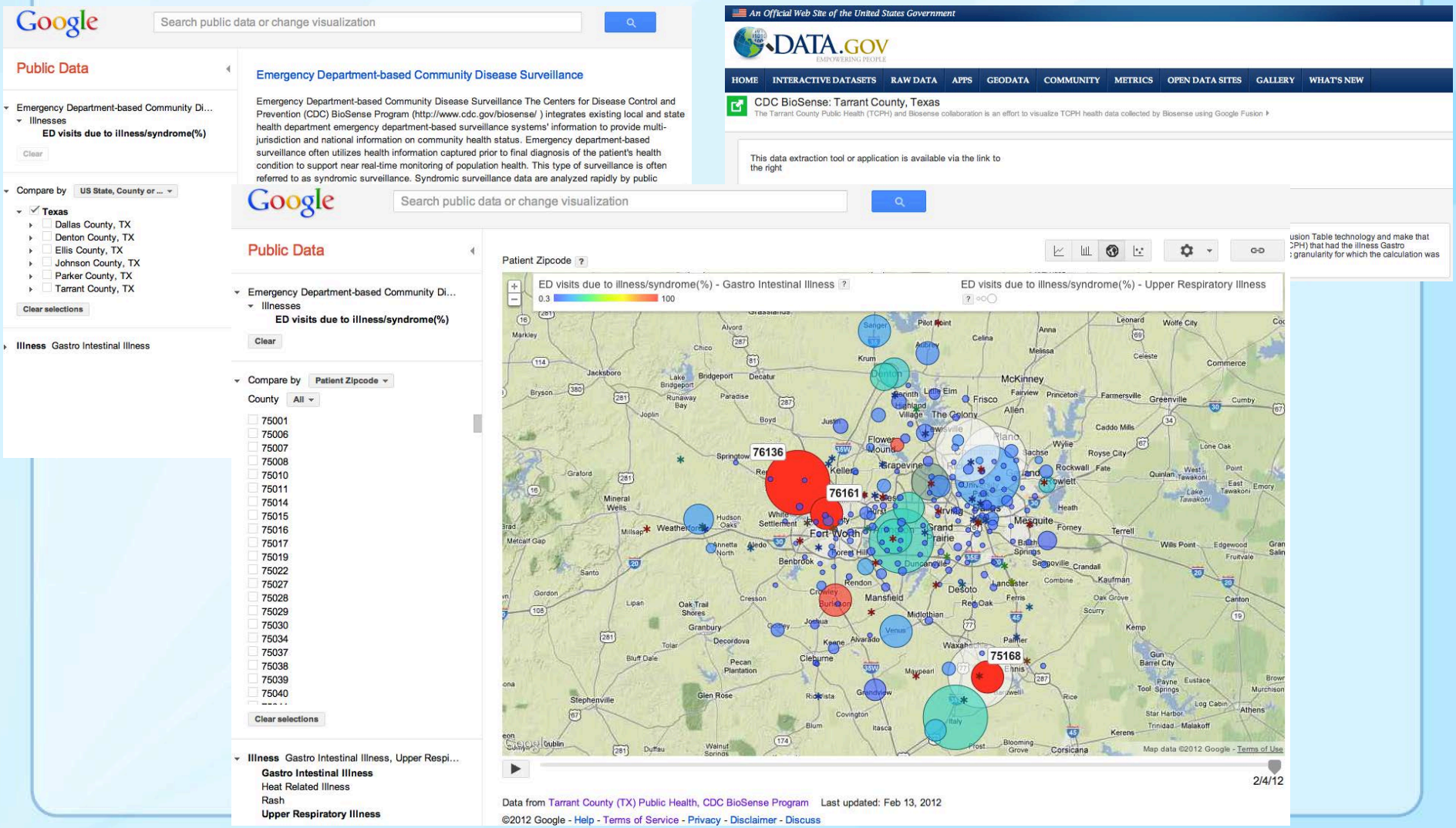
Adapted from JS Brownstein 2012

Chan et al. 2010. Proceedings of the National Academy of Sciences.

Disease Detection

Disease Detection

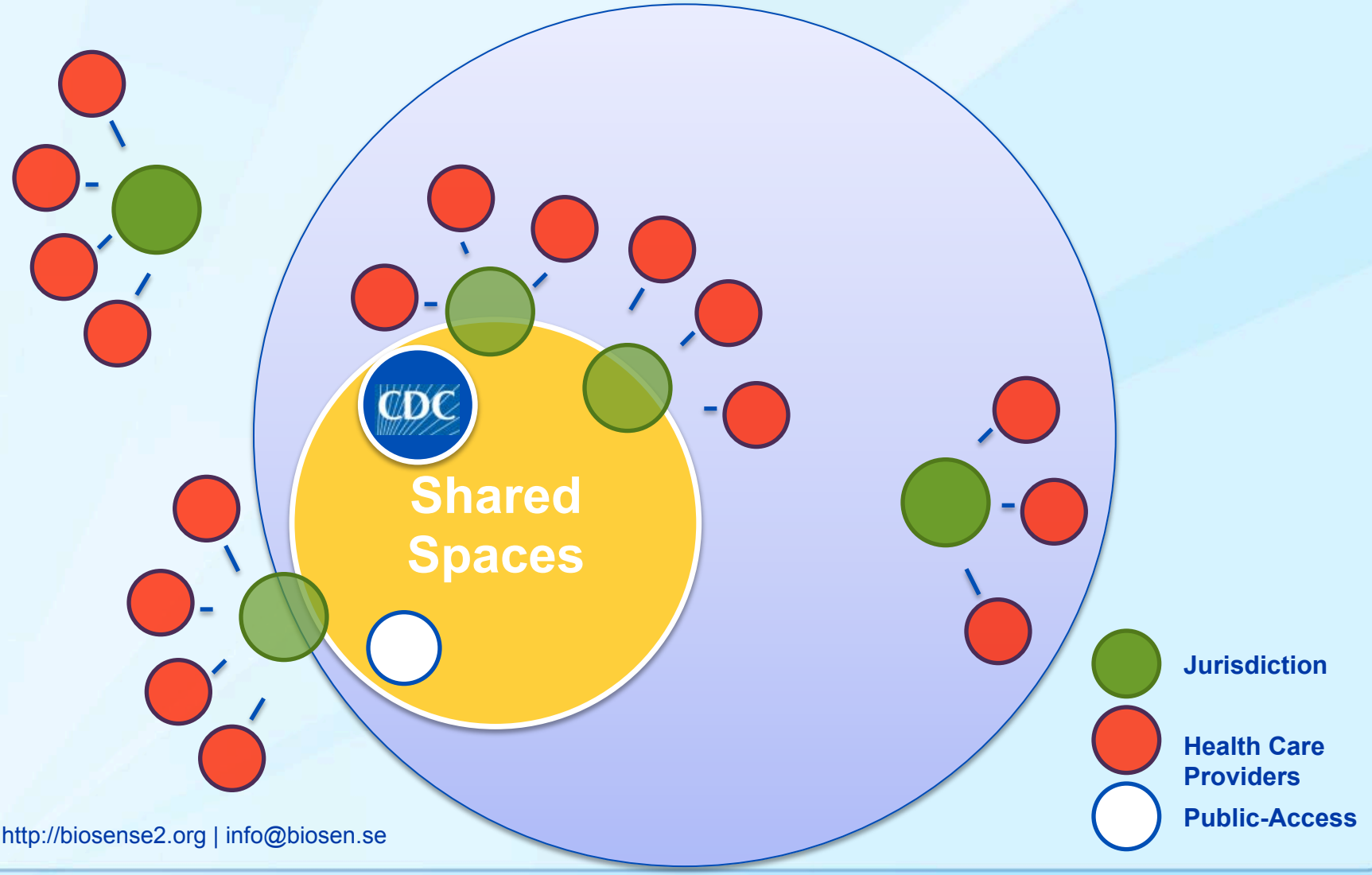
Monitoring Emergency Rooms Visits Post H1N1



http://www.google.com/publicdata/explore?ds=z46e2n1b69u8mu_

BioSense 2.0

A Novel Model for Sharing Health Care Information and Beyond



http://biosense2.org | info@biosen.se

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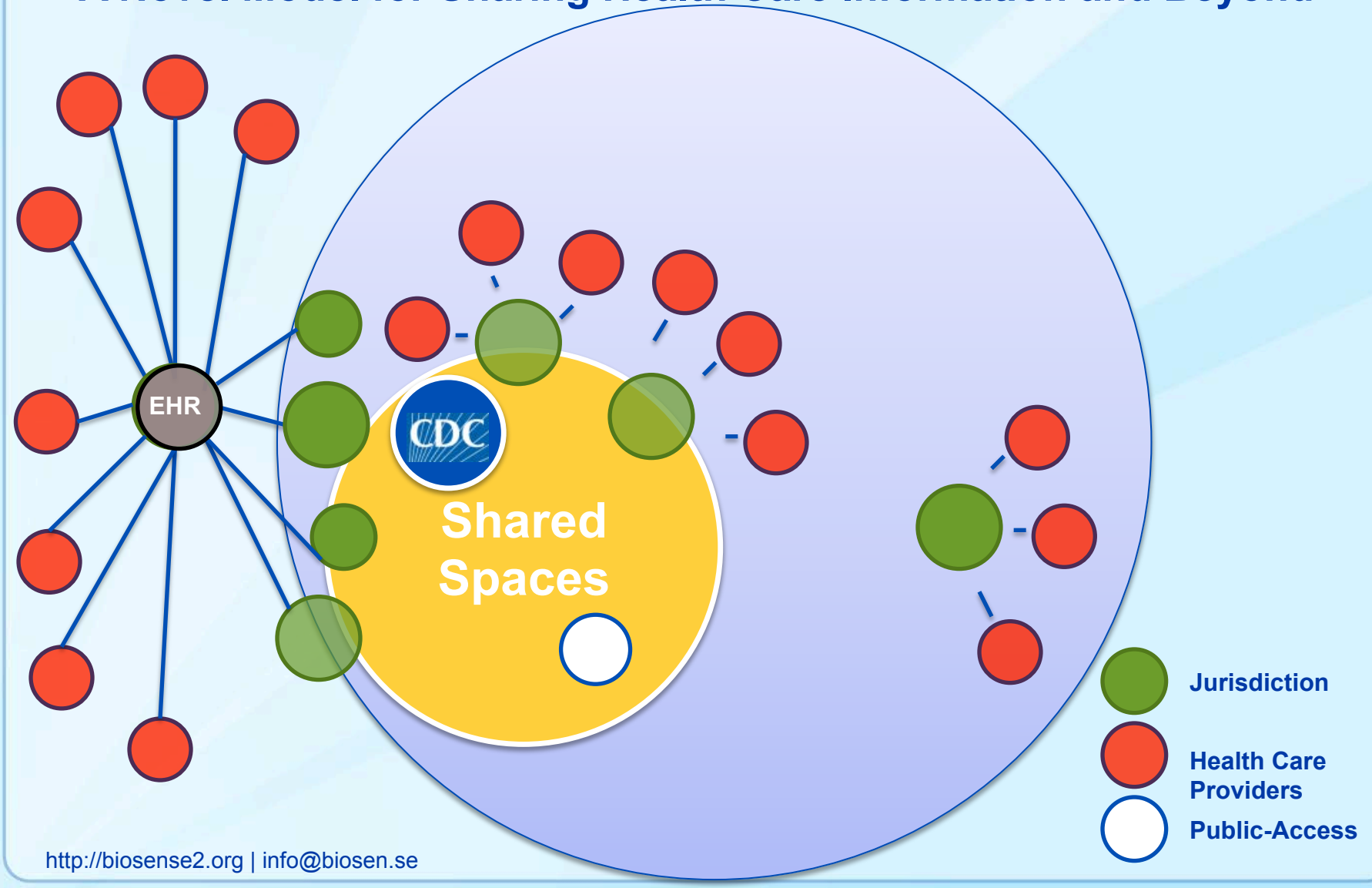

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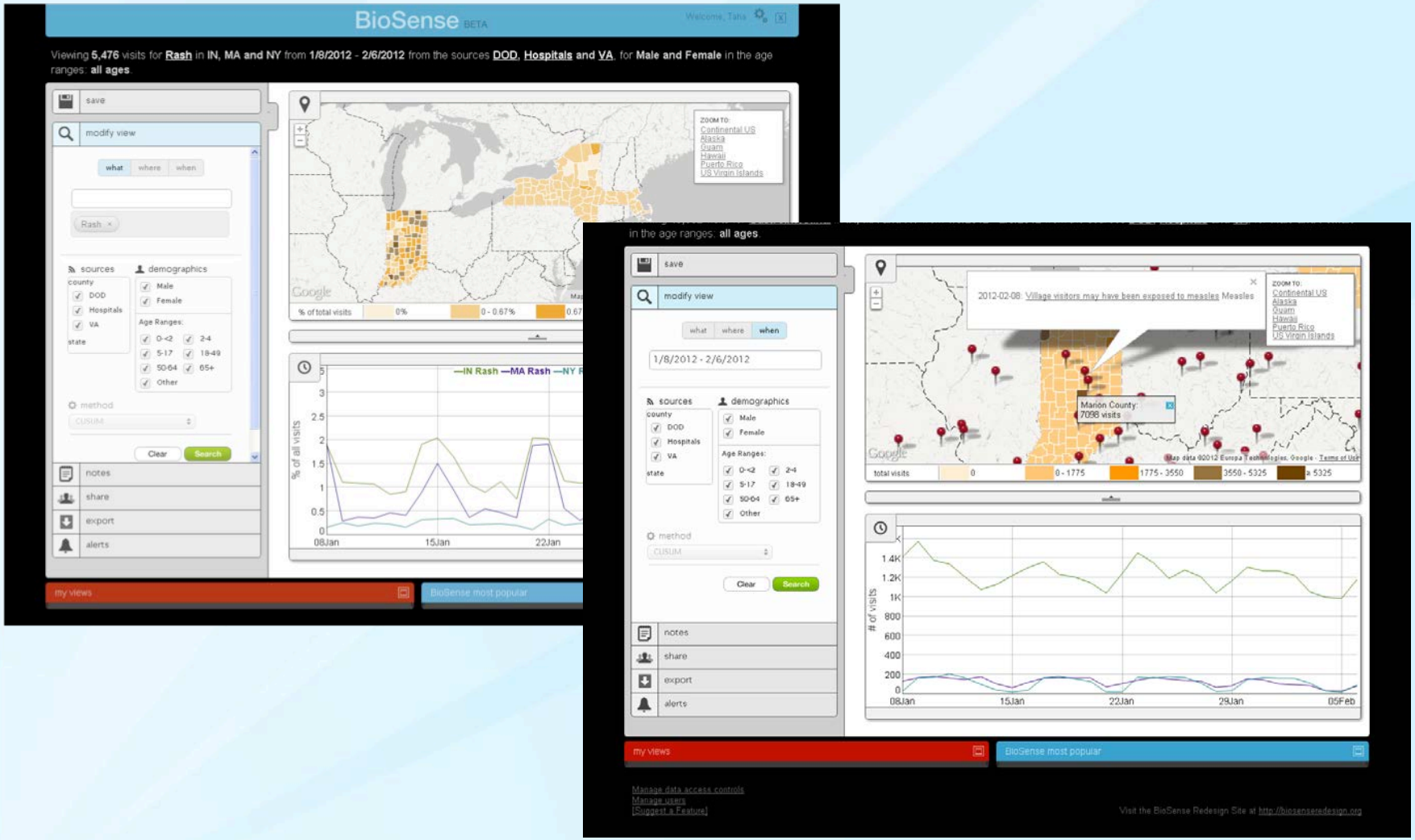
BioSense 2.0

A Novel Model for Sharing Health Care Information and Beyond

Top 20 Conditions in BioSense 2.0 in 2012

BioSense 2.0

A Novel Model for Sharing Health Care Information and Beyond



Feature: Ad-hoc sharing among multiple jurisdictions during a sporting event (e.g., Super Bowl 2012)

BioSense 2.0

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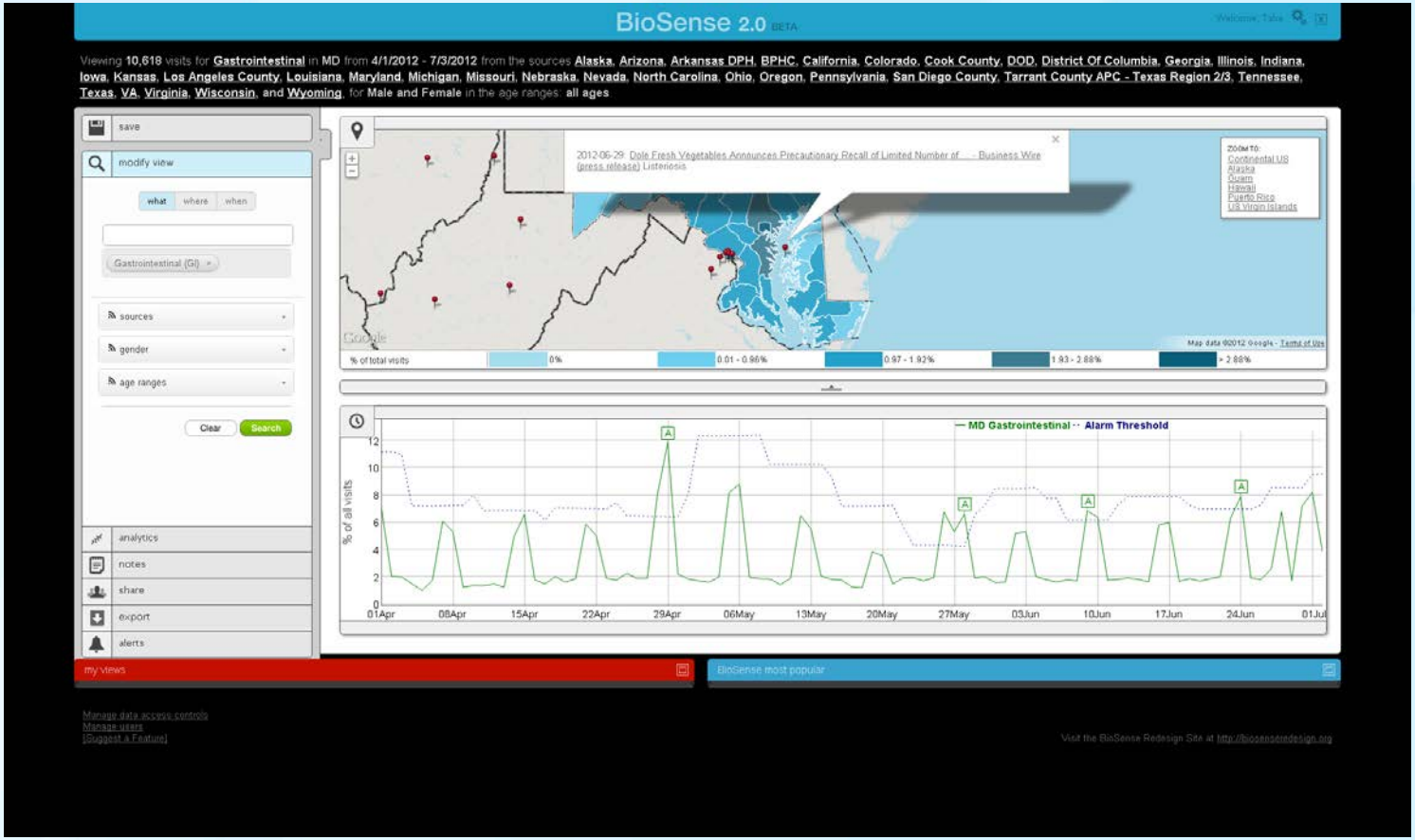


Feature: Anomaly detection during heat-wave season

Preventative Care Value of Health Information Exchanges

- **Demonstrate how current Health Information Exchange standards and capabilities (such as the Nationwide Health Information Network (NwHIN) and the ARRA Meaningful Use (MUse) criteria) can help quantify the benefits of preventive care interventions**
  - Focused on the ABCDs of preventive health
  - Partnering with a public health jurisdiction and a mature Health Information Exchange (HIE) serving the jurisdiction
  - Transmitting National Quality Measures through NwHIN CONNECT

ABCDs of Preventive Health

- **Low cost preventions that can have a high impact on the overall health of a population**
  - A – Aspirin Therapy
  - B – Blood Pressure monitoring
  - C – Cholesterol Screening
  - D – Diabetes monitoring
  - S – Smoking Cessation

Pilot Site

- **Identified 13 Meaningful Use Data Measures to be used in the collection of ABCDs-related data**
  - Supported by the CMS
  - Required for Stage 2 MUse Compliance
- **Partnered with Maine Center for Disease Control and Prevention (Maine's HD) and HealthInfoNet (a Maine-based HIE)**
  - Covers 77% of Maine's population
  - Provides 4-year baseline
- **Established communications between HealthInfoNet and the HD thru NwHIN CONNECT**
- **Actively searching for second HIE**

ABCDs-related Meaningful Use Measures

NQF Measure Number	Clinical Quality Measure Title
NQF 0013	Hypertension: Blood Pressure Measurement
NQF 0018	Controlling High Blood Pressure
NQF 0024	Weight Assessment and Counseling for Children and Adolescents
NQF 0027	Smoking and Tobacco Use Cessation, Medical assistance
NQF 0028	Preventive Care ABCDs related Meaningful Use Measures and Screening Measure Pair: a) Tobacco Use Assessment, b) Tobacco Cessation Intervention

ABCDs-related Meaningful Use Measures *Cont*

NQF Measure Number	Clinical Quality Measure Title
NQF 0059	Diabetes: HbA1c Poor Control
NQF 0061	Diabetes: Blood Pressure Management
NQF 0064	Diabetes: LDL Management & Control
NQF 0068	Ischemic Vascular Disease (IVD): Use of Aspirin or another Antithrombotic
NQF 0075	Ischemic Vascular Disease (IVD): Complete Lipid Panel and LDL Control
NQF 0421	Adult Weight Screening and Follow-Up

Measures Calculated as of June 2012

- **NQF 0027:** % patients 18 years of age and older who were current smokers or tobacco users, who were seen by a practitioner during the measurement year and who received advice to quit smoking or tobacco use or whose practitioner recommended or discussed smoking or tobacco use cessation medications, methods or strategies
- **NQF 0028a:** % patients aged 18 years or older who have been seen for at least 2 office visits, who were queried about tobacco use one or more times within 24 months
- **NQF 0059:** % patients 18–75 years of age with diabetes (type 1 or type 2) who had HbA1c >9.0%
- **NQF 0064:** %of patients 18–75 years of age with diabetes (type 1 or type 2) who had LDL-C <100mg/dL

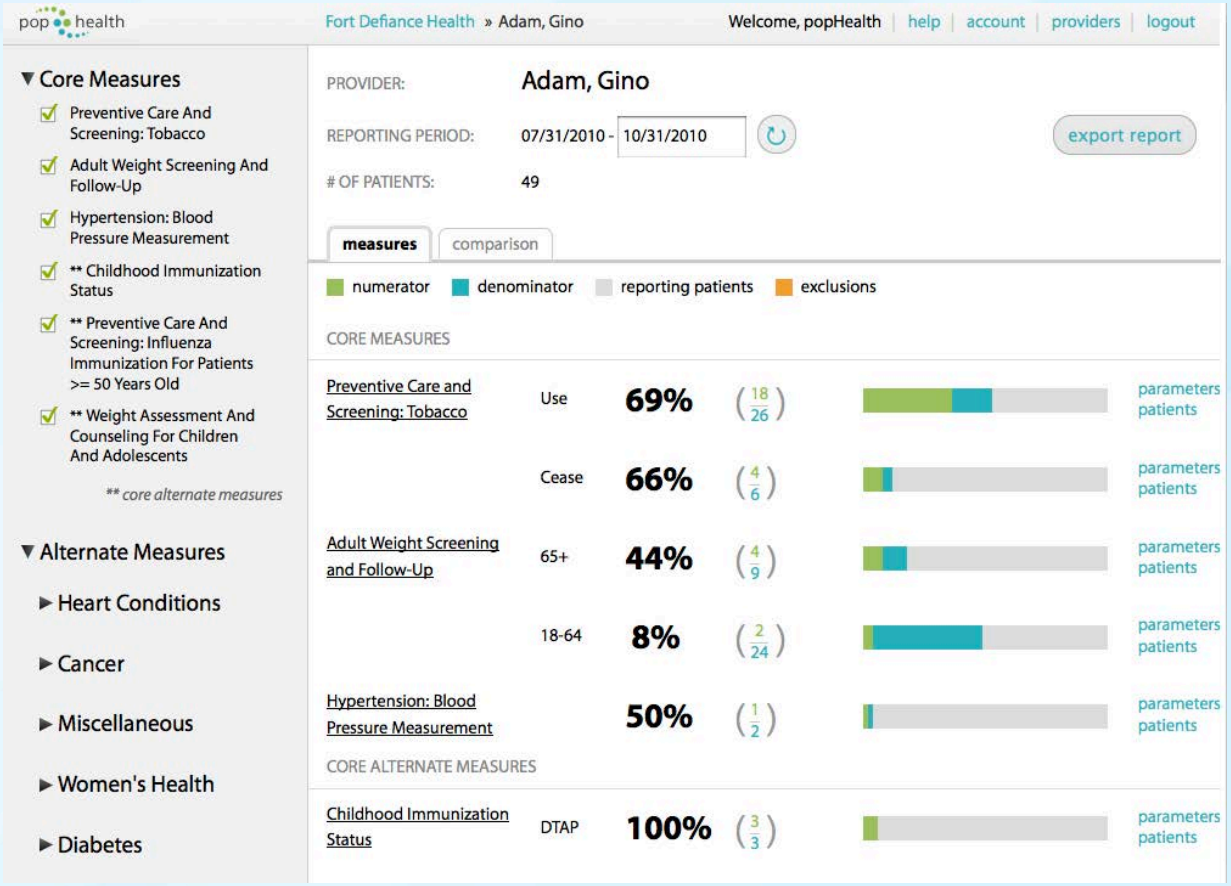
Information Exchanges with Maine HD

- Exchanges established over CONNECT, an open source software solution that supports health information exchange – both locally and at the national level. CONNECT uses Nationwide Health Information Network (NwHIN) standards and governance to make sure that health information exchanges are compatible with other exchanges being set up throughout the country

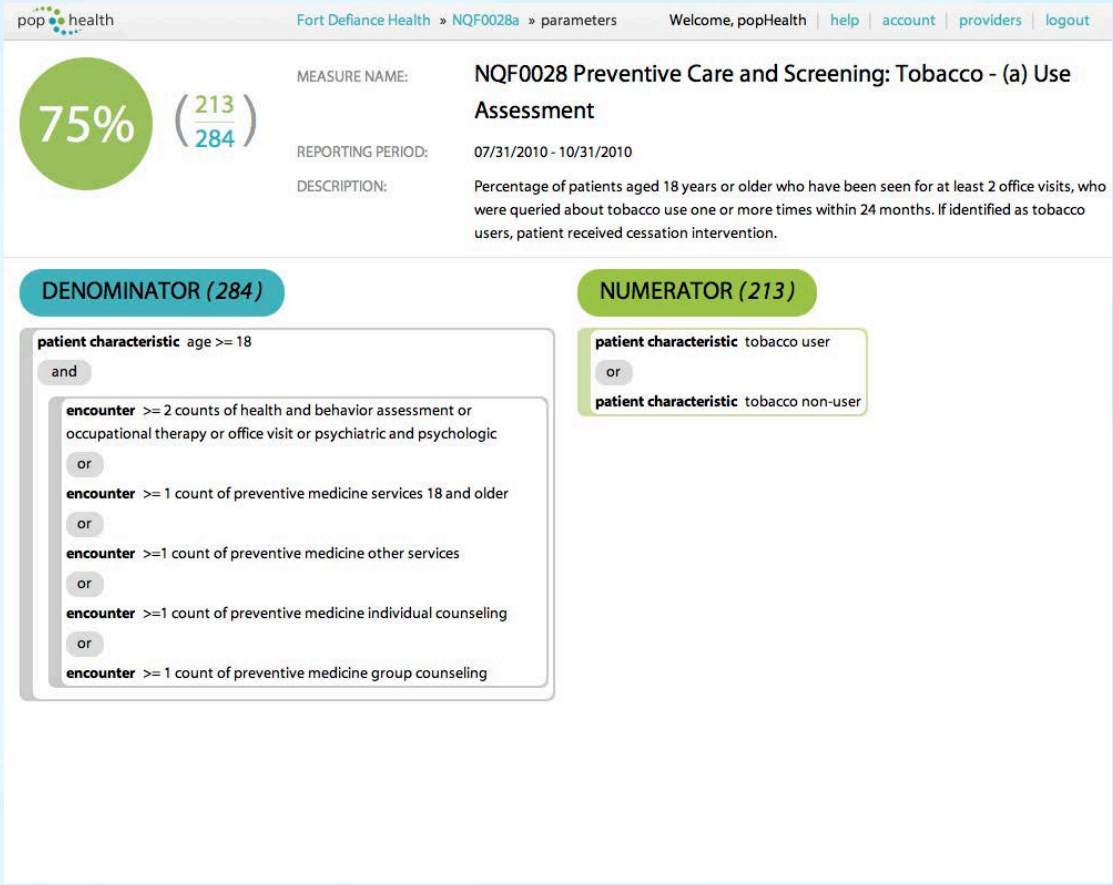
Measurement Tool – popHealth

- **Open source tool that calculates all 44 Stage I MUse Clinical Quality Measures**
  - Imports HL7 Continuity of Care Documents (CCDs) for each patient
  - Performs the calculations and generates an xml file with the results
  - Generates result file conforms to the CMS Physician Quality Reporting Initiative (PQRI) specifications

PopHealth Measure Summary



PopHealth – Individual Measure



Acknowledgment

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  - Office of the National Coordinator for Health Information Technology U.S. Department of Health & Human Services (ONC)
  - CSTE, ASTHO, and NACCHO
  - DoD and VA
  - LabCorp and Quest
  - Amazon (AWS under contract to ASTHO)
  - Division for Heart Disease and Stroke Prevention, NCCDPHP
  - Maine Center for Disease Control and Prevention (Maine's HD)
  - Mitre (popHealth Project http://projectpophealth.org) (under contract with ONC)
  - NIST
- **Contractors**
  - AgileX
  - RTI International
  - RelayHealth
  - HealthInfoNet

Thank YOU!

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