The BioSense Influenza Module

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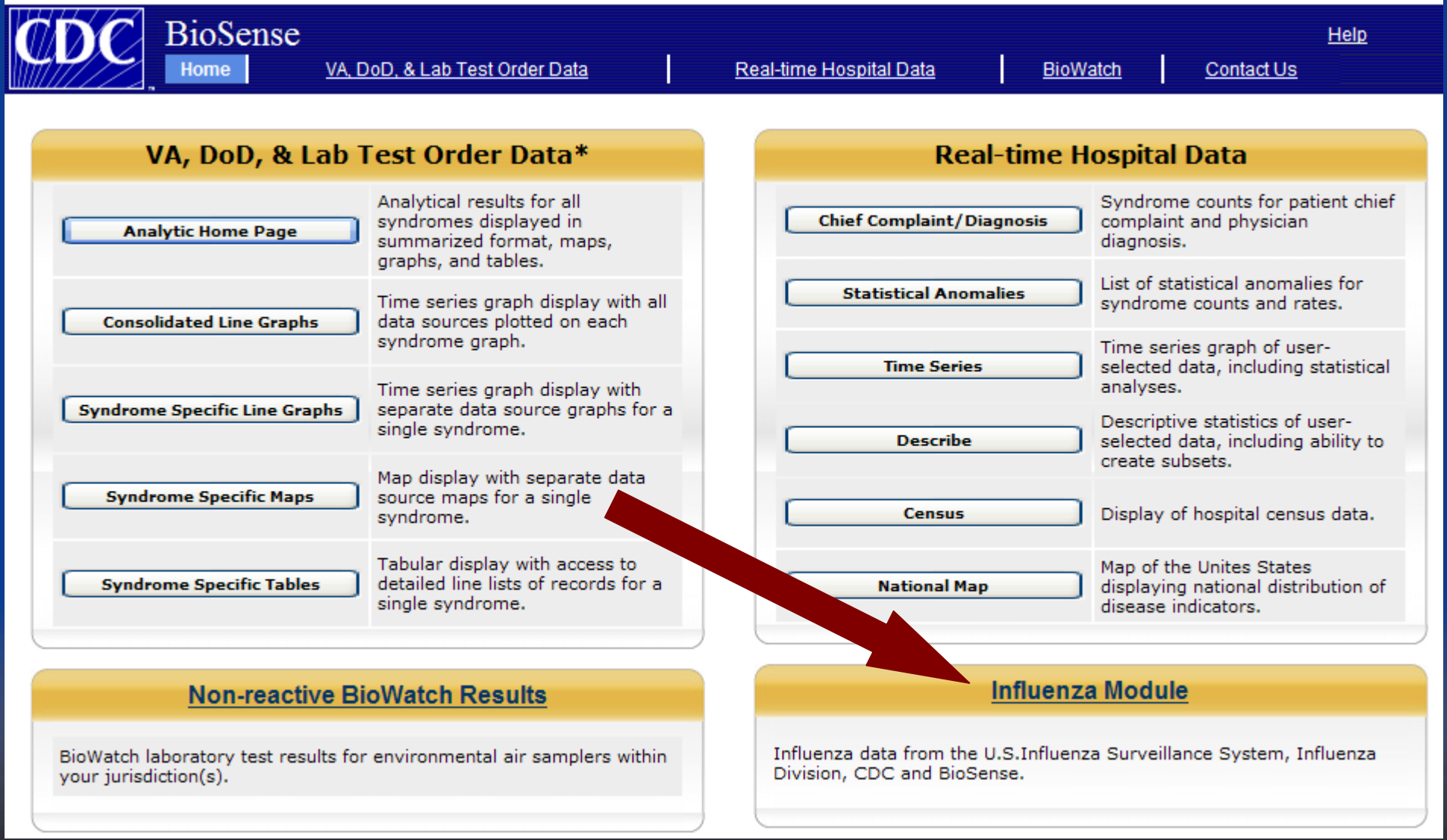
Outline

- What is the BioSense Influenza Module?
- Data sources
- Influenza module functionality
- Performance of BioSense influenza indicators
- Potential improvements to BioSense indicators
- New data sources

What is the Influenza Module?

- Collaboration
  - Influenza Division/NCIRD
  - BioSense Program/NCPHI
- Deployed December 2007
- Purposes
  - Collate available surveillance data
  - Present in a single application
  - Common format and user interface
- State and local users have access to
  - National and regional level data
  - State-specific data


CDC
BioSense
Home
VA, DoD, & Lab Test Order Data
Real-time Hospital Data
BioWatch
Contact Us
Help
VA, DoD, & Lab Test Order Data*
Analytic Home Page
Analytical results for all syndromes displayed in summarized format, maps, graphs, and tables.
Consolidated Line Graphs
Time series graph display with all data sources plotted on each syndrome graph.
Syndrome Specific Line Graphs
Time series graph display with separate data source graphs for a single syndrome.
Syndrome Specific Maps
Map display with separate data source maps for a single syndrome.
Syndrome Specific Tables
Tabular display with access to detailed line lists of records for a single syndrome.
Real-time Hospital Data
Chief Complaint/Diagnosis
Syndrome counts for patient chief complaint and physician diagnosis.
Statistical Anomalies
List of statistical anomalies for syndrome counts and rates.
Time Series
Time series graph of user-selected data, including statistical analyses.
Describe
Descriptive statistics of user-selected data, including ability to create subsets.
Census
Display of hospital census data.
National Map
Map of the Unites States displaying national distribution of disease indicators.
Non-reactive BioWatch Results
BioWatch laboratory test results for environmental air samplers within your jurisdiction(s).
Influenza Module
Influenza data from the U.S.Influenza Surveillance System, Influenza Division, CDC and BioSense.

Department of Health and Human Services
Centers for Disease Control and Prevention

Flu Kiosk | My Flu Dashboard | Map | Time Series | Home | Dash1 | Colorado | Texas | Hlth Dist 2/3 TX

BioSense Flu Status — *Shared: All Portal Users*

BioSense — FLUVIEW Influenza Division

2007-2008 Influenza Season Week 2, ending January 12, 2008

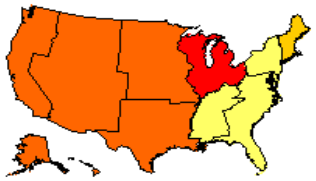
Synopsis

During week 2 (January 6 - 12, 2008), influenza activity continued to increase in the United States.

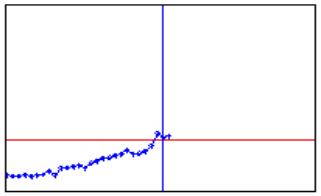
- Two hundred eighty-three (9.8%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories were positive for influenza.
- The proportion of deaths attributed to pneumonia and influenza was equal to the epidemic threshold.
- The proportion of outpatient visits for influenza-like illness (ILI) was above national baseline levels, and the proportion of outpatient

FluView - Influenza Division Data Source

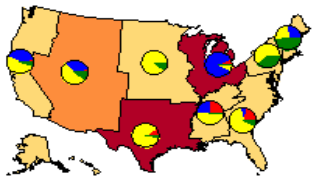
United States Week Ending: 01/12/2008
Sentinel Providers



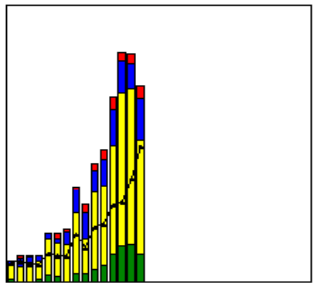
United States Season:2007-2008
Sentinel Providers



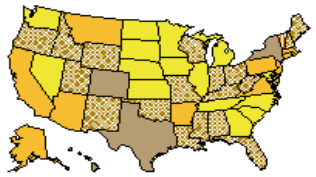
United States Week Ending: 01/12/2008
WHO/NREVSS Labs



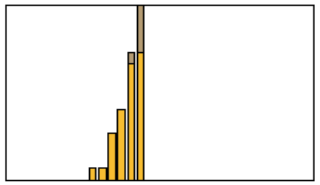
United States Season:2007-2008
WHO/NREVSS Labs



United States Week Ending: 01/12/2008
State and Territorial Epidemiologists



United States Season:2007-2008
State and Territorial Epidemiologists



Traditional Influenza Data Sources

- U.S. Influenza Sentinel Provider Network
  - % Influenza-like Illness (ILI)
- WHO/National Respiratory and Enteric Virus Surveillance System (NREVSS)
  - # positive influenza isolates by type (e.g. B, H3N2); Percent positive
- State and Territorial Epidemiologists Reports
  - No Activity, Sporadic, Local Activity, Regional, Widespread

BioSense Influenza Data Sources

- BioSense hospital emergency department (ED) chief complaints
  - Flu OR Fever OR Cough mentioned in chief complaint
  - 543 facilities reporting
- BioSense hospital emergency department final diagnosis (ICD-9-CM)
  - Acute Respiratory Illness (ARI)
  - ICD-9-CM codes 460-466, 480-488
    - Upper respiratory tract infections
    - Bronchitis/Bronchiolitis
    - Pneumonia
    - Influenza
  - 172 facilities reporting
- DoD/VA outpatient clinics final diagnosis (ICD-9-CM)
  - Acute Respiratory Illness (ARI)
  - 1188 facilities reporting

BioSense Influenza Module Functionality

- Flu Kiosk
- Maps
- Time Series
- User-defined customized dashboard

Department of Health and Human Services
Centers for Disease Control and Prevention

Flu Kiosk | My Flu Dashboard | Map | Home | Time Series | New York City | Virginia

Map

Select Data:
- DoD/VA Diagnosis
- BioSense Hospitals Diagnosis
- BioSense Hospitals Chief Complaint
- Sentinel Providers
- WHO/NREVSS Labs
- State and Territorial Epidemiologists

Map of:
- United States
- DHHS
- Census
- State
- Health District
- County

☐ Stratify By Age

Shade by:
- Federal Region
- Census Division
- Facility

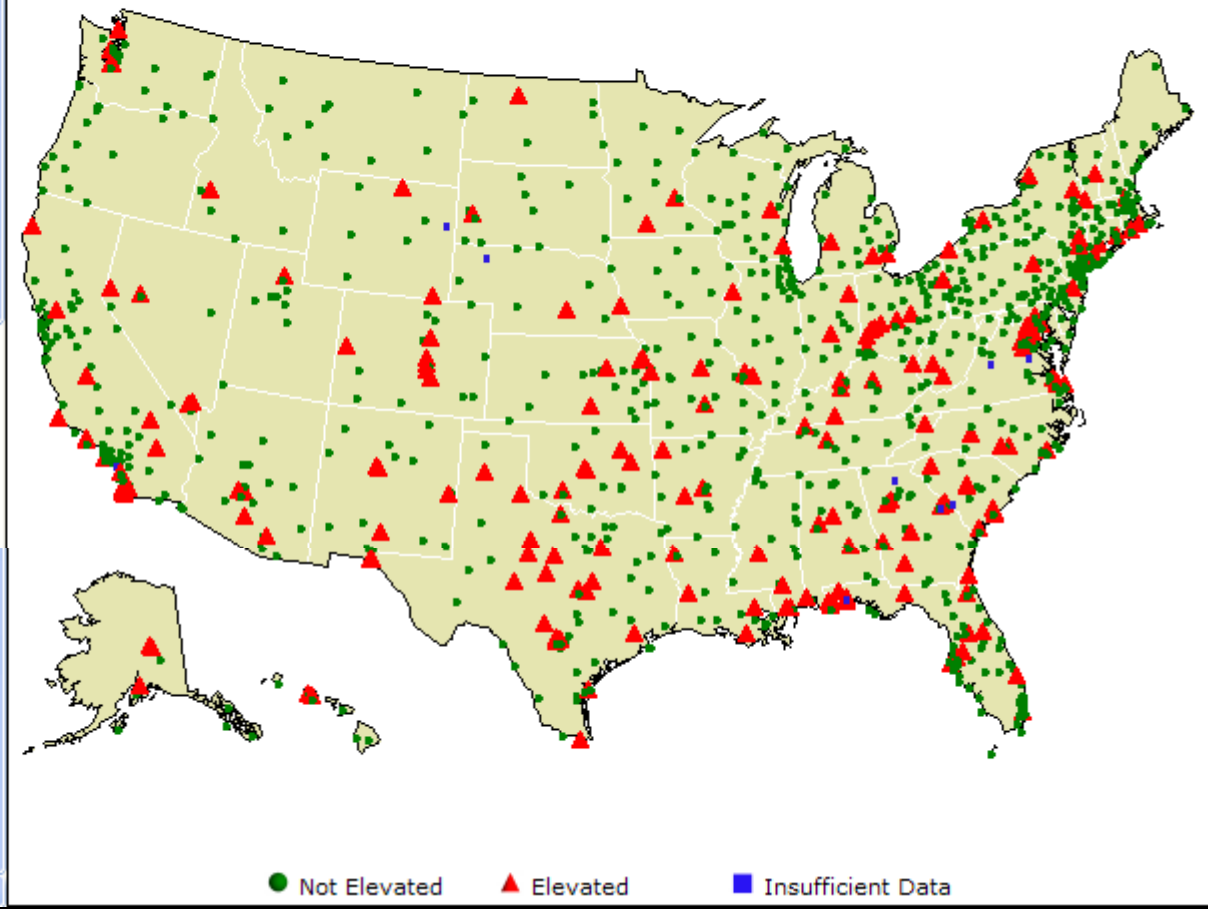
Flu Season
- 2004-2005
- 2005-2006

Flu Season Week
- 07 - Week ending 02/16/08
- 08 - Week ending 02/23/08
- 09 - Week ending 03/01/08
- 10 - Week ending 03/08/08

◉ Static Image ○ Interactive

Submit

BioSense Departments of Defense and Veterans Affairs Outpatient Clinic Data, ARI diagnoses (ICD-9-CM codes 460-466 or 480-488), United States, February 10 - 16, 2008, Shaded By: Facility



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Centers for Disease Control and Prevention

Flu Kiosk | My Flu Dashboard | Map | Home | Time Series | New York City | Virginia

Map

Share

Select Data:
- DoD/VA Diagnosis
- BioSense Hospitals Diagnosis
- BioSense Hospitals Chief Complaint
- Sentinel Providers
- WHO/NREVSS Labs
- State and Territorial Epidemiologists

Map of:
- United States
- DHHS
- Census
- State
- Health District
- County

☑ Stratify By Age

Select Age(s)
- All Ages
- 0-4
- 5-17
- 18-49
- 50-64
- 65+

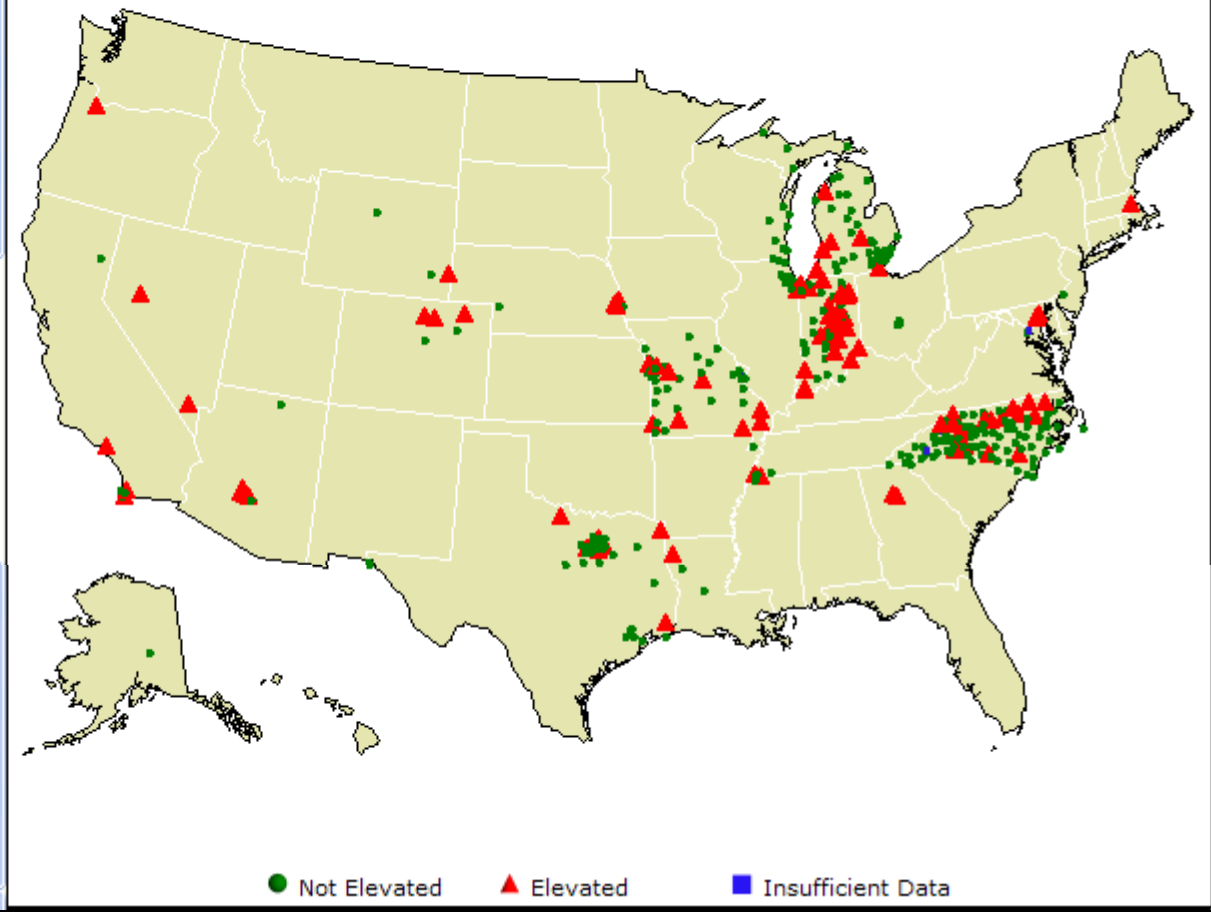
Shade by:

Flu Season Week
- 05 - Week ending 02/02/08
- 06 - Week ending 02/09/08
- 07 - Week ending 02/16/08
- 08 - Week ending 02/23/08

◉ Static Image ○ Interactive

Submit

BioSense Hospitals Emergency Department Chief Complaint Data, Flu-Fever-Cough, United States, Ages 0-4, February 10 - 16, 2008, Shaded By: Facility



Department of Health and Human Services
Centers for Disease Control and Prevention

Flu Kiosk | My Flu Dashboard | Map | Home | Time Series | Texas

Time Series

Select Data:
- All Data Sources
- DoD/VA Diagnosis
- BioSense Hospitals Diagnosis
- BioSense Hospitals Chief Complaint
- Sentinel Providers
- WHO/NREVSS Labs
- State and Territorial Epidemiologists

☑ Stratify By Age

Select Age(s):
- All Ages
- 0-4
- 5-17
- 18-49
- 50-64
- 65+

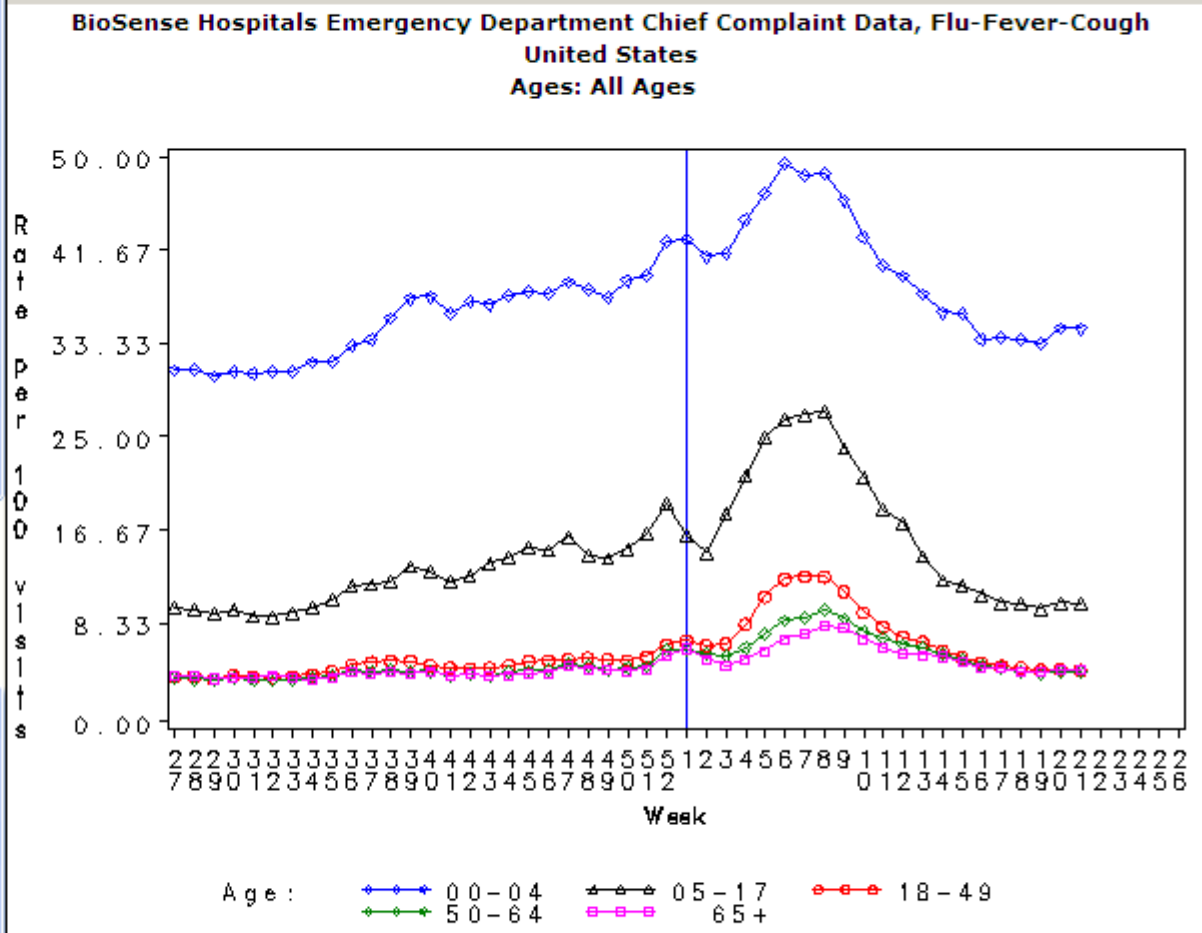
Geographical Settings:
- United States
- DHHS
- Census
- State
- Health District
- County
- Facility

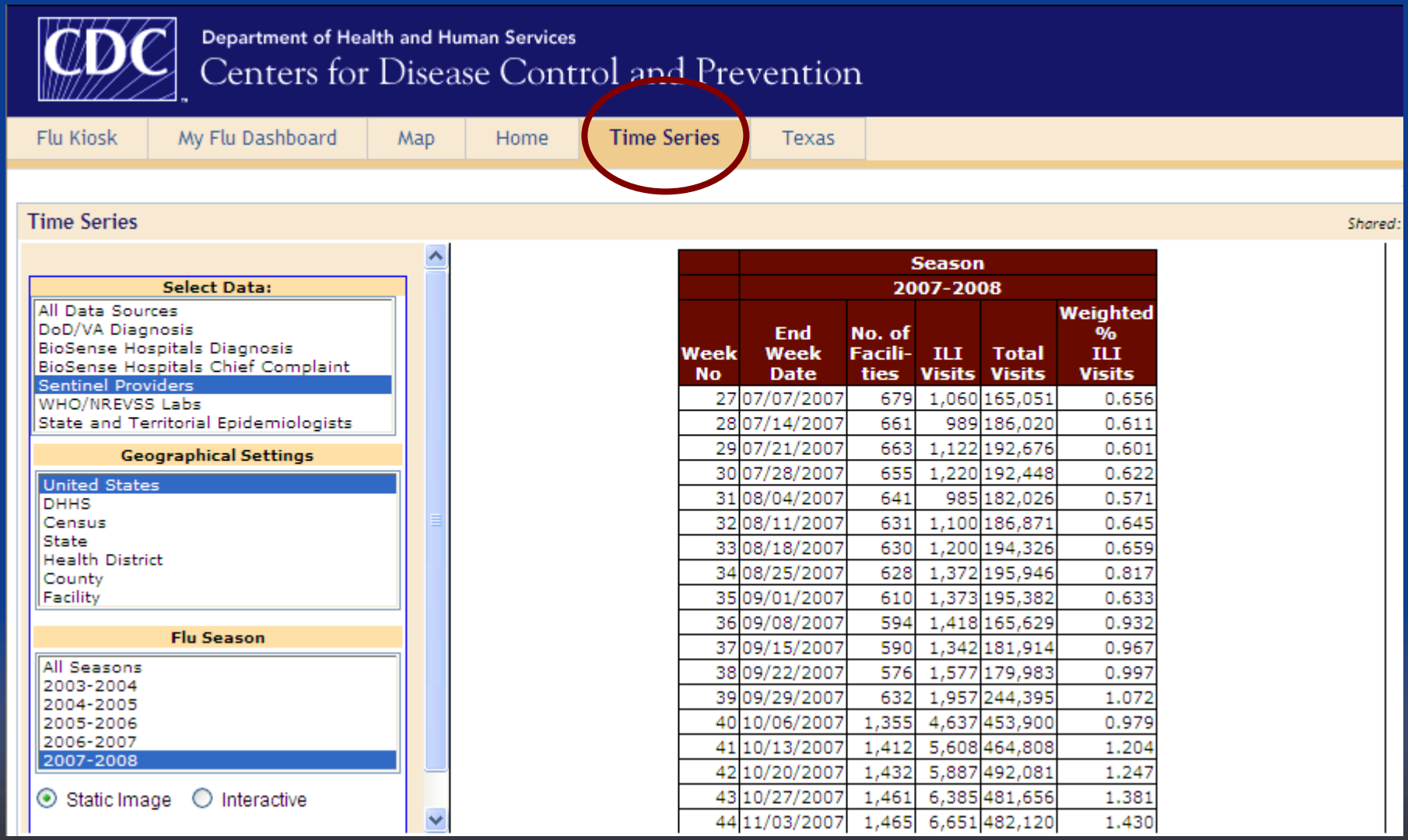
Flu Season:
- All Seasons
- 2005-2006
- 2006-2007
- 2007-2008

◉ Static Image ○ Interactive

Submit

+ Hide Chart | Save Settings





	Season				
	2007-2008				
Week No	End Week Date	No. of Facili-ties	ILI Visits	Total Visits	Weighted % ILI Visits
27	07/07/2007	679	1,060	165,051	0.656
28	07/14/2007	661	989	186,020	0.611
29	07/21/2007	663	1,122	192,676	0.601
30	07/28/2007	655	1,220	192,448	0.622
31	08/04/2007	641	985	182,026	0.571
32	08/11/2007	631	1,100	186,871	0.645
33	08/18/2007	630	1,200	194,326	0.659
34	08/25/2007	628	1,372	195,946	0.817
35	09/01/2007	610	1,373	195,382	0.633
36	09/08/2007	594	1,418	165,629	0.932
37	09/15/2007	590	1,342	181,914	0.967
38	09/22/2007	576	1,577	179,983	0.997
39	09/29/2007	632	1,957	244,395	1.072
40	10/06/2007	1,355	4,637	453,900	0.979
41	10/13/2007	1,412	5,608	464,808	1.204
42	10/20/2007	1,432	5,887	492,081	1.247
43	10/27/2007	1,461	6,385	481,656	1.381
44	11/03/2007	1,465	6,651	482,120	1.430

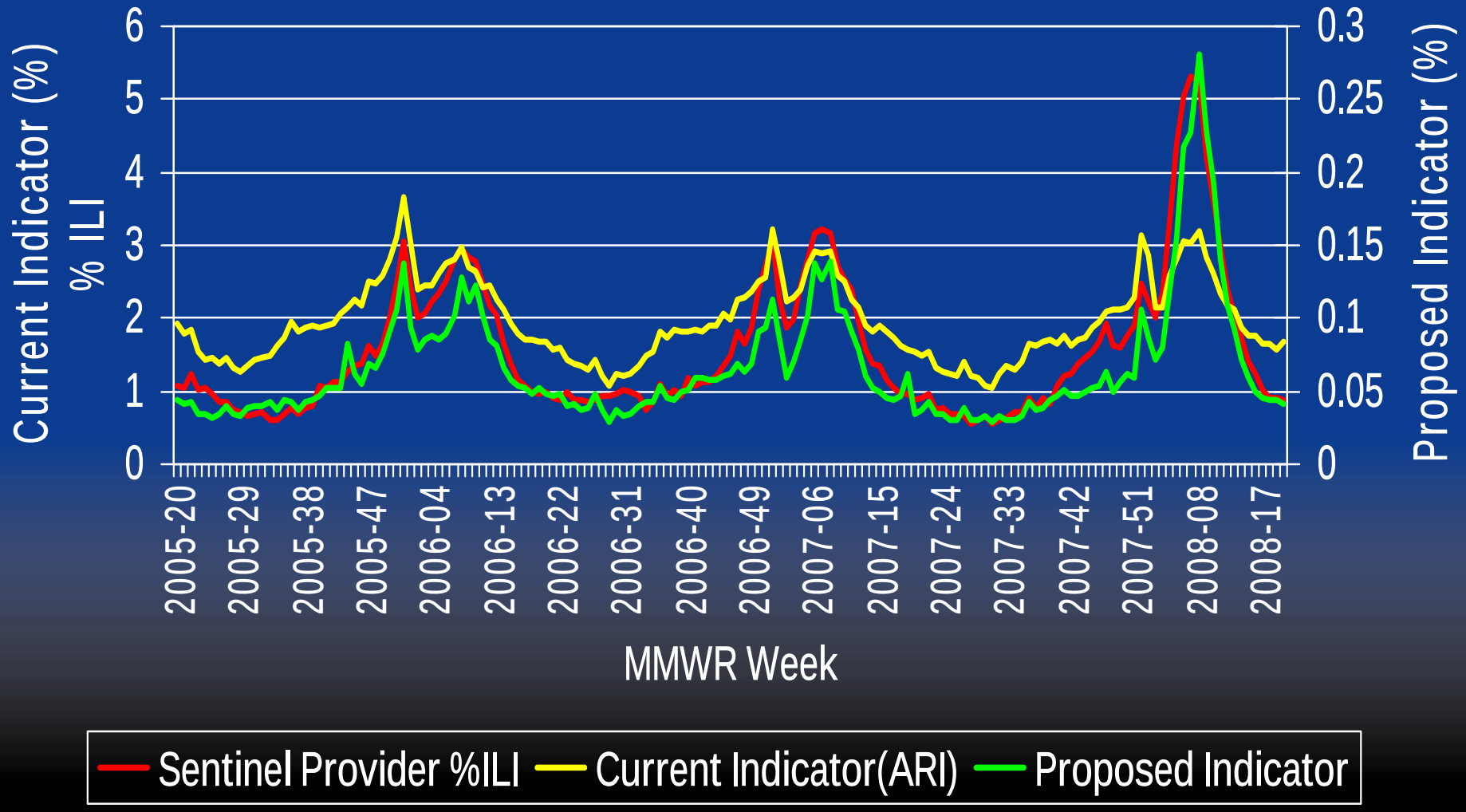
Performance of BioSense Influenza Indicators

Potential Improvements

Acute Respiratory Illness (ARI)

- Current
  - ICD-9-CM codes 460-466, 480-488
  - Upper respiratory infections, bronchitis/bronchiolitis, pneumonia, influenza
  - Did not reflect increased influenza activity in 2007-8 season
- Proposed
  - Indicator is closer to standard definition of influenza-like illness
  - (Fever AND (Cough OR Upper Resp Infx)) OR ILI

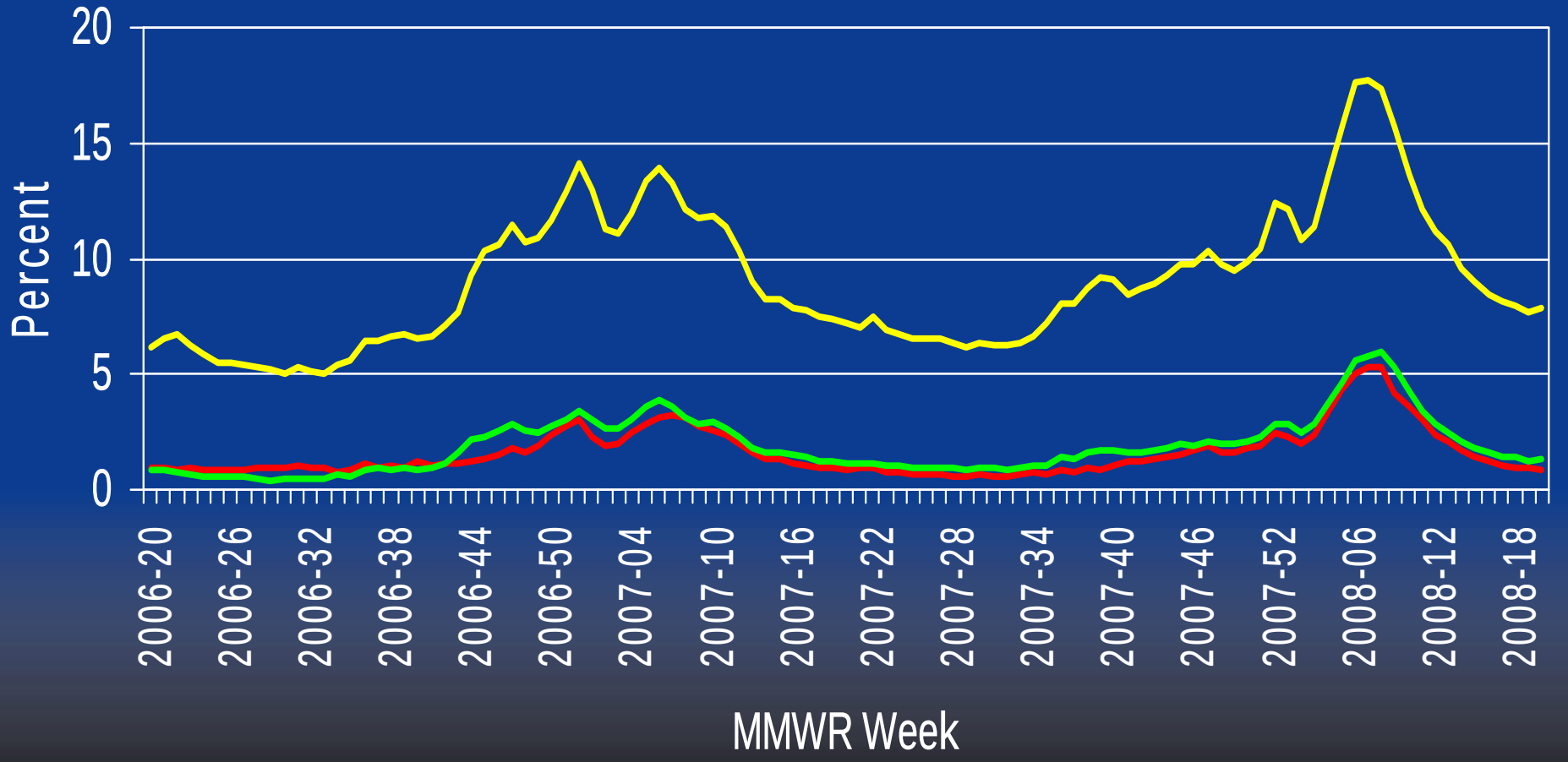
Current and Proposed BioSense VA/DOD Indicator vs. Sentinel Provider %ILI, 2005-2008: U.S.



BioSense ED Chief Complaint

- Current
  - Flu OR Fever OR Cough mentioned in chief complaint
- Proposed
  - Indicator is closer to standard definition of influenza-like illness
  - (Fever AND (Cough OR Upper Resp Infx)) OR ILI

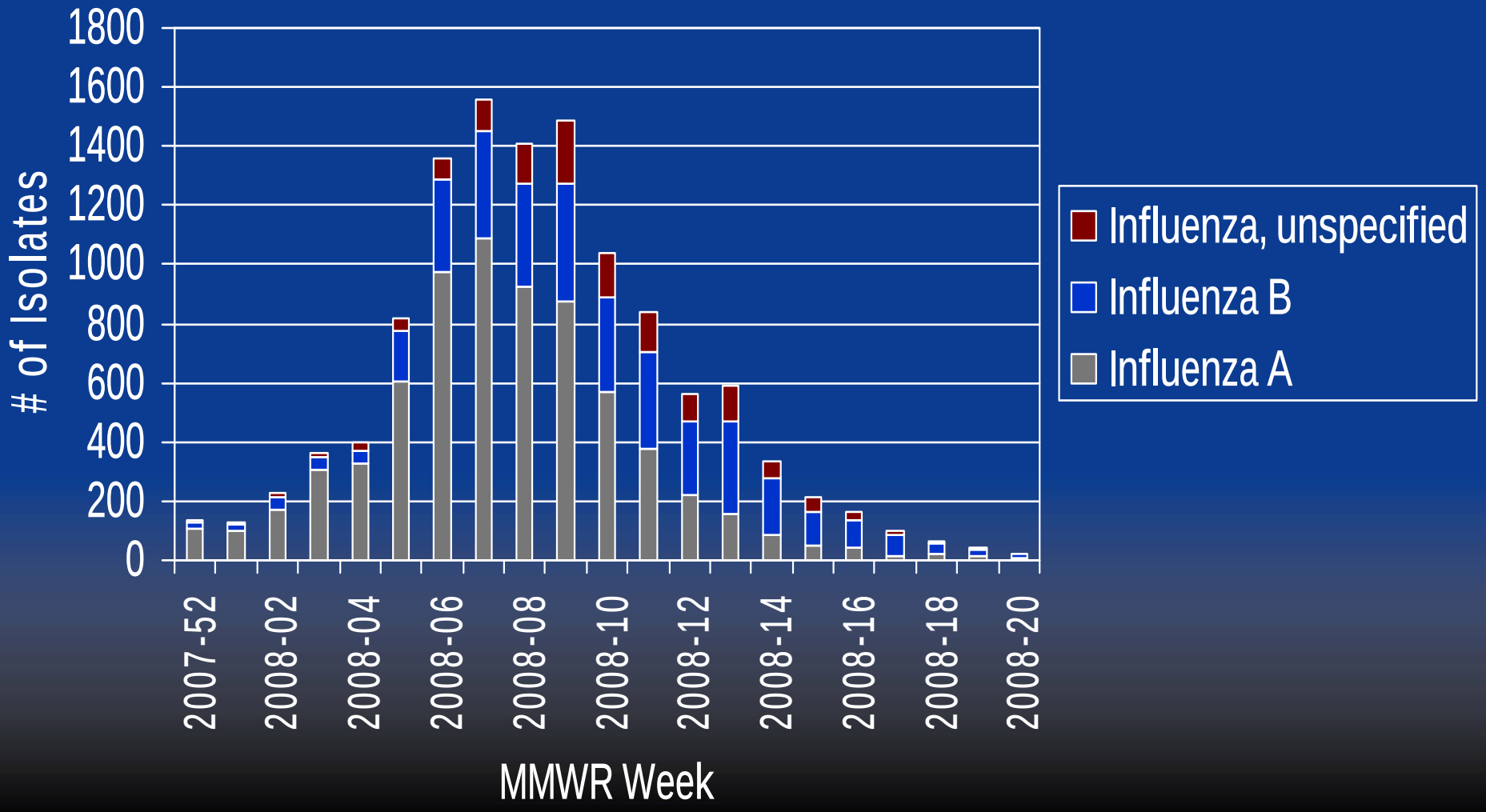
Current and Proposed BioSense ED Indicators vs. Sentinel Provider %ILI, 2005-2008: U.S.



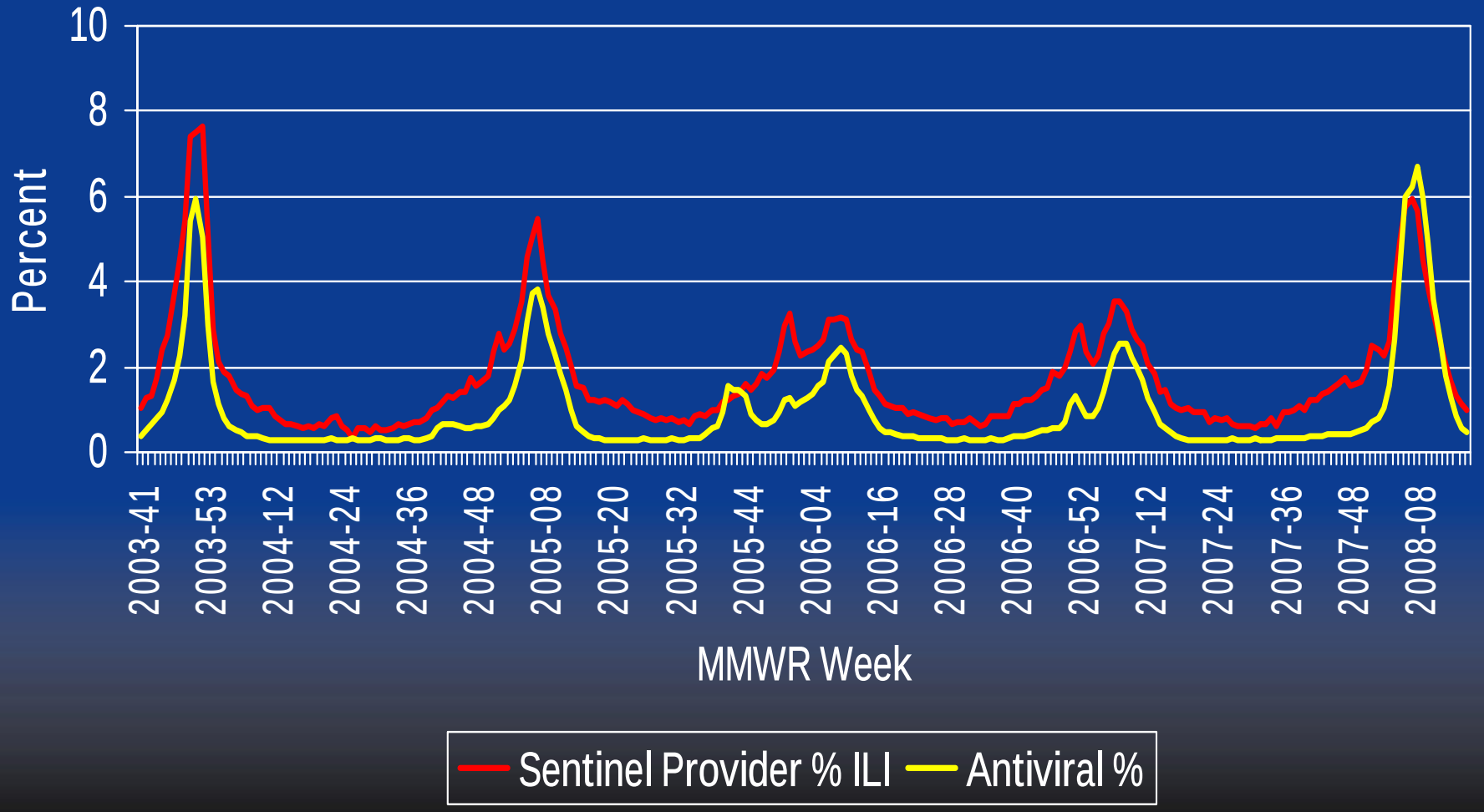
New Data Sources

- Laboratory data
  - Lab Corp – 93 labs, 3711 healthcare providers
  - Quest – 30 labs, 4274 healthcare providers
  - # of influenza isolates; percent positive
- Influenza antiviral data
  - 20,000-30,000 outpatient pharmacies
  - Antiviral %: Ratio of influenza antiviral prescriptions to all anti-infective prescriptions

Lab Corp and Quest, # of Influenza Isolates, 2007-2008: U.S.



Influenza Antiviral %*, 2003-2008: U.S.



* Ratio of influenza antiviral prescriptions to all anti-infective prescriptions

State-Specific Webinars

- March-April 2008
- Separate webinars for 7 states and 1 metropolitan health department
- Focused on state-specific data
- Additional training + feedback
- Main feedback:
  - Would like to see more recent data
  - Would like to download data from table
  - Would like to see data from adjacent jurisdictions
  - Interest in new laboratory and antiviral data

Conclusions

- BioSense Influenza Module is a novel application combining traditional and automated data sources on influenza activity
- Goal: Single application with common format and user interface for all federally available influenza data
- Improvements for upcoming influenza season based on first year experience and user feedback
- Appreciate your continued feedback and suggestions

Questions:

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