Overview of the Influenza Virologic Surveillance Right Size Project

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Outline

- What is Right Size

- Purpose

- Components

- Sampling and Sample Size

- Implementing Right Size in Texas

What is Right Size?

- Influenza Virologic Surveillance Right Size Project

- Roadmap to improve influenza virologic surveillance in the United States

- Joint project between APHL and CDC started in 2010

Purpose

- Standardization of scalable surveillance

- Statistically valid systematic approach to sampling

- Defines core capabilities

- Provides tools for implementation

- Improves communication

- Platform for analyzing impact and making evidenced based decisions

Components

- Sampling

- Testing

- Data Management

- Partnerships and Communication

- Quality Systems

- Surge

- Financial Resources

Sampling

- Situational Awareness
  - Determine beginning and end of season
  - Monitor prevalence of viruses

- Novel Event Detection
  - Detect a rare event (e.g. novel flu, AV resistance)

- Novel Event Investigation
  - Determine if prevalence of novel flu exceeded a chosen threshold

Sample Size Calculator

- Sample size based on
    - Population
    - Confidence level
        - Optimal: 95% (min: 85%)
    - Margin of error
        - Optimal: 5%
    - Pre-screened versus not pre-screened
    - Expected prevalence of flu in medically attended ILI patients
        - Seasonal threshold: 10%

Calculator

Calculator A: Situational Awareness for Seasonal Influenza

Medically Attended ILI (MA-ILI)   **2.2%**

Total Population   Texas   **26,059,203**

Expected prevalence of Flu+/MA-ILI   **10%**

Sample Size	Sample Size Table	Data Confidence

Confidence level   **95%**

The graph, table, and output language below describe the minimum sample size (of unscreened MA-ILI specimens) needed to estimate the fraction of Flu+/MA-ILI with a specified margin of error and confidence level of **95%**. This calculation is based on the estimated inputs provided above and assumes that the estimated level of Flu+/MA-ILI will be close to **10%** and the total population under surveillance is **26,059,203**. Use the mouse to view values in the sample size graph and scroll through sample size table.

Margin of Error	Minimum Sample Size
4%	214
4.25%	190
4.5%	170
4.75%	152
5%	137
5.25%	125

A sample size of **3,070** unscreened MA-ILI specimens is needed in order to be **95%** confident that the true prevalence of Flu+/MA-ILI is **10%** (+/- **1%**).

Example Sample Size

Situational Awareness - per week over flu season				
Jurisdiction	**Population**	**95% CI**	**90% CI**	**85% CI**
Texas	27,201,365	138	97	74
Region 1	855,413	120	88	69
Region 2/3	8,184,841	136	96	74

- To be able to detect when we cross the 10% threshold (flu+/ILI) with 95% confidence and 5% acceptable error we must test 138 specimens each week

- Includes testing done at any Texas public health laboratory

Population is the average of the 2013 and 2014 projected population

Example Sample Size

Novel Event Detection Low Season (1/200; low season)					
Texas	27,201,365	**20 %Flu +**	**80% MA-ILI**	**100 %Flu +**	**100% MA-ILI**
	National Level	36	152	52	512
	State Level	432	1747	598	5977

Novel Event Detection High Season (1/700; high season)					
Texas	27,201,365	**20 %Flu +**	**80% MA-ILI**	**100 %Flu +**	**100% MA-ILI**
	National Level	76	314	180	599
	State Level	889	3654	2095	6983

- To be able to detect a rare event (0.5% or one novel virus among 200 flu positive specimens) at the national level during low season with 95% confidence we must test 512 specimens from patients with ILI

Population is the average of the 2013 and 2014 projected population

Example Sample Size

Novel Event Deep Dive					
Texas	27,201,365	**20 %Flu +**	**80% MA-ILI**	**100 %Flu +**	**100% MA-ILI**
	State Level	50	194	70	694

- To be 95% confident that the actual prevalence of the novel virus does not exceed 5% (of flu + specimens) we must test 694 specimens from patients with ILI

Population is the average of the 2013 and 2014 projected population

Texas Implementation

- Use as a framework to improve virologic surveillance in Texas

- Evaluate where we currently are
  - How many weeks during the 2012-13 season did we meet the weekly specimen target?

- Guide future specimen submission goals
  - State wide goal of 80 versus 138

- Achieve Right Size goals over the next several flu seasons

Impact in Texas

- Statewide level
  - Moderate to large specimen increase

- Regional / local level
  - Substantial specimen increase
  - May not be feasible with current capacity

- All together more standardization of sampling and collection methods

Where is the Guidance?

- Association of Public Health Laboratories (APHL) Website:

  www.aphl.org/aphlprograms/infectious/influenza/Pages/Influenza-Virologic-Surveillance-Right-Size-Roadmap.aspx

Feedback Needed

- How can the current guidance be improved?

- How should this guidance be implemented in Texas?

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