

Influenza Surveillance





**Seasonal Influenza
Surveillance**

**Pandemic Influenza
Preparedness**

Definition of terms

- ***Seasonal (human) influenza:*** Influenza that occurs every year with gradual variations in the previous year's virus surface proteins (drift).
- ***Avian Influenza:*** a disease of birds that occasionally jumps species and infects humans. Ultimately is the source of new viruses in humans causing pandemics.
- ***Pandemic:*** a worldwide surge in cases caused by the introduction of a new type A surface protein (shift).

Different Surveillance Priorities

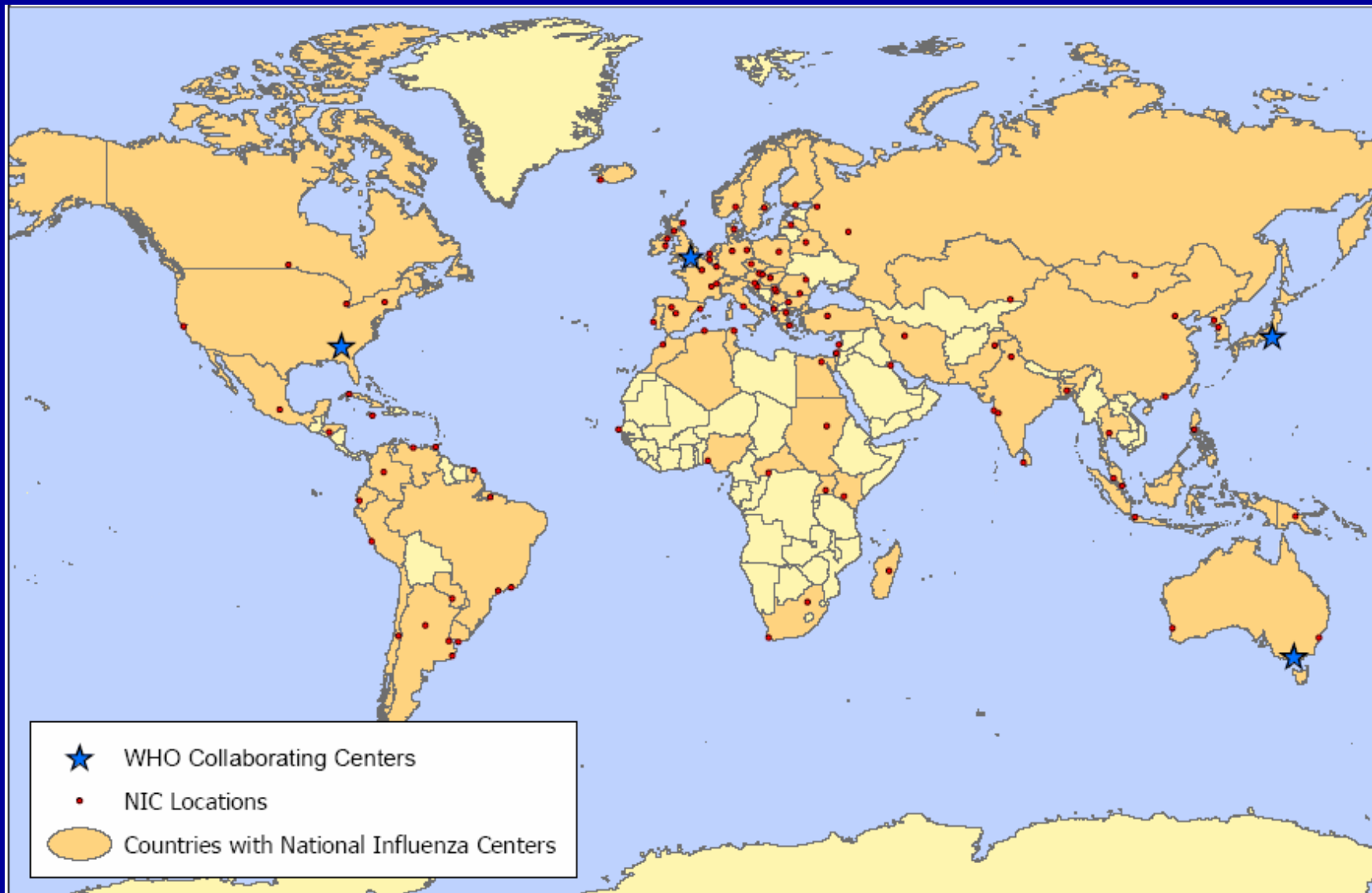
- **Seasonal Human Influenza:** describe epidemiology and burden of disease to make decisions about resources
- **Pandemic Influenza:** recognize emergence early enough to contain or slow
- **Avian Influenza in humans:** Detect as many cases as early as possible in order to:
 - Treat appropriately
 - implement control in animals.
 - Search for additional cases
 - Prevent transmission and contain if related to an emerging pandemic

The Existing Network

WHO Global Influenza Surveillance Network

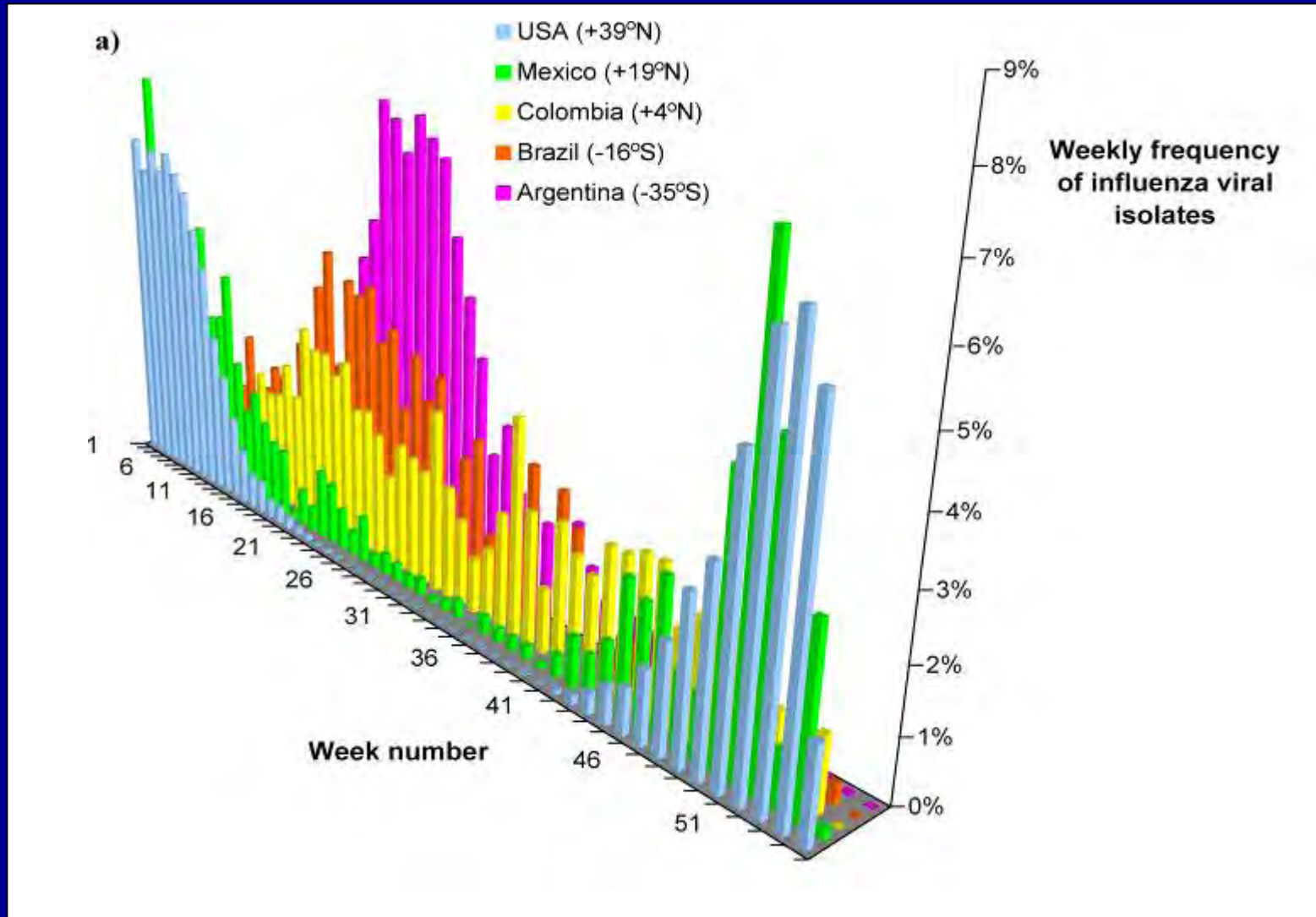
- **Sixty years of history**
- **Monitors influenza viruses and make recommendations on influenza vaccine composition**
- **Provides prototype influenza vaccine strains**
- **Provides standardized reagents for influenza vaccine production and testing**
- **Obtain samples of unusual influenza strains**

WHO Global Influenza Surveillance Network



Source: WHO Global Influenza Surveillance Network.

Global human influenza surveillance



Seasonal Influenza Surveillance

Objectives of a Seasonal Influenza Surveillance System Objectives

- Provide isolates for identification of viruses and monitoring of resistance.
 - Support the global surveillance network
- Describe the epidemiology of seasonal influenza and burden of disease
- Provide country specific data for program planning and preparedness.
- *Monitor progress of a pandemic*
- *Serve as an early warning for outbreaks of avian or pandemic influenza*

Other Considerations

- **Broad utility beyond influenza**
 - Other events of public health significance – like SARS
 - Sustainable after H5N1 interest wanes
- **Can be integrated into existing systems**
 - Avoid another silo
- **Operates within the context of existing guidelines for investigation and response**
 - Related to early warning function

National Seasonal Influenza Surveillance System

- **Premise:** Small amounts of good data are better than large amounts of bad data!
 - Much can be learned from few sites
- **Sentinel *syndromic* surveillance for:**
 - Severe Acute Respiratory Illness (SARI)
 - Influenza-like-Illness (ILI)
- **Should provide epi as well as virologic data**

National Seasonal Influenza Surveillance System

- **Characteristics of chosen sites**
 - Representative of population, geography
 - Suitable for Disease Burden estimation
 - Practically feasible
 - Logistics of specimen transport
 - Acceptance
 - Number of institutions based on resources
 - Support and interest of local institution
 - Could be positioned in areas of greatest concern for AI/Pandemic influenza

SARI Case Definition

Persons > 5 Years Old

- Moderate-to-severe acute lower respiratory tract illness consisting of:
 - temperature > 38°C AND
 - cough or sore throat AND
 - shortness of breath or difficulty breathing
 - Requiring hospitalization

Persons ≤ 5 Years Old

Use IMCI case definition for pneumonia and severe pneumonia

(Child with cough and tachypnea or “general danger signs”)

Data Collection from SARI Cases

- Name and ID number
- Age
- Address or location
- Gender
- Occupation
- Epidemiologic links to influenza A (H5N1)
- Date of onset
- Clinical signs and symptoms
- Clinical specimens collected for testing
- Outcome

Why SARI?

- **Acute respiratory disease is number 2 cause of death in developing countries**
 - It's important and should be followed!
- **SARI non-specific enough that it could be used for a variety of pathogens**
- **Severe disease more convincing for policy makers.**
 - Who cares about mild flu or URI?

Contribution to Pandemic Preparedness

- **Establish laboratory capacity**
- **Establish reporting mechanisms**
- **Investigation capacity**
- **Data analysis capacity and culture**
- **Data used in models are derived from western Europe and N. America**
- **Some assumptions may not apply to the tropical developing world**

Burden of Disease

- **Everywhere we've looked we've found it.**
- **Models untested in the tropics**
 - Most depend on marked seasonality
- **Would like for direct estimates to validate models**
 - SARI better than pneumonia as models estimate all cause mortality due to flu – not just pneumonia
 - Only 25% of US influenza mortality is pneumonia

Conclusion

- **Routine surveillance for SARI is a valuable tool for health planning and burden of disease estimation**
- **Can be integrated into existing surveillance systems (IDSR)**
 - **Resources being put toward AI could boost other systems.**

Thank you !!!