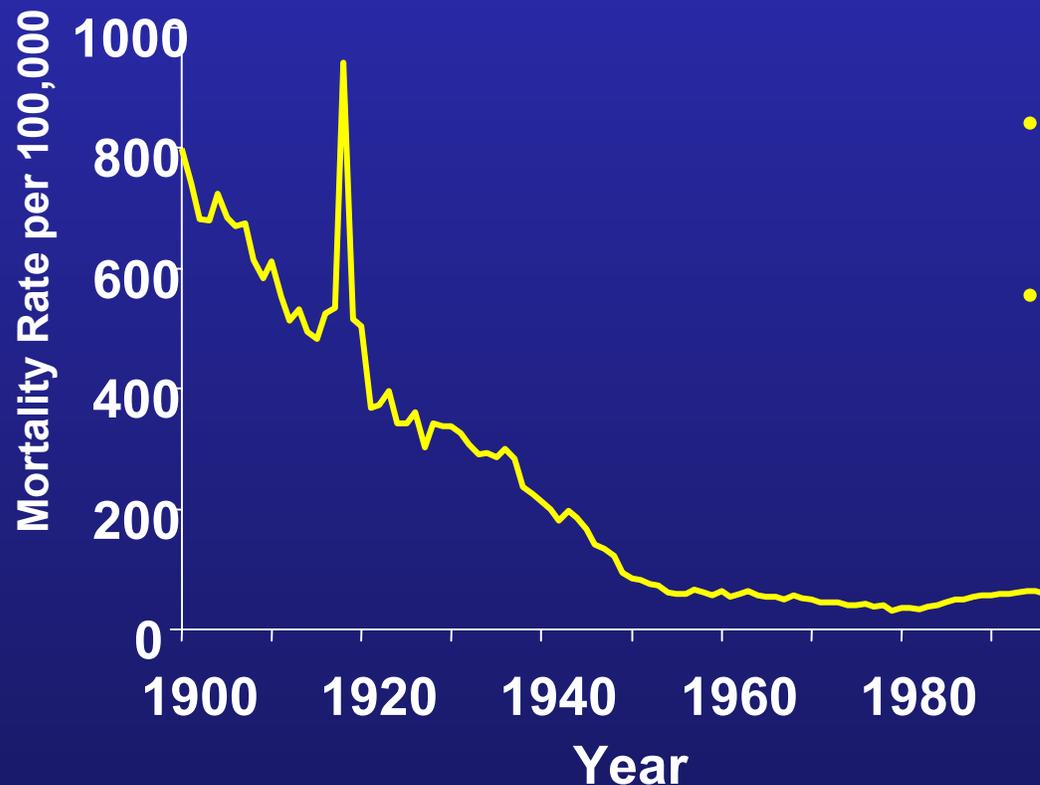


# Influenza A Viruses

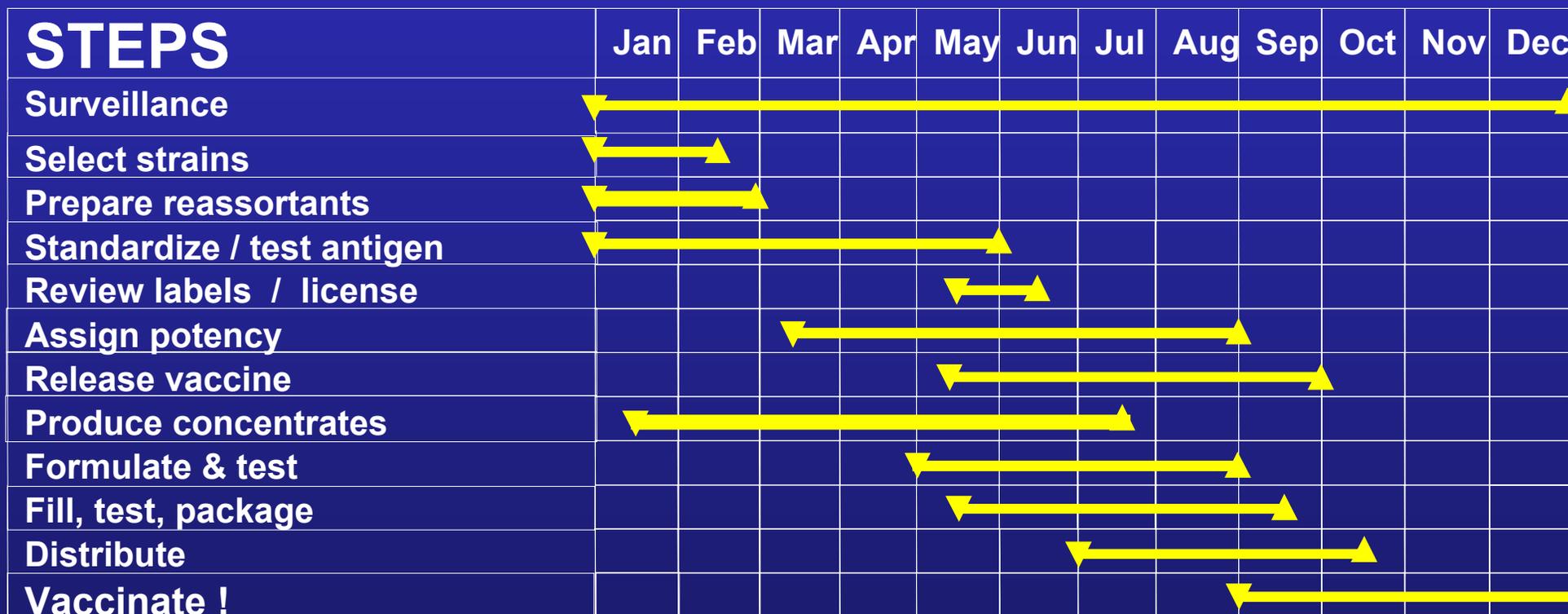


- Single-stranded negative-sense RNA viruses
- 8 gene segments encoding at least 10 proteins
- Characterized by ability to change
  - **Antigenic drift** → yearly epidemics (point mutations)
  - **Antigenic shift** → sporadic pandemics (reassortment)



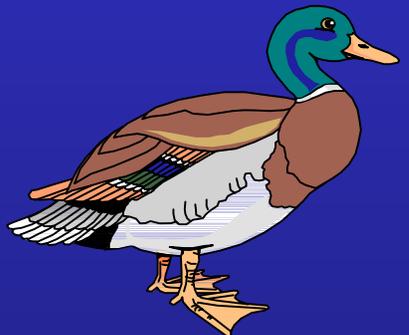
# Timeline for Influenza Vaccine Development and Use United States

CDC/WHO  
FDA  
Manufacturers

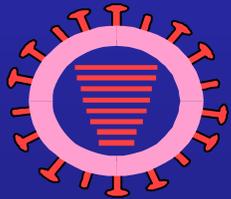




# Reassortment of Influenza A Viruses



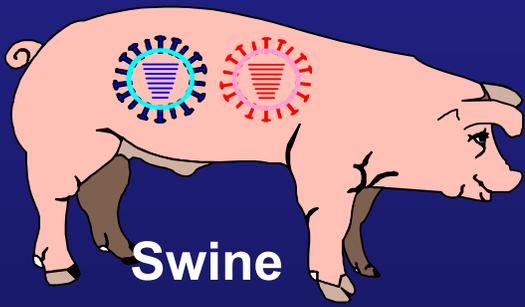
Avian host



Avian virus



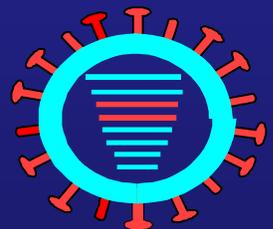
Human virus



Swine



Direct Avian – Human Infection

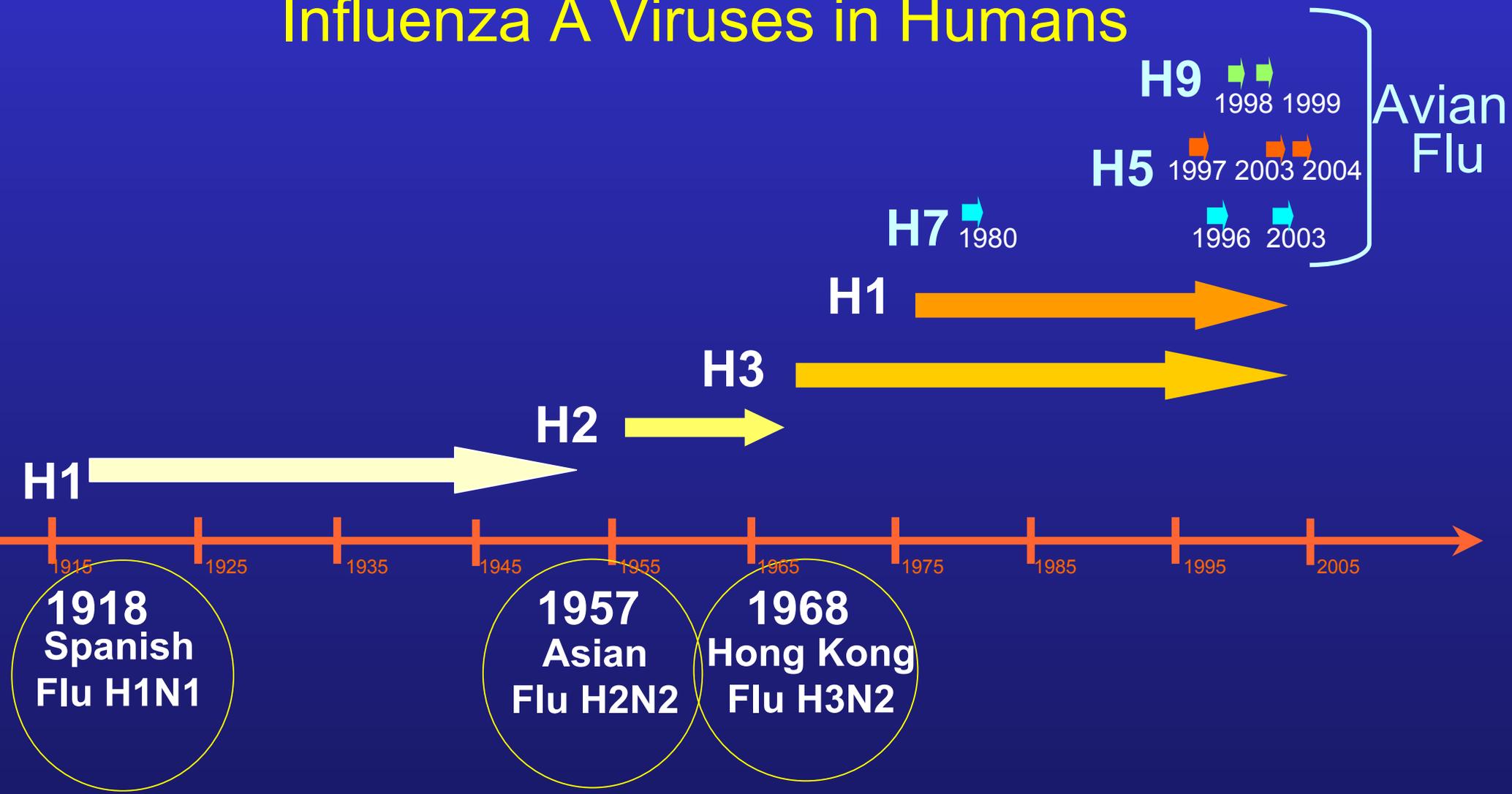


New Reassorted virus





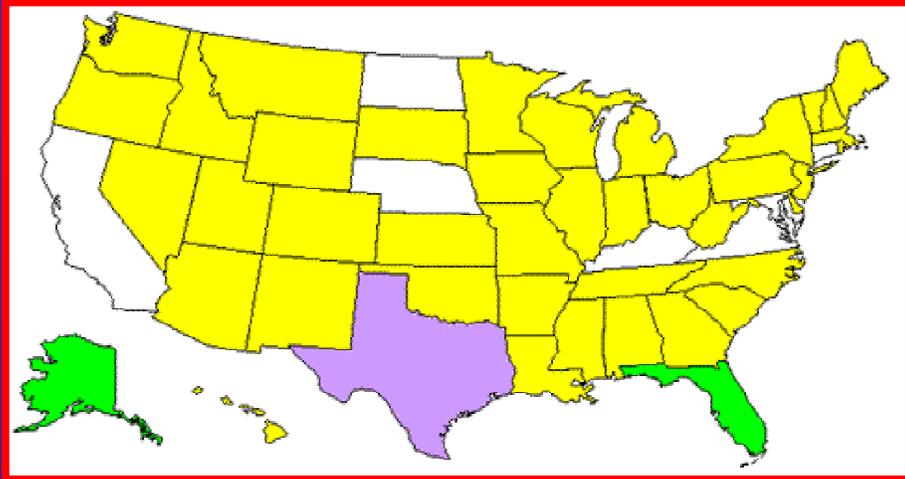
# Timeline of Emergence of Influenza A Viruses in Humans



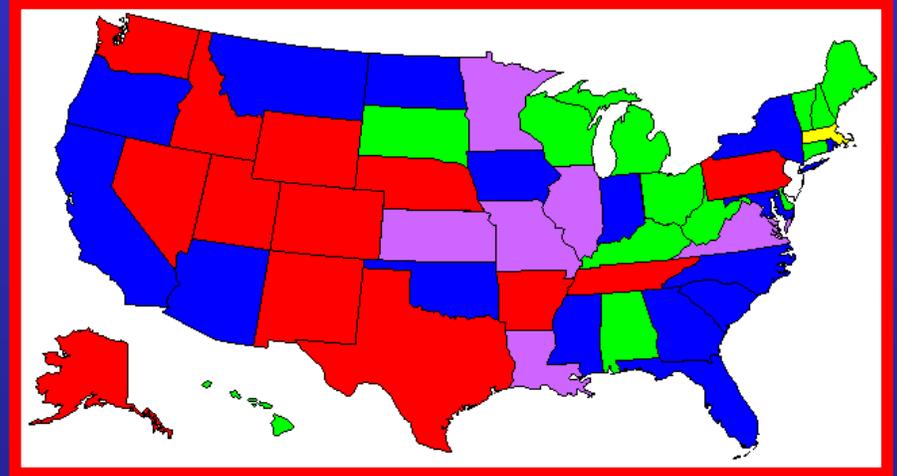


# Influenza Activity 2003-2004

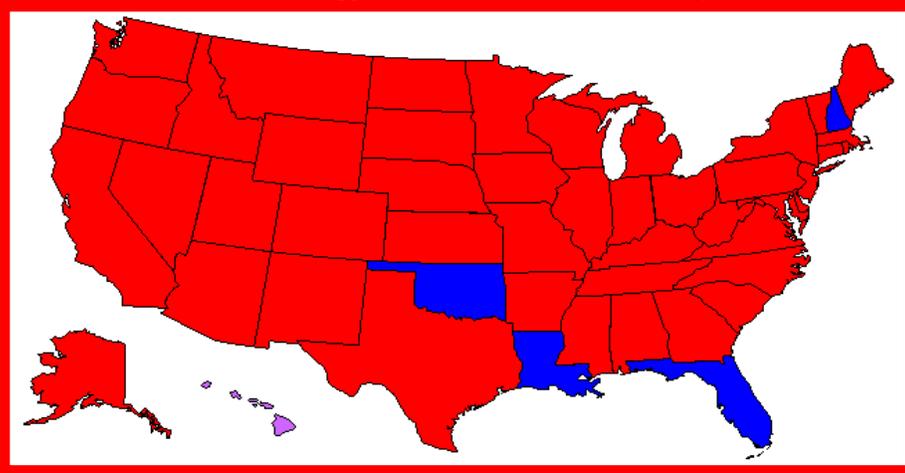
Week ending October 4, 2003



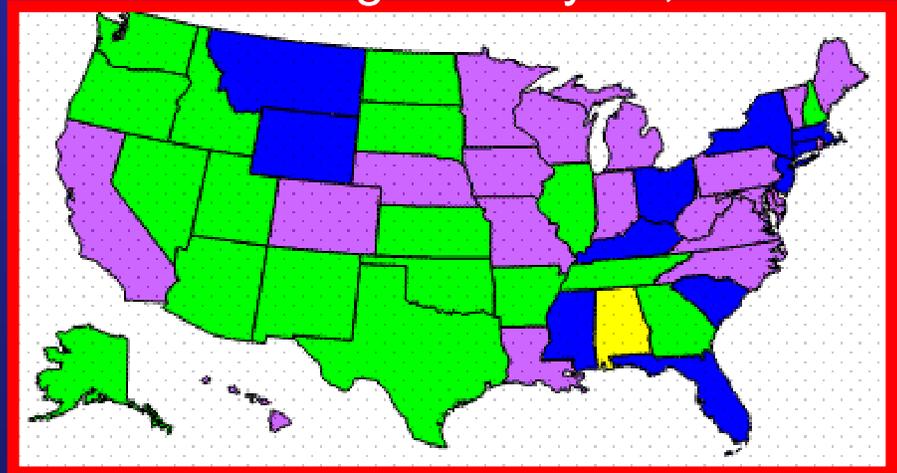
Week ending November 29, 2003



Week ending December 20, 2003



Week ending January 31, 2004



No Report



No Activity



Sporadic



Local



Regional



Widespread





This is an official  
**CDC HEALTH ADVISORY**

Distributed via Health Alert Network  
Friday, December 19, 2003, 21:45 EST (09:45 PM EST)  
CDCHAN-00172-03-12-19-ADV-N

**Request for Reports of All Deaths among  
Children With Laboratory-Confirmed Influenza  
Virus Infection**

During the 2003-04 influenza season, severe complications from influenza and influenza-associated deaths among children have been reported by several states.

The Centers for Disease Control and Prevention asks health care providers to report all deaths associated with influenza virus infection among children younger than 18 years to their local health department. Contact information for each state is available on the Council of State and Territorial Health Officials website at [http://www.cste.org/members/state\\_and\\_territories](http://www.cste.org/members/state_and_territories)

*December 19, 2003*

**Update: Influenza-Associated  
Deaths Reported Among Children  
Aged <18 Years — United States,  
2003–04 Influenza Season**

During the 2003–04 influenza season, CDC has received reports from state health departments regarding deaths among children with evidence of influenza virus infection. To help investigate these deaths, CDC has requested that all influenza-associated deaths among children aged <18 years be reported to CDC through state and local health departments during the 2003–04 season. This summary is based on

*MMWR January 9, 2003*