

**Department of Health and Human Services
Advisory Committee Blood Safety and Availability
January 6, 2006**

Influenza Pandemic Preparedness State and Federal Activities

Alfred DeMaria, Jr., M.D.

Council of State and Territorial Epidemiologists

Lead Consultant – Blood Safety

Lead Consultant – Nosocomial Infections

Chief Medical Officer, State Epidemiologist

Assistant Commissioner, Bureau of Communicable Disease Control

Acting Director, State Laboratory Institute

Massachusetts Department of Public Health

Drift Versus Shift

❖ Antigenic Drift – Annual Influenza

- ❖ Mutations leading to small change

- ❖ Selection for strains which encounter the least resistance

- ❖ Some immunity, but need new influenza vaccine

❖ Antigenic Shift – Pandemic Influenza

- ❖ Big changes

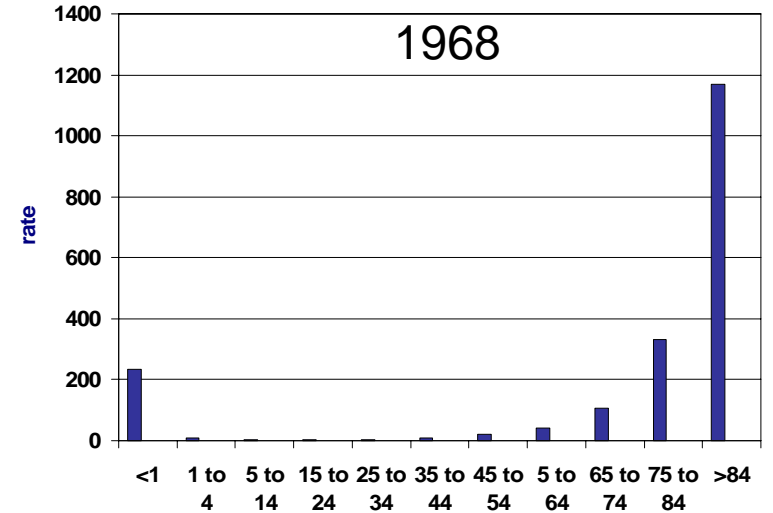
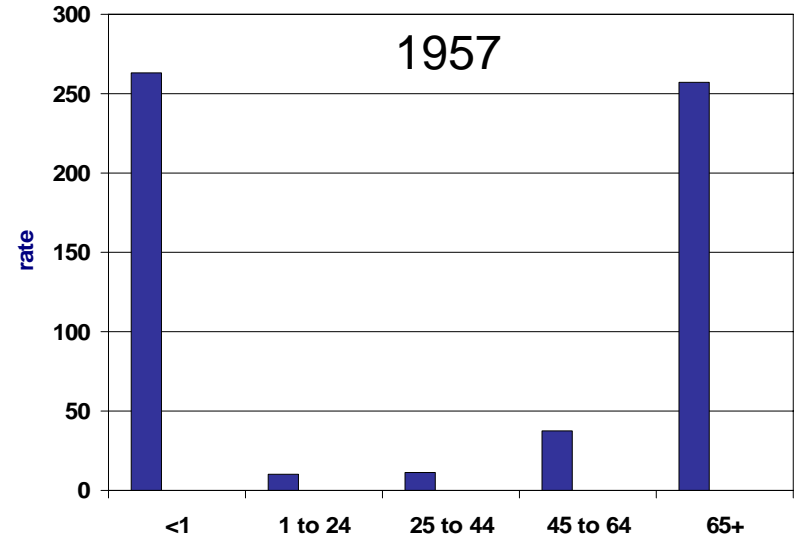
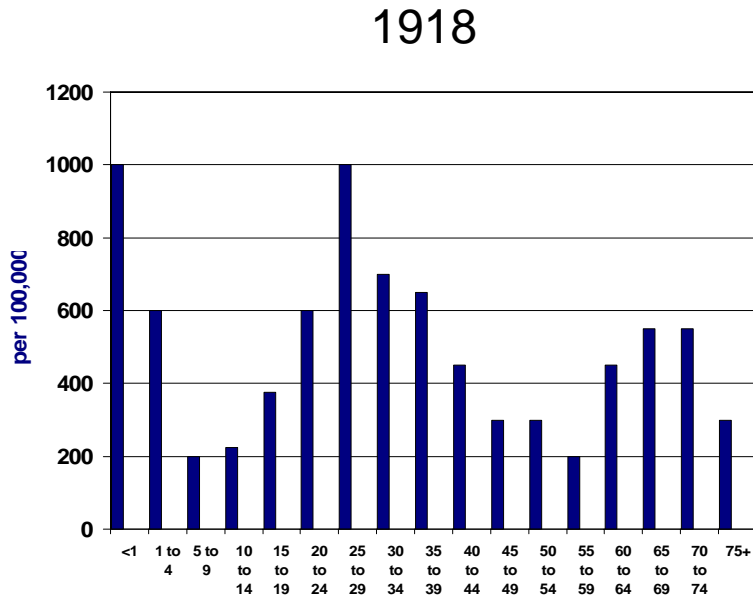
- ❖ Genetic reassortment of viral genes or direct jump from avian sources

- ❖ New virus, minimal immunity

Influenza

- ❖ **Incubation period: 1-4 days, average 2 days**
- ❖ **Whole respiratory tract may be involved**
- ❖ **Abrupt onset** of fever, chills, malaise and muscle aches. Cough, sore throat, headache.
- ❖ **Duration of severe symptoms: 3-7 days**
- ❖ **Large amounts of virus** in respiratory secretions
- ❖ **Virus** shed for 2-8 days after onset
 - ❖ **Virus detected up to 24 hours before onset**
 - ❖ **Viral shedding in children can persist for weeks**

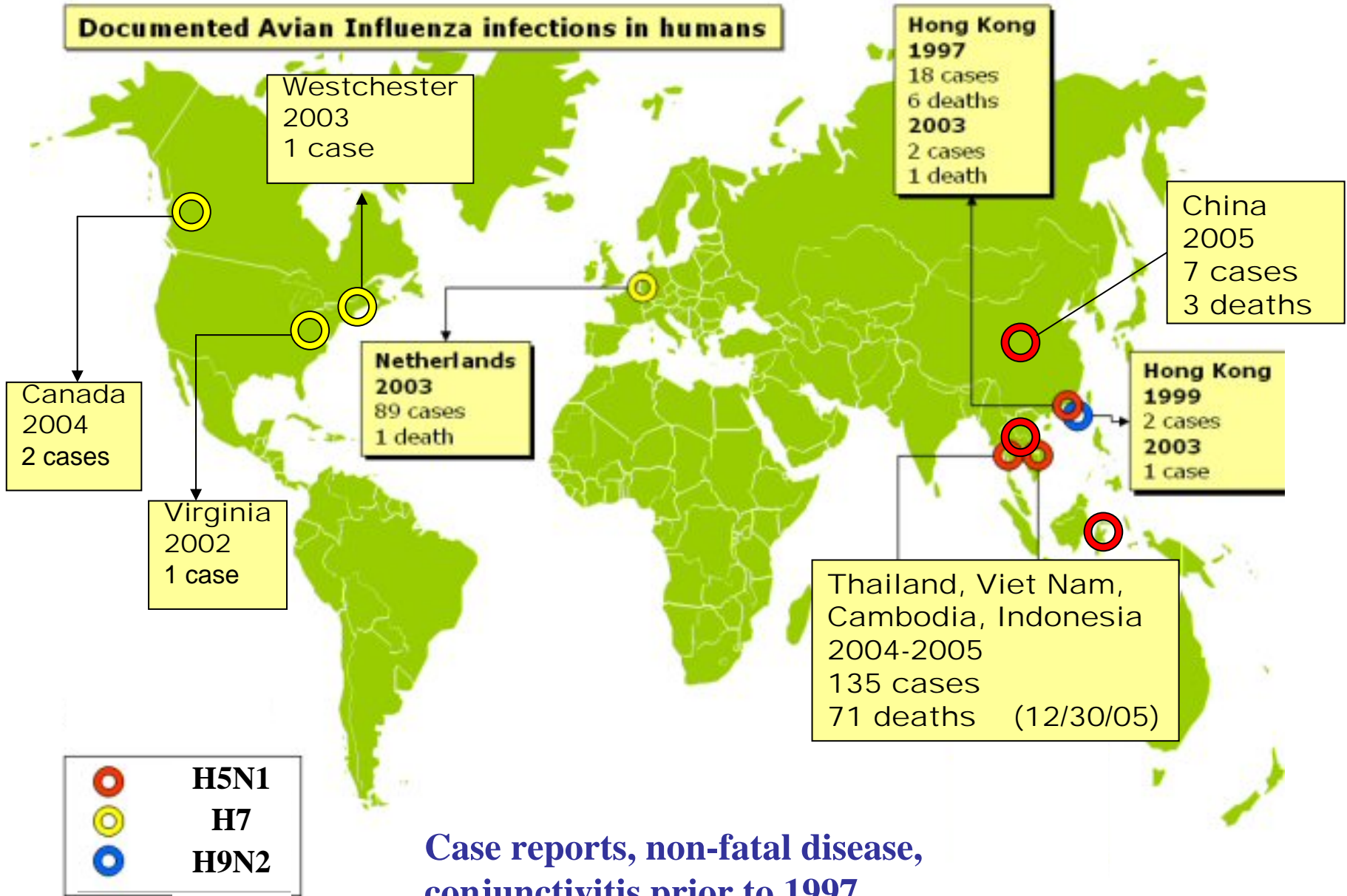
Pandemic Influenza P&I Mortality



Estimates of the Impact of Pandemic Influenza on the United States When the Virus is Similar to the 1957 & 1968 Strains and 1918 “Swine” Influenza

	“Ordinary” Influenza	Pandemic Influenza	
		Similar to 1957 & 1968	Similar to 1918
Deaths	36,000	92,500	1,200,000
Hospitalizations	200,000	400,000	5-6 million
Numbers Infected	17-50 million	120-180 million	120-180 million
Missed Work Days	70 million	150 million	???
Missed School Days	38 million	85 million	???
Direct/Indirect Costs	\$3-15 billion	\$35 billion	???

Documented Avian Influenza infections in humans



Influenza A (H5N1)

- ❖ Majority of human cases <19 y.o.
- ❖ >90% with exposure to ill poultry
- ❖ Illness starts out as typical influenza
- ❖ Over 2-5 days, evolves into diffuse pneumonia leading to death (\pm ARDS), disseminated disease described
- ❖ Case-fatality rate 52% (74/142, as of 12/30/05)
- ❖ Person-to-person transmission (intimate contact without precautions) – not efficient
- ❖ Endemic across Asia
- ❖ Spread to Kazakhstan, Russia, Romania, Turkey, Greece, Croatia, Ukraine
- ❖ Adapting to and affecting other mammals (cats, pigs, etc.)
- ❖ Ducks developing tolerance to infection (spread)

Avian Flu, What to Do?

Febrile, Respiratory Illness, +/- Pneumonia

- **History**

- Ask about travel to **Eurasia (H5N1)**
- Ask about contact with **poultry**
- Ask about health care or laboratory exposure
- Ask about other cases of pneumonia (cluster, poultry worker)

- **Infection control**

- Universal respiratory hygiene/cough etiquette
- Droplet precautions/airborne infection isolation

- **Testing**

- Specimens to State Laboratory for PCR
- Avoid rapid test

Steps to Pandemic Influenza (Distinct from “Avian Flu”)

- 1. Animal to human transmission**
- 2. Person-to-person transmission**
- 3. Efficient person-to-person transmission**

Potential Impact of Next Pandemic

- ❖ **Outbreaks will occur simultaneously throughout the US**
 - ❖ **Overwhelming demand on the healthcare delivery system**
 - ❖ **No “outside” help**
- ❖ **Up to 35% absenteeism in all sectors at all levels**
 - ❖ **Public service, public safety**
 - ❖ **Healthcare personnel**
 - ❖ **Just-in-time economy**
- ❖ **Order and security disrupted for several months, not just hours or days**
- ❖ **On multiple news outlets 24/7**

WHO Pandemic Phases

(as of 12/30/05)

Inter-pandemic phase New virus in animals, no human cases	Low risk of human cases	1
	Higher risk of human cases	2
Pandemic alert New virus causes human cases	No or very limited human-to-human transmission	3
	Evidence of increased human-to-human transmission	4
	Evidence of significant human-to-human transmission	5
Pandemic	Efficient and sustained human-to-human transmission	6

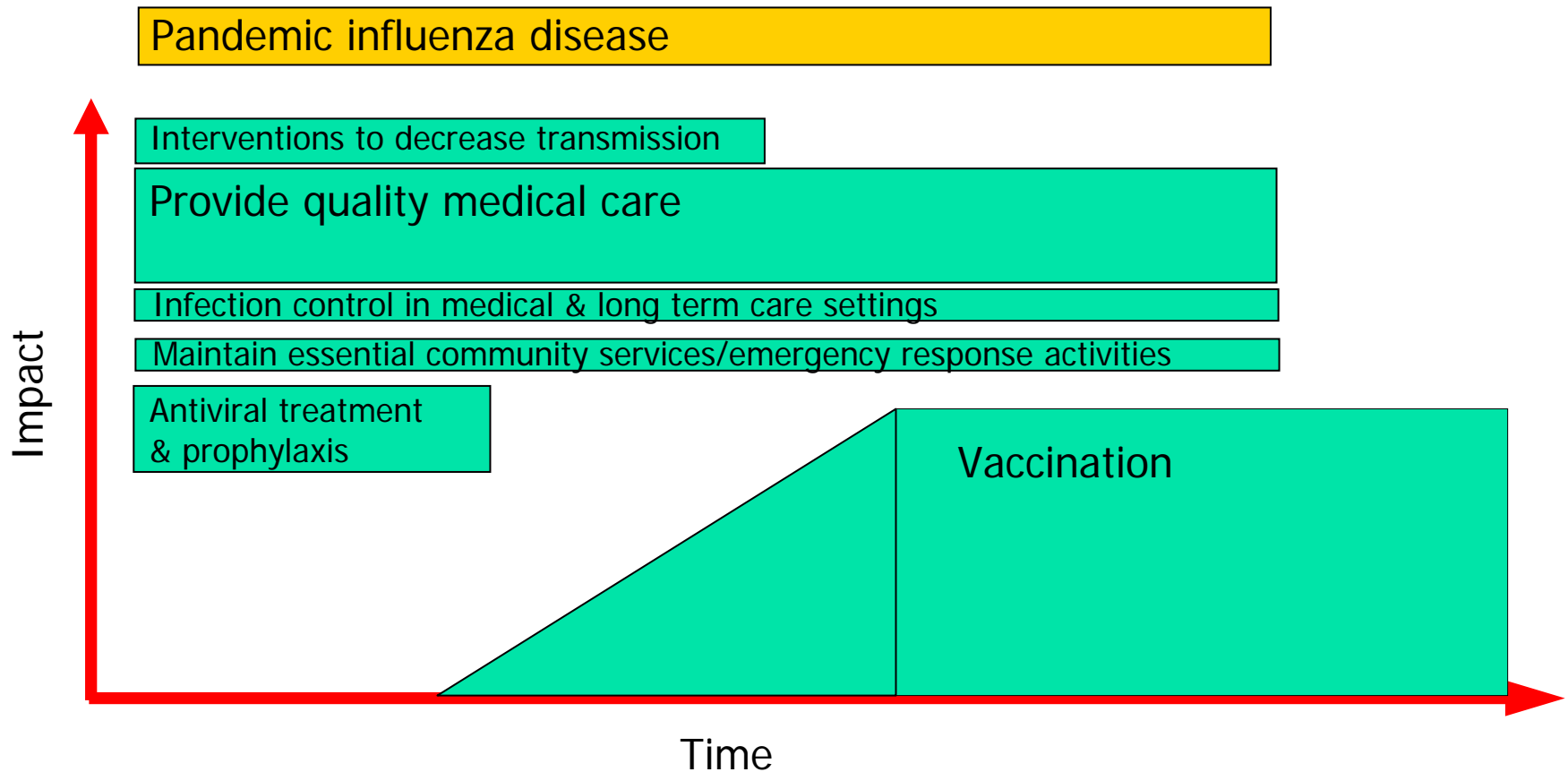
Elements of a Pandemic Plan

- ❖ Authority, command and control**
- ❖ Surveillance**
- ❖ Vaccine management**
- ❖ Antiviral agents**
- ❖ Emergency response, surge capacity**
- ❖ Communications**
- ❖ Continuity of operations**

Vaccine

- ❖ **Not available for 4 to 6 months**
- ❖ **Must be matched to strain**
- ❖ **Will become available in allotments, with number of doses dependent on potency**
- ❖ **When available, distribution will be prioritized**
- ❖ **It is likely that much of the pandemic experience will occur prior to availability**

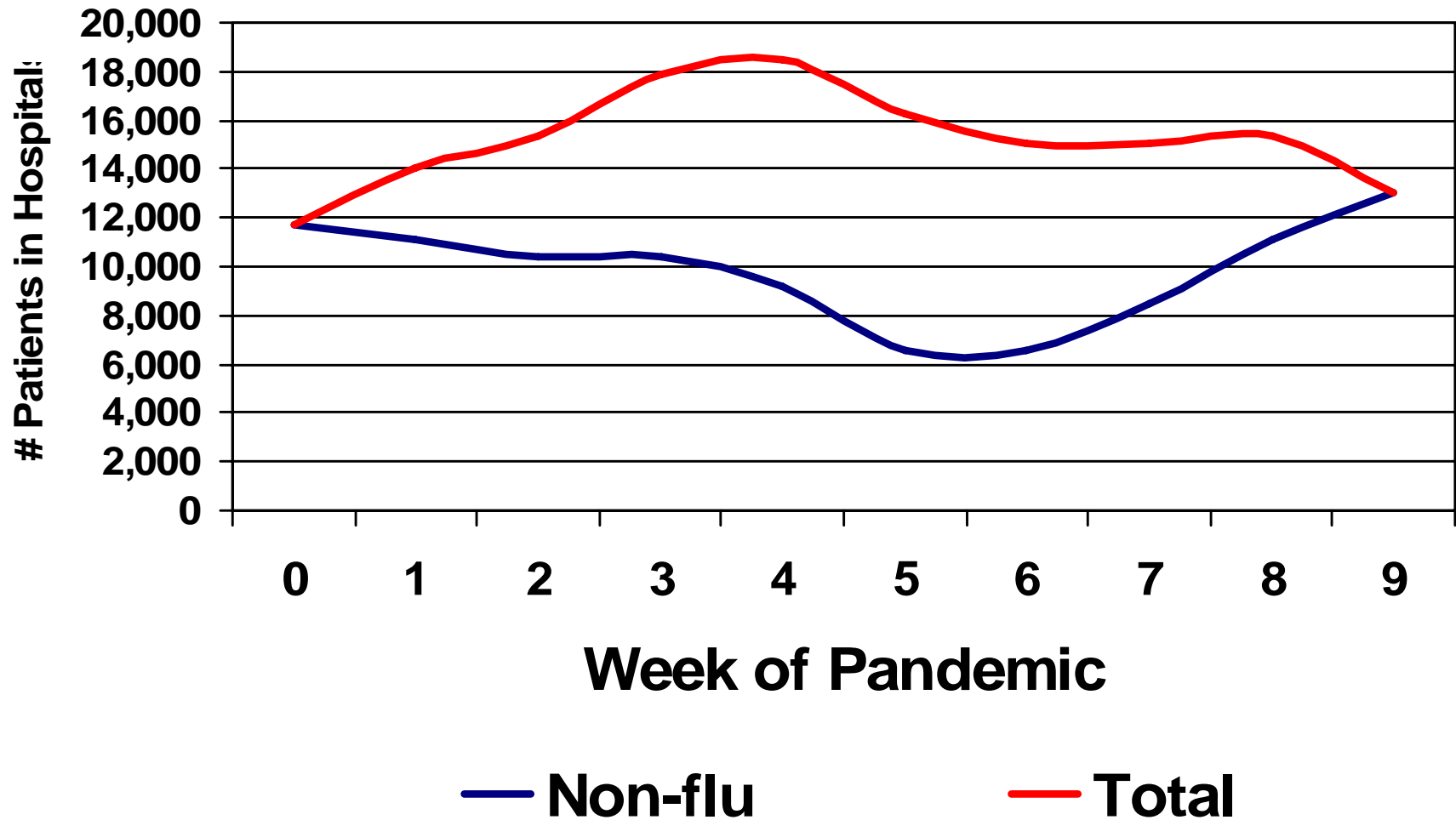
Pandemic Response Components



Antiviral Medications

- ❖ Drug likely to be distributed to states *pro rata*
- ❖ Need 45 doses of oseltamivir for 6 wks of px vs. 10 doses for 1 course of tx
- ❖ Treatment delivery site will be the point of care
- ❖ Hospitals may be critical delivery node
 - ❖ Through occupational health for employees
 - ❖ At admission
 - ❖ In Emergency Department for high-risk outpatients

Altered Inpatient Threshold



Prevention for the Public

- ❖ **Wash hands frequently, and teach children well**
- ❖ **Use antibacterial hand cleaner particularly after contact w/ public surfaces (e.g. shopping carts)**
- ❖ **If you get sick, stay home from school/work**
- ❖ **Cover mouth when coughing to avoid exposure to others**
- ❖ **Stay 3 feet from anyone coughing or sneezing**
- ❖ **Get an annual flu shot as indicated**
- ❖ **If a pneumonia vaccine is recommended, get it**

Public Preparedness

- ❖ **As best you can, keep a supply of canned and dried food in the home**
- ❖ **Develop a home emergency plan and put together a kit, as detailed by the Red Cross**
 - ❖ **http://www.redcross.org/services/prepare/0,1082,0_91_,00.html**
- ❖ **Talk with your healthcare provider about having more than a 30-day supply of needed medications**
- ❖ **Maintain general good health and habits**

Pandemic Planning

❖ Ongoing issues

- ❖ Contingency plans for 35% absenteeism, at every level, in every sector of society**
- ❖ Healthcare surge capacity**
- ❖ Plans to care for people at home**
- ❖ Maintaining public order**
- ❖ Most effective use of antivirals and vaccine**

Expand And Enhance Annual Influenza Vaccination

- ❖ Enhance infrastructure**
- ❖ Expand expertise implementing large vaccination clinics**
- ❖ Develop trained cadre of volunteers**
- ❖ Enhance demand to enhance supply**

Vaccinate Everyone at Risk for Pneumococcal Disease Now!

- ❖ **Common complication of influenza**
- ❖ **Increasing antibiotic-resistant**
- ❖ **Difficult to conduct pneumococcal campaigns during pandemic**

Vaccinating everyone at risk for pneumococcal disease protects them now, and during the next pandemic!

Elements of State and Local Pandemic Planning

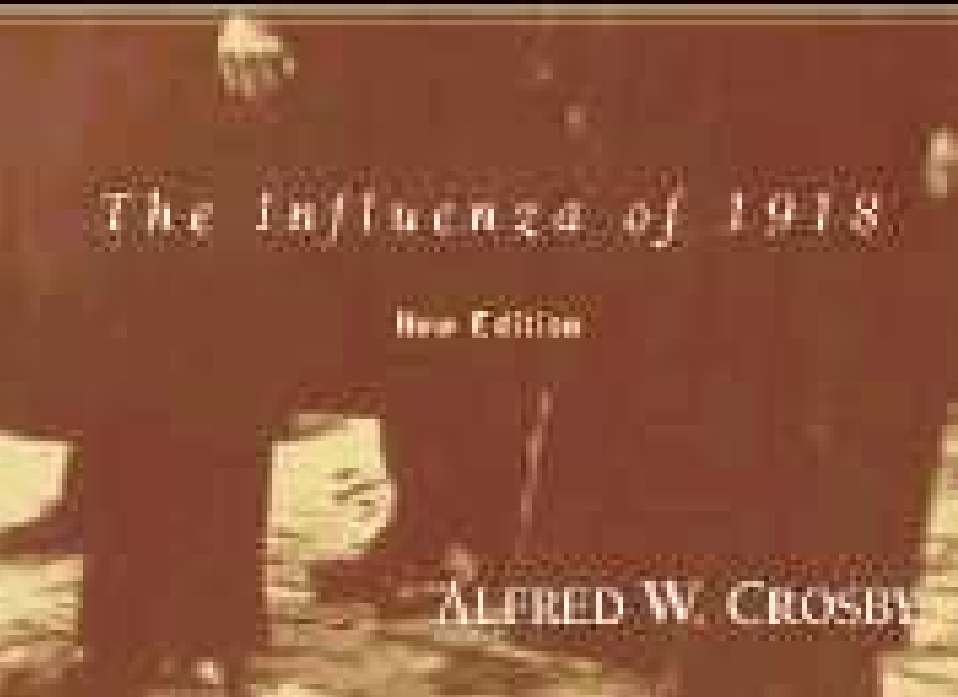
- ❖ Direction and control**
- ❖ Agency-specific contingency plans**
- ❖ Systems for antiviral and vaccine distribution**
- ❖ Alternate care sites**
- ❖ Teams of trained volunteers**
- ❖ Systems to support home care and sheltering**
- ❖ Increase influenza vaccine coverage**
- ❖ Increase pneumococcal vaccine coverage**

Suggestions for Blood Products Industry

- ❖ Review HHS pandemic plan, CDC materials**
- ❖ Get involved with state/local pandemic planning efforts – review state plan**
- ❖ Develop a continuity of operations plan**
- ❖ Work through HRSA to assure that blood collection and transfusion services are included in the acute care planning**
- ❖ Attend “Pandemic Summits” in next few months**
- ❖ Develop guidelines?**



America's Forgotten Pandemic



The Influenza of 1918

New Edition

ALFRED W. CROSBY

The Great Influenza

THE 1918 PANDEMIC



John M. Barry

author of *Ising Tobi*

GINA COLATA

H1N1

The Story of
the Great Influenza
Pandemic of 1918
and the Search for the
Virus That Caused It

INFLUENZA 1918



The Worst Epidemic in
American History

Lynette Iezzoni

Foreword by David McCullough

