

# **Pandemic Influenza: Link to Local Community Volunteers**

**MRC National Leadership and Training Conference  
19 April 2007**

**Rajeev Venkayya, MD  
Special Assistant to the President for Biodefense  
White House Homeland Security Council**

# Situation Report

- 291 human cases, 172 deaths in 12 countries\*
- 36 countries documented H5N1 in birds for the first time in 2006, bringing the total to 55 countries\*\*
- Spread via migratory birds and movement of birds through trade or smuggling
- No evidence of sustained, efficient human-to-human spread

\*As of April 11, 2007

\*\* Based on OIE, August 2, 2006

UNCLASSIFIED

(U) New Developments

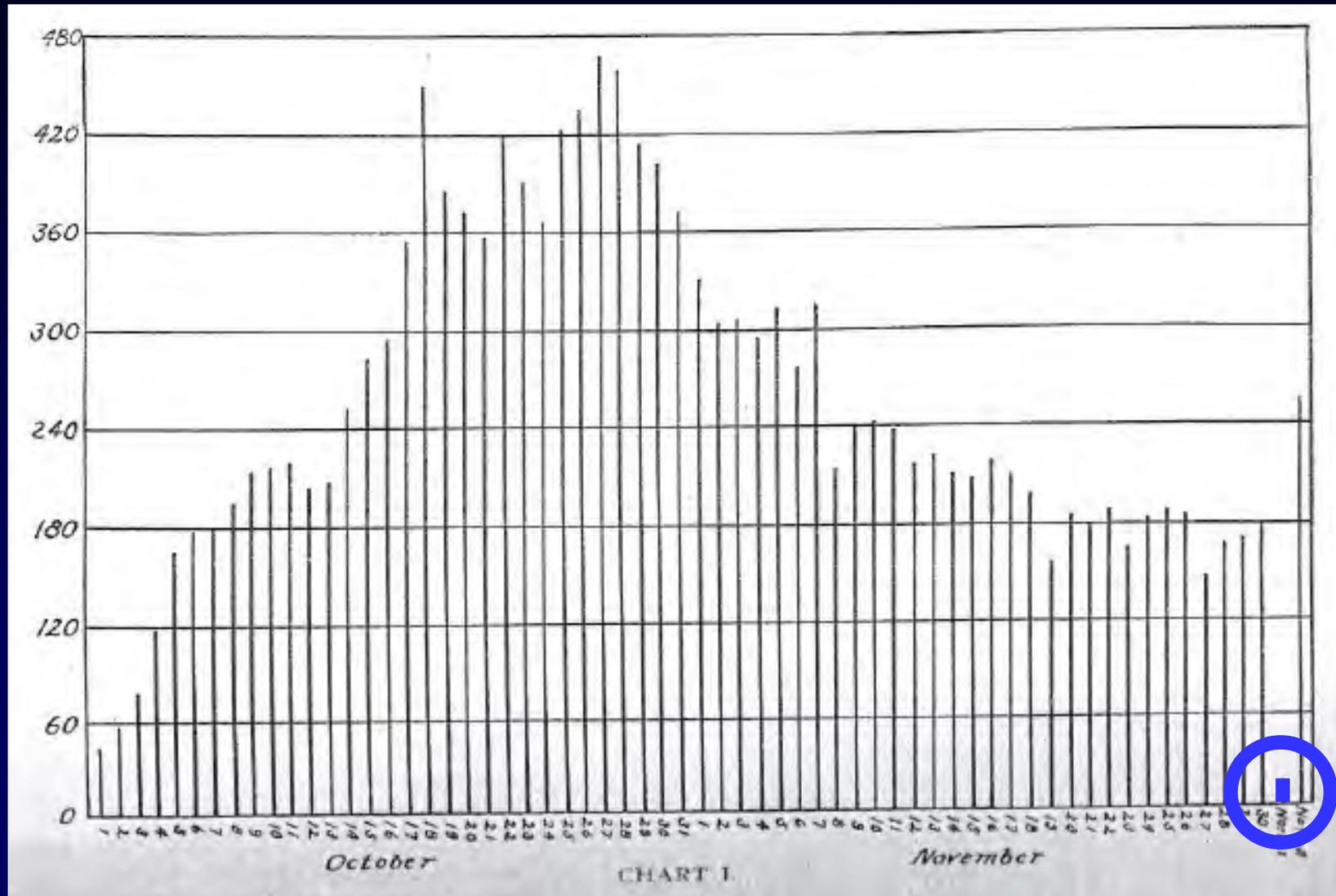
Human Cases: 1 in Cambodia, 2 in Egypt  
Bird Outbreaks: 2 in Bangladesh, 2 in Pakistan



USEUCOM

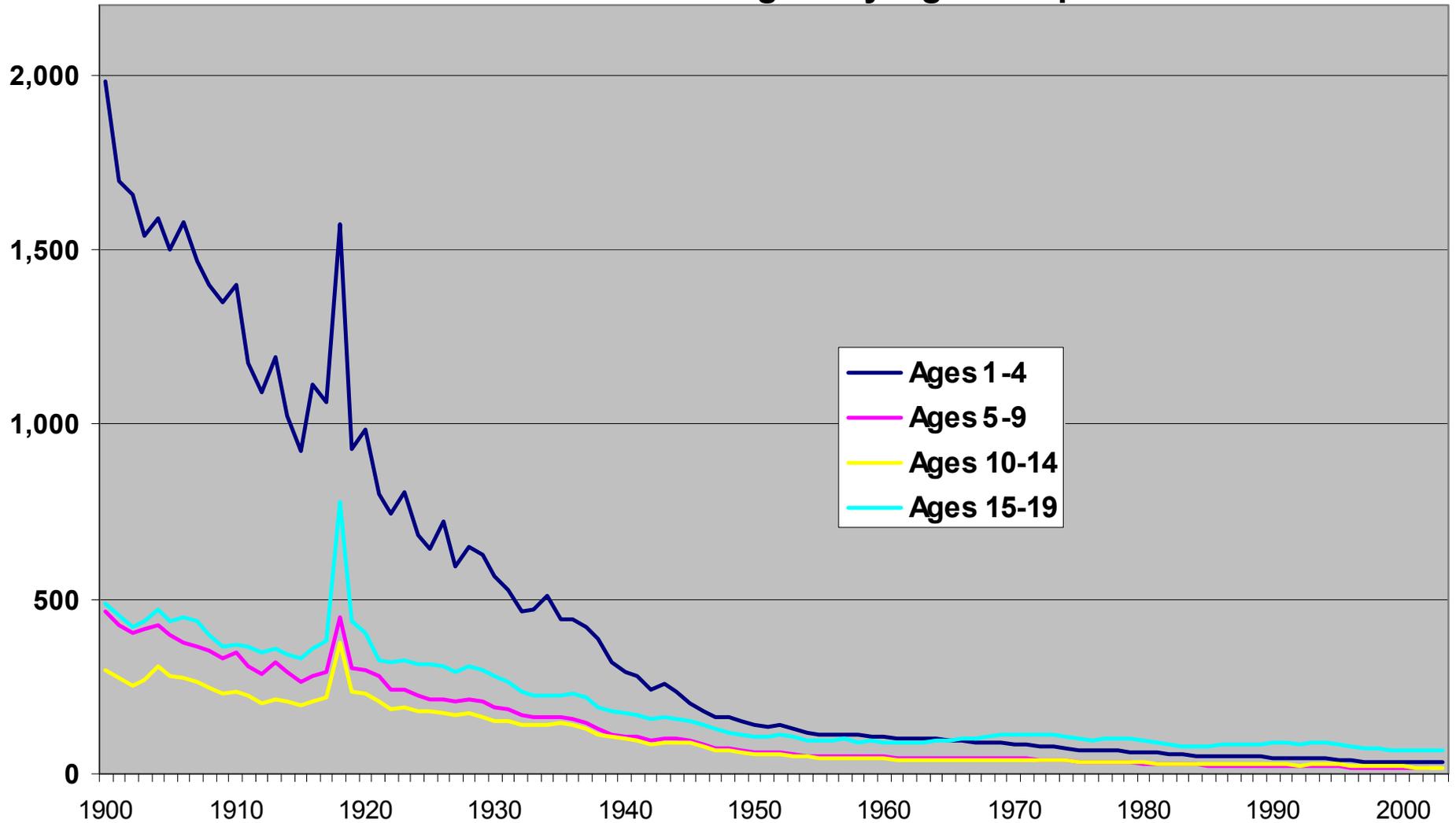


# Daily Deaths in Ohio - 1918



Brodrick OL. Influenza and pneumonia deaths in Ohio in October and November, 1918. The Ohio Public Health Journal 1919;10:70-72.

## 1900-2003 All Cause Death Rates per 100,000: Children and Teenagers by Age Group



Source: U.S. Vital Statistics

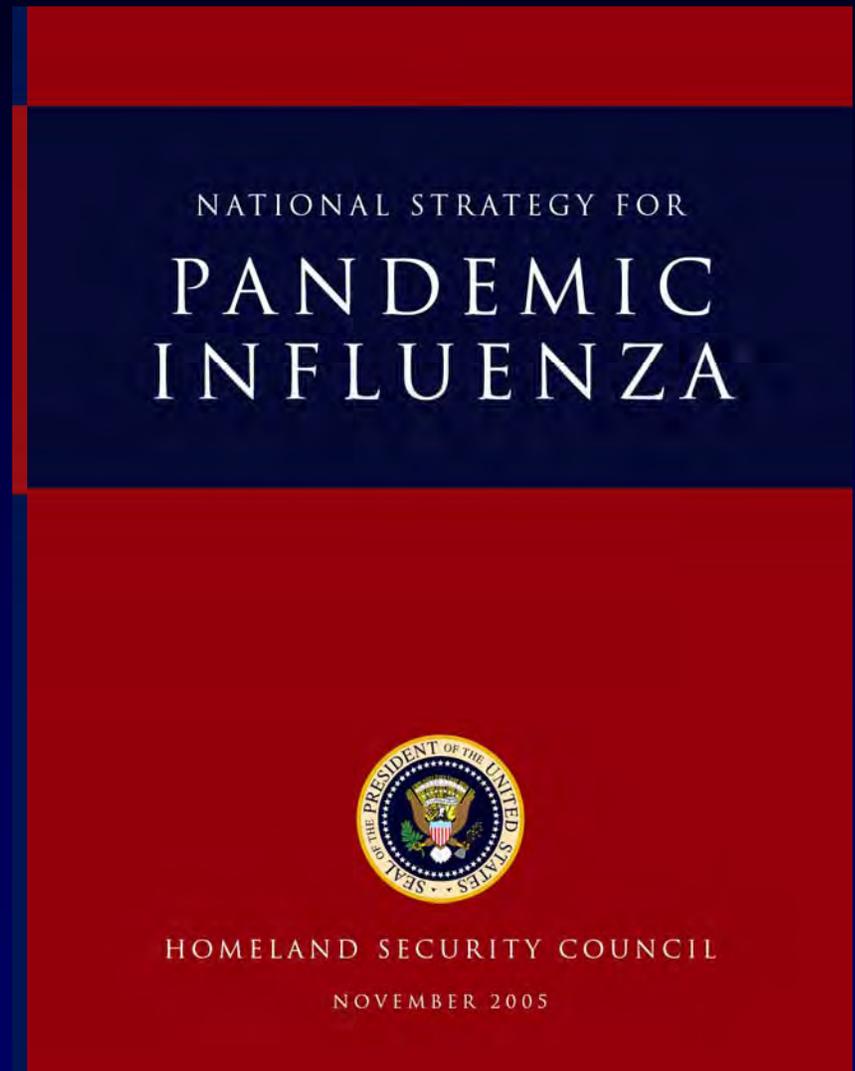
# A 1918-Like Pandemic Would Take a Significant Toll Today

Severe Pandemic (1918-like) in the U.S.	
Illness	90 million (30%)
Outpatient medical care	45 million (50%)
Hospitalization	9,900,000
ICU care	1,485,000
Mechanical ventilation	745,500
Deaths	1,903,000

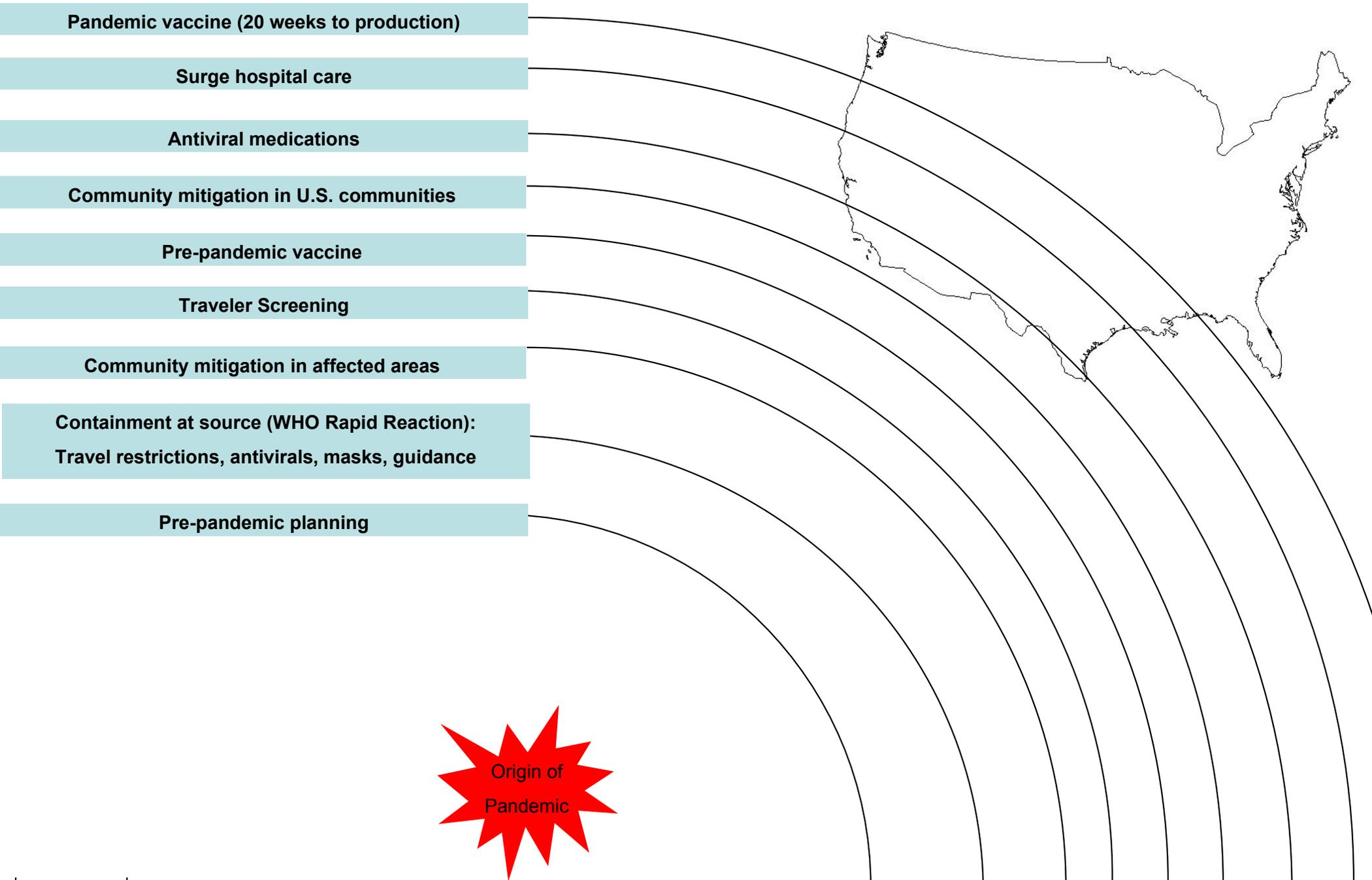
- Congressional Budget Office estimates 4.25% reduction in U.S. GDP, not including years of productivity lost

# Implementation Plan for the National Strategy

- Strategy released on Nov 1, 2005
- Plan released on May 3, 2006
- Contains over 300 actions for Federal Departments and Agencies
- Provides guidance on implementation of the *Strategy*, the development of Department plans, and outlines specific roles and responsibilities of Departments and Agencies in pandemic preparedness and response
- Communicates expectations of non-Federal entities (State and local governments, private sector, critical infrastructure entities, individuals)

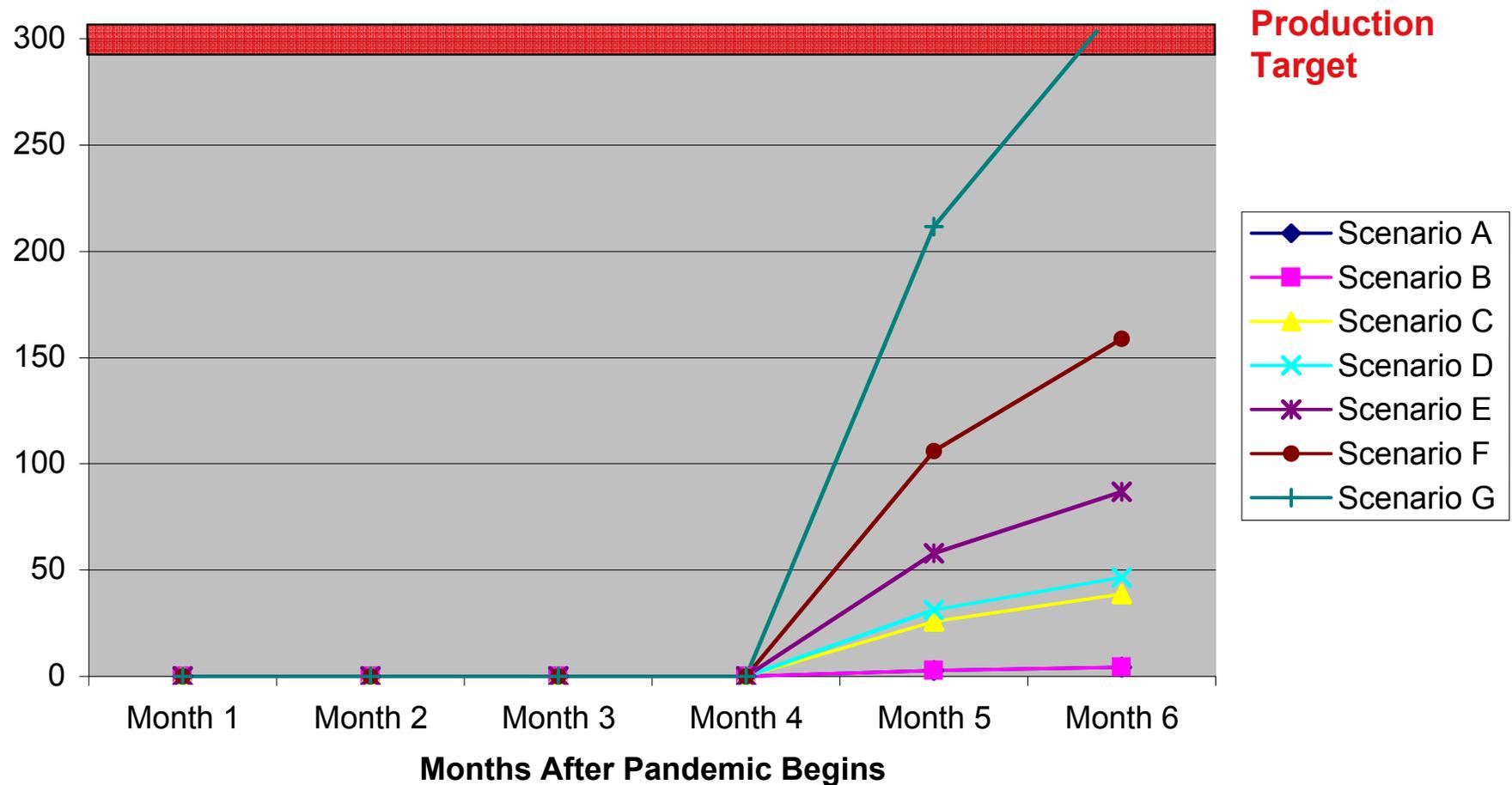


# A Layered Approach



# Vaccine Availability After A Pandemic Begins

## Vaccine Production After Pandemic Virus Emerges



# Tools in Our Toolbox



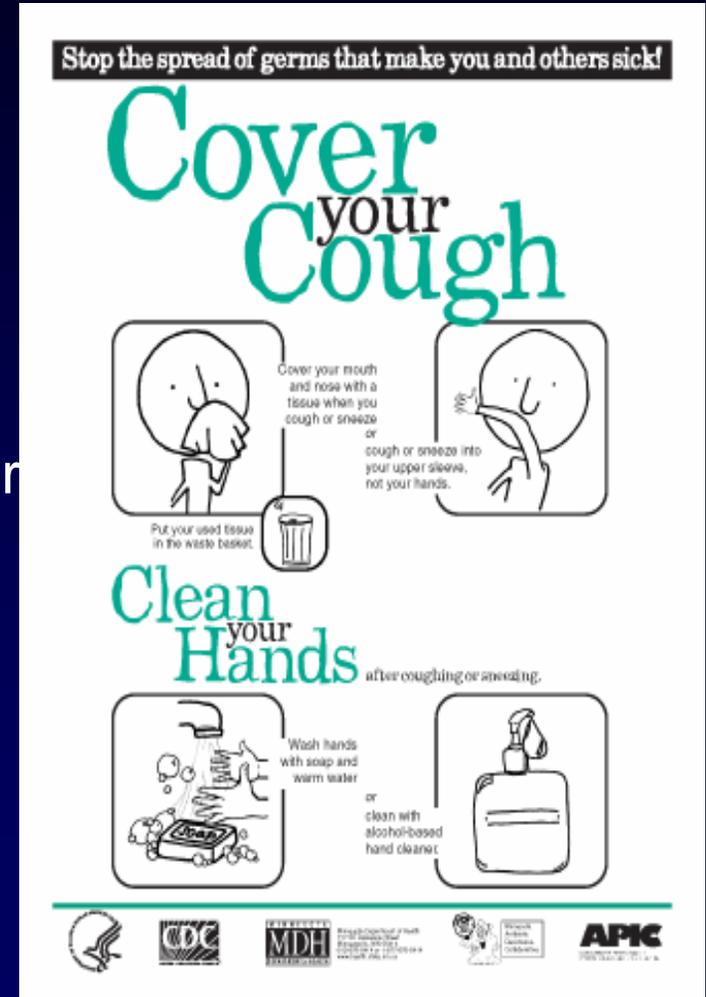
- **Pandemic Vaccine**
  - likely unavailable during the first wave of a pandemic
- **Antiviral medications**
  - Quantities
  - Distribution logistics
  - Efficacy / Resistance
- **Social distancing and infection control measures**



# Infection Control Measures

## Transmission Interventions (Infection Control)

- Hand hygiene
- Facemasks
- Cough etiquette
- Sick people stay home (isolation)
- Stay home if have an ill household member (voluntary home quarantine)
- Environmental cleaning



# Social Distancing Measures

## Contact Interventions (Social Distancing)

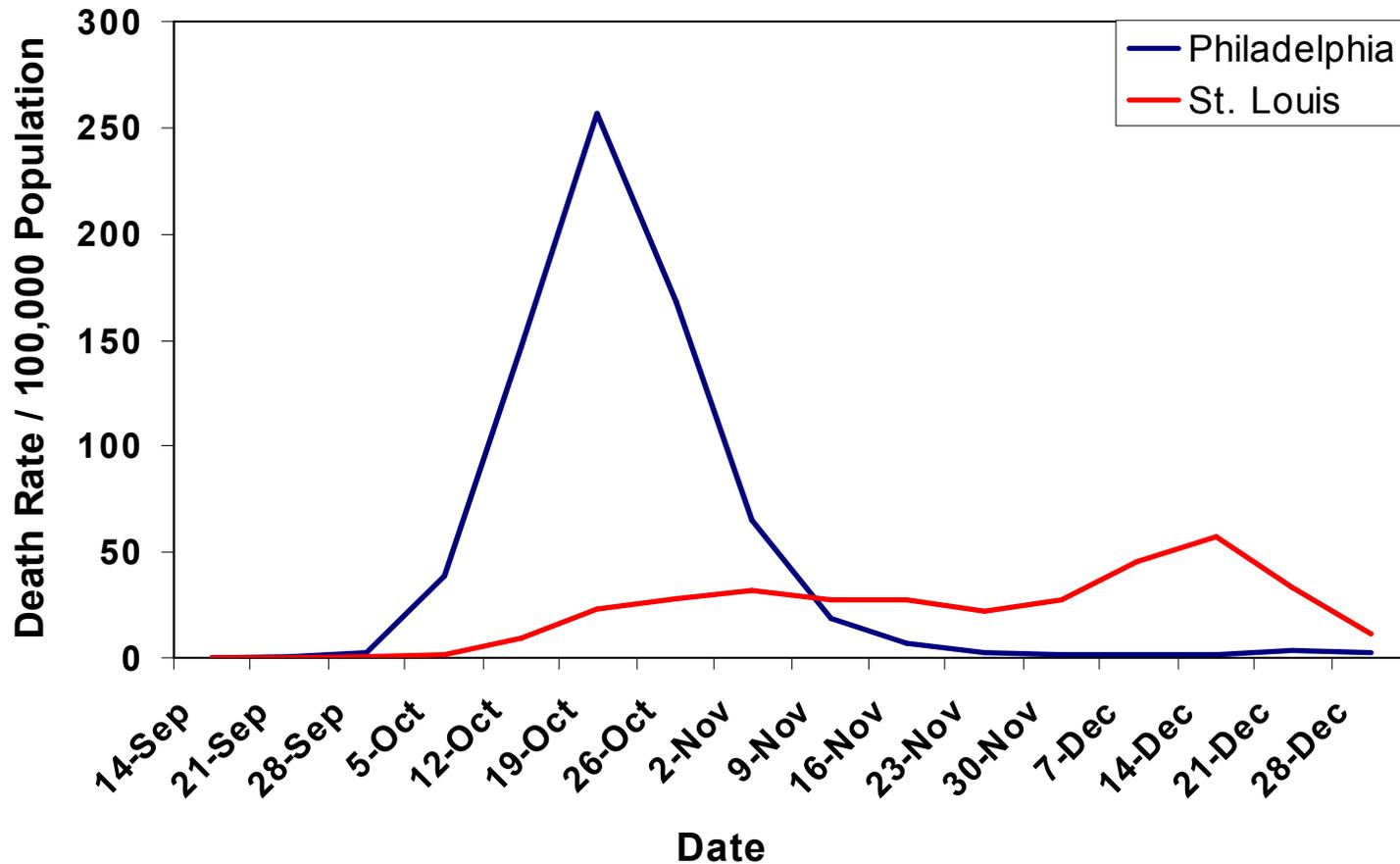
- Protect children and teens
  - School closure
  - Keeping children and teens at home
- Cancellation of mass gatherings
- Alternatives to face-to-face contact at work
- Increasing distance between people
- Decreasing number of contacts

# 1918 Outcomes by City

City	First Cases	Death Rate
Boston	8/27/18	5.7
Philadelphia	By 9/11/18	7.4
New Haven	Week of 9/11/18	5.1
Chicago	9/11/18	3.5
New York	Before 9/15/18	4.1
Pittsburgh	Mid-9/18	6.3
Baltimore	9/17/18	6.4
San Francisco	9/24/18	4.7
Los Angeles	"Last days 9/18"	3.3
Milwaukee	9/26/18	1.8
Minneapolis	9/27/18	1.8
St. Louis	Before 10/3/18	2.2
Toledo	"First week 10/18"	2.0

Death rate from influenza and pneumonia / 1000 population: "Causes of Geographical Variation in the Influenza Epidemic of 1918 in the Cities of the United States," *Bulletin of the National Research Council*, July, 1923, p.29.

# Excess P&I mortality over 1913-1917 baseline in Philadelphia and St. Louis



Source: Hatchett, Mecher, & Lipsitch. Public health interventions and epidemic intensity during the 1918 influenza pandemic. PNAS Early Edition. April 6, 2007

# Policy Questions

- During a severe pandemic, how could communities use the resources at their disposal to limit illness, hospitalization and death?
- Based upon the available evidence, what planning should be done now?



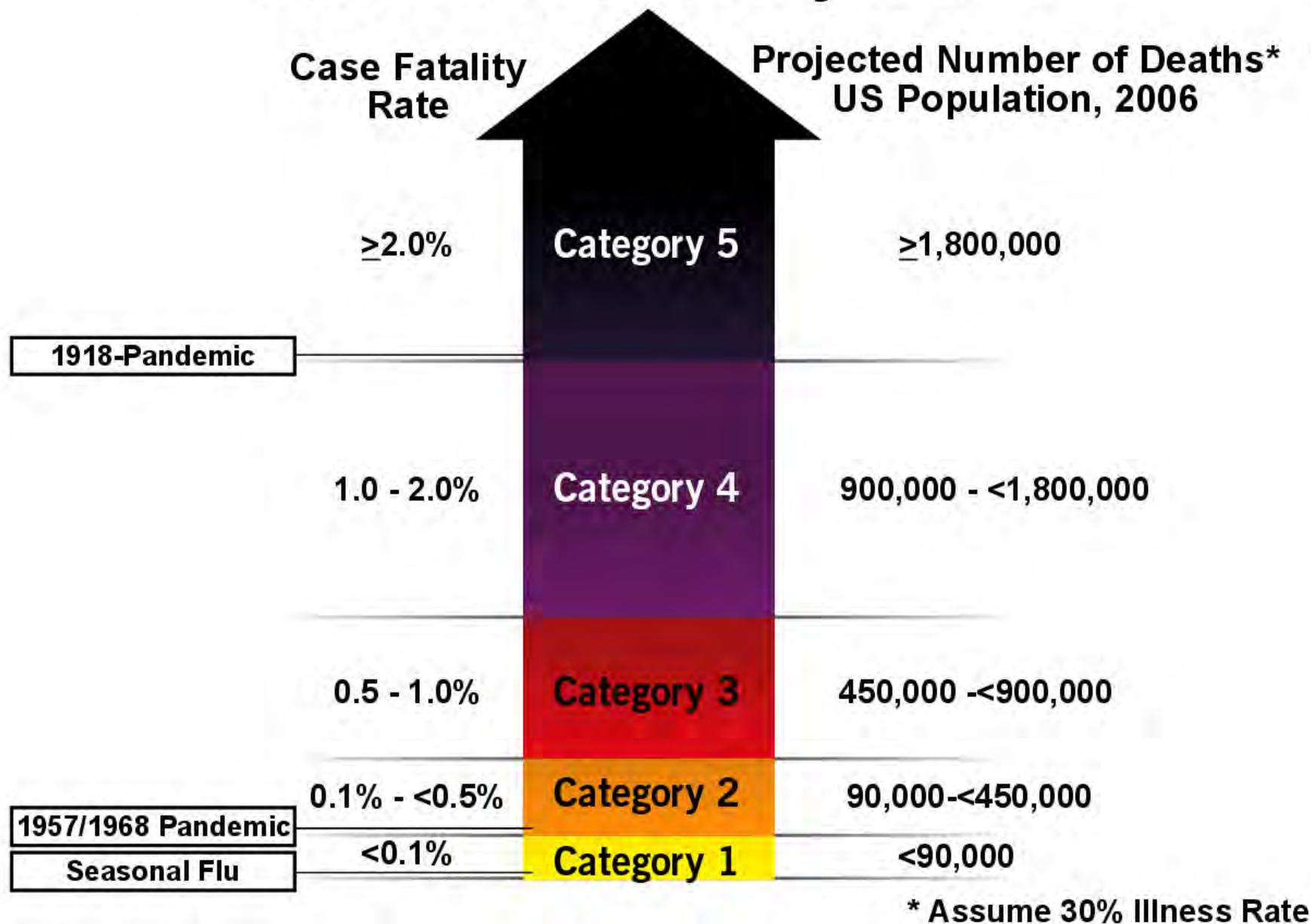
# Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States—

*Early, Targeted, Layered Use of Nonpharmaceutical Interventions*



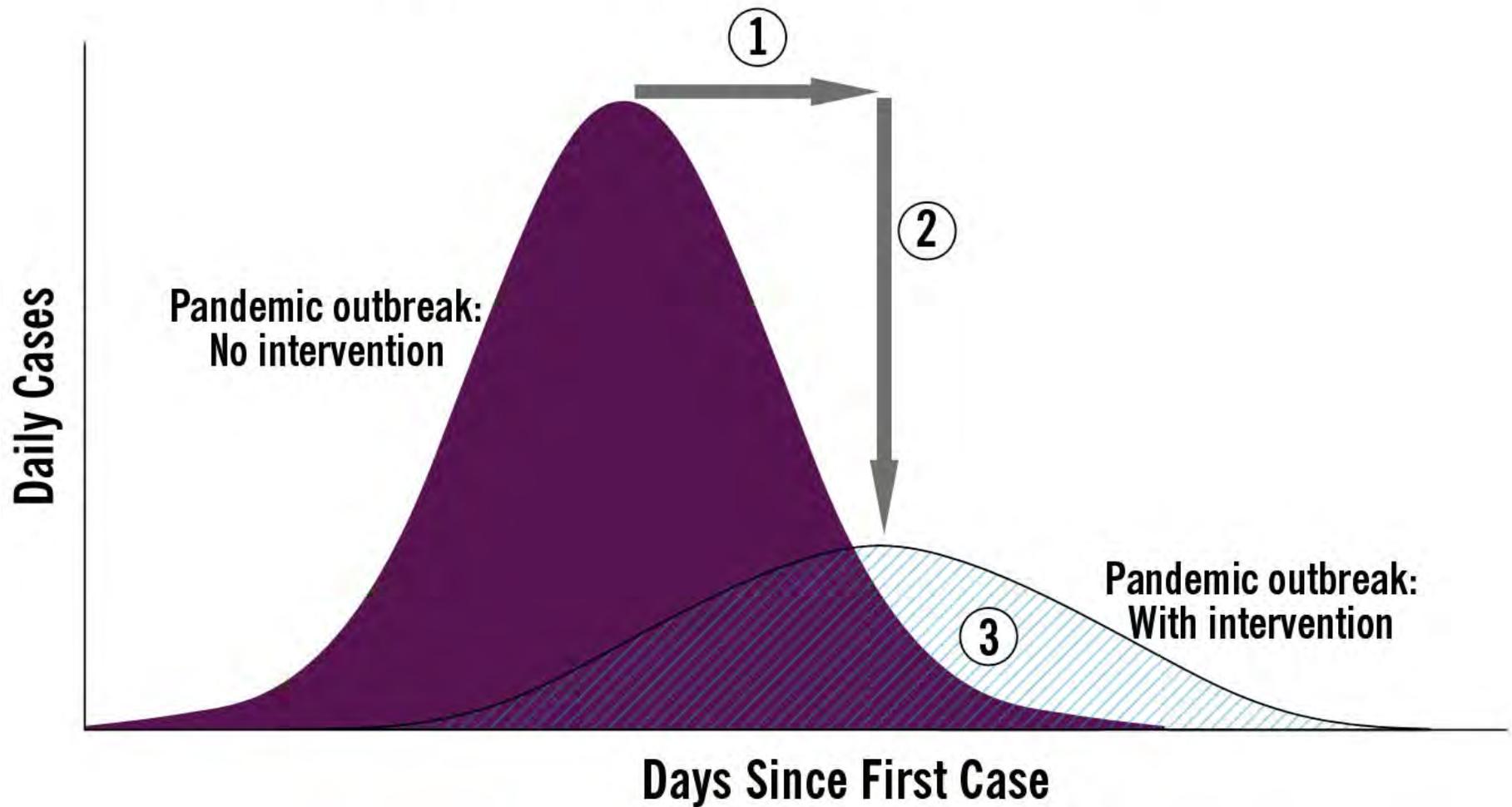
Figure 4.

# Pandemic Severity Index



# Goals of Community Mitigation

- ① Delay outbreak peak
- ② Decompress peak burden on hospitals / infrastructure
- ③ Diminish overall cases and health impacts

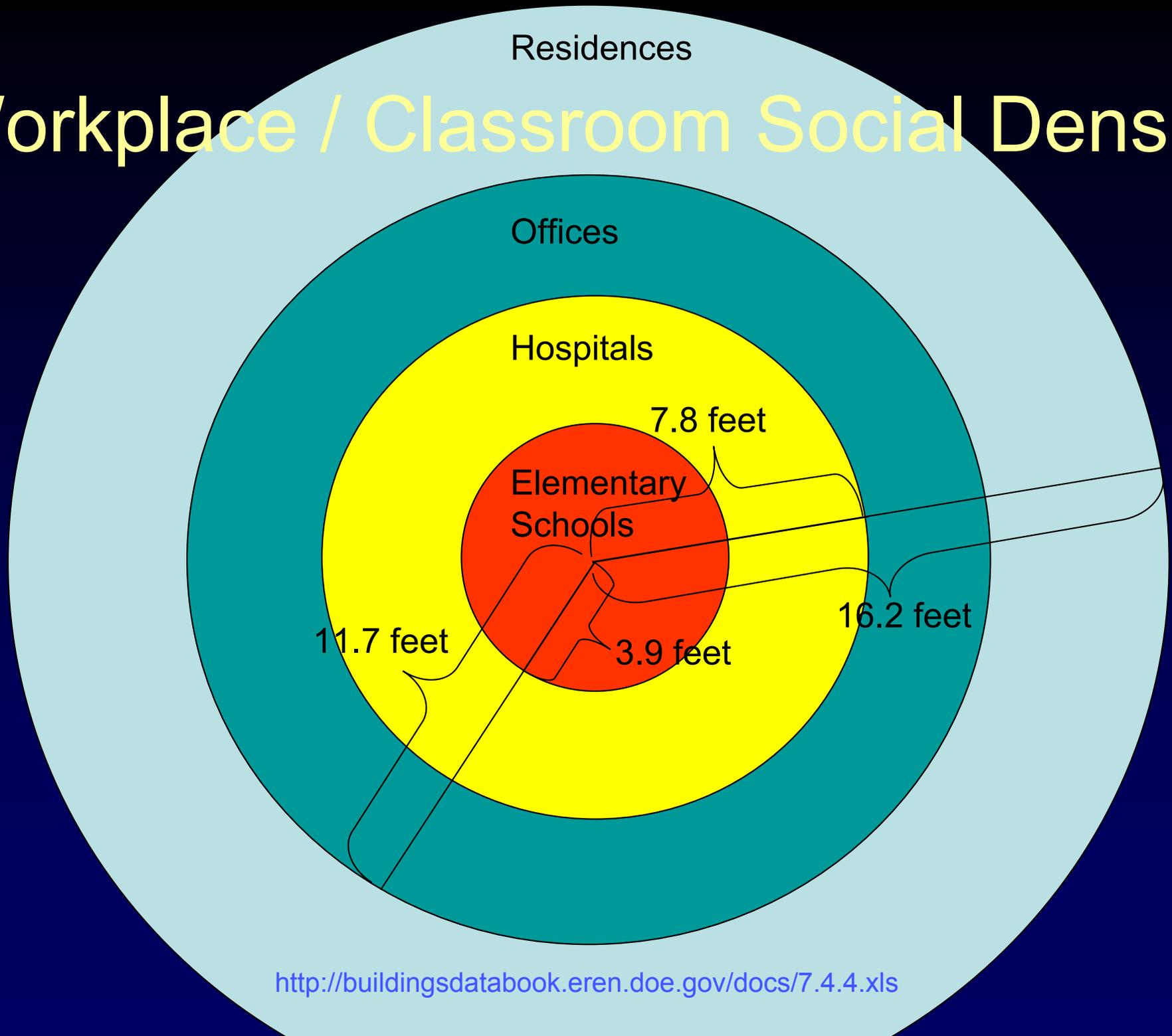


# Community Actions May Significantly Reduce Illness and Death Before Vaccine is Available

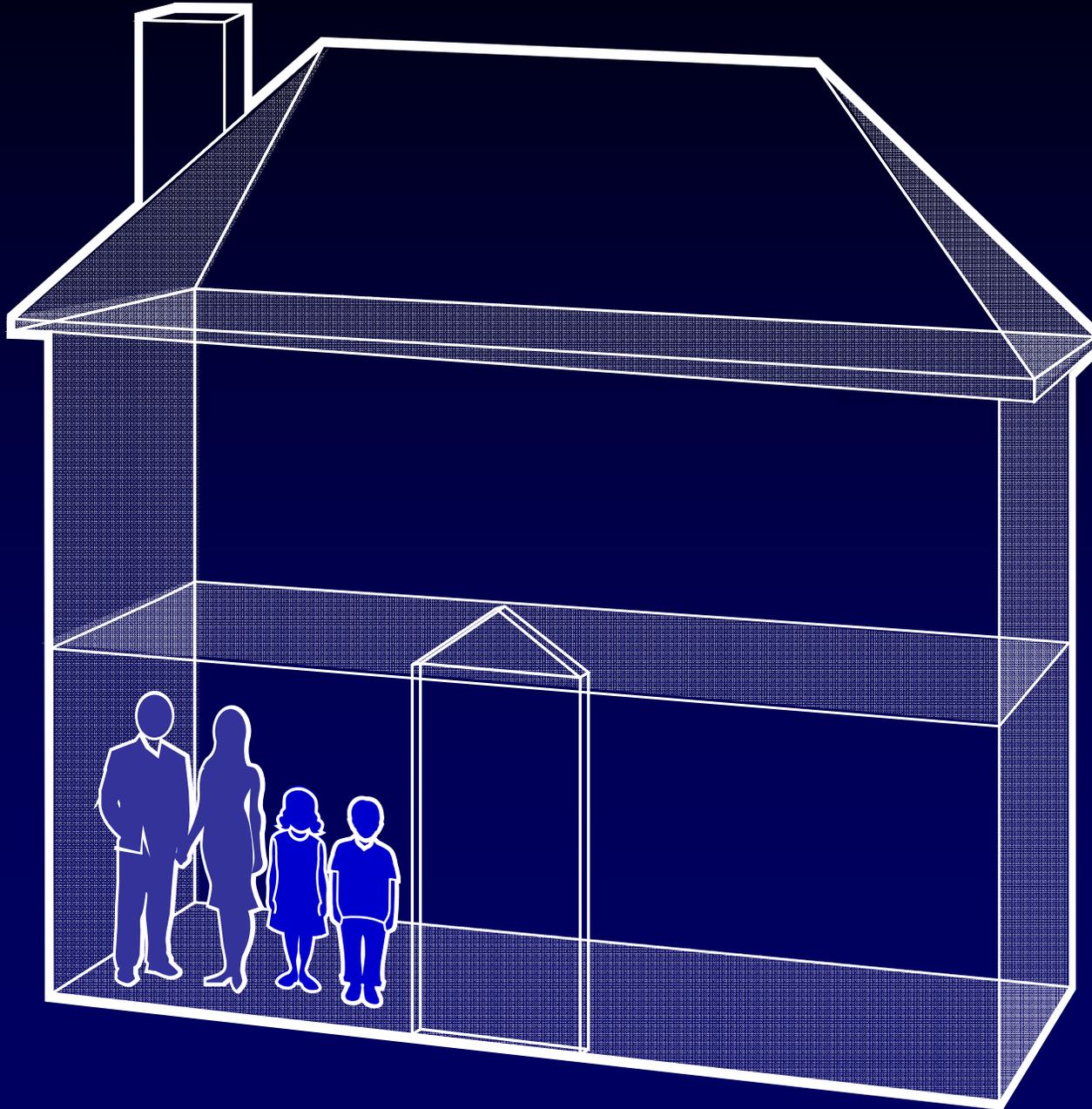
**Early and coordinated implementation of:**

1. Home isolation of ill individuals and providing antiviral treatment
2. Voluntary home quarantine of household contacts and consideration of antiviral prophylaxis to household contacts
3. Dismissal of students from school and closure of childcare programs coupled with protecting children from remixing in the community
4. Adult social distancing at work and in the community

# Workplace / Classroom Social Density

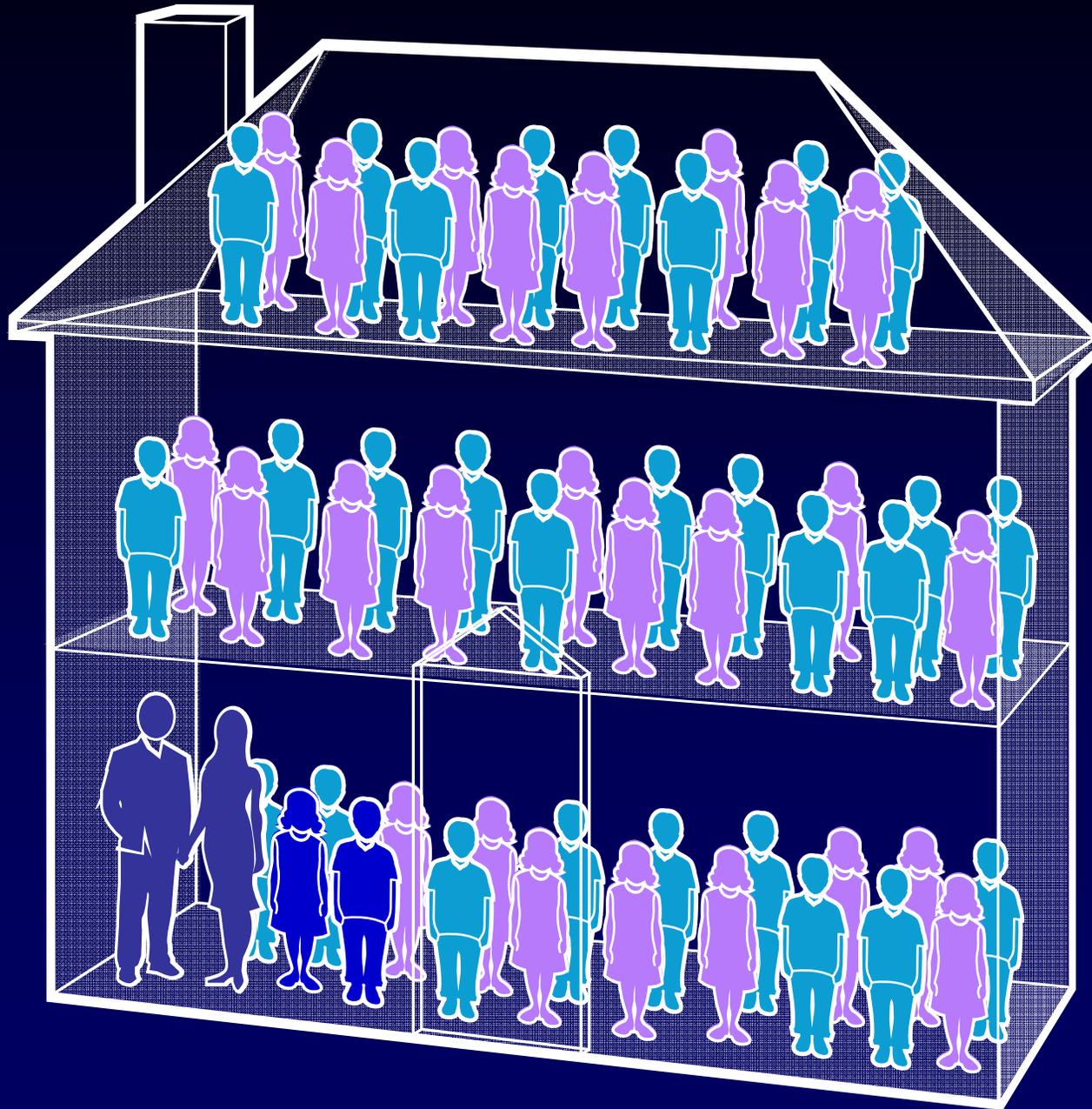


# Spacing of people: If homes were like schools



\*Based on avg. 2,600 sq. ft. per single family home

# Spacing of people: If homes were like schools



\*Based on avg. 2,600 sq. ft. per single family home

# Community Mitigation Strategies Carry Consequences That Should Be Anticipated and Incorporated into Pandemic Planning

- Economic impact and potential disruption of services due to absenteeism
- Issues associated with school dismissal and protecting children from remixing in the community
- Home-based care
- Disproportionate impact on certain populations
- Administration of antiviral medications
  - As treatment without rapid diagnostics
  - As prophylaxis to household contacts of ill persons

**These and other consequences may occur in the absence of community-wide interventions, as a result of spontaneous action by the public.**

# Secondary Effects on Individuals and Communities

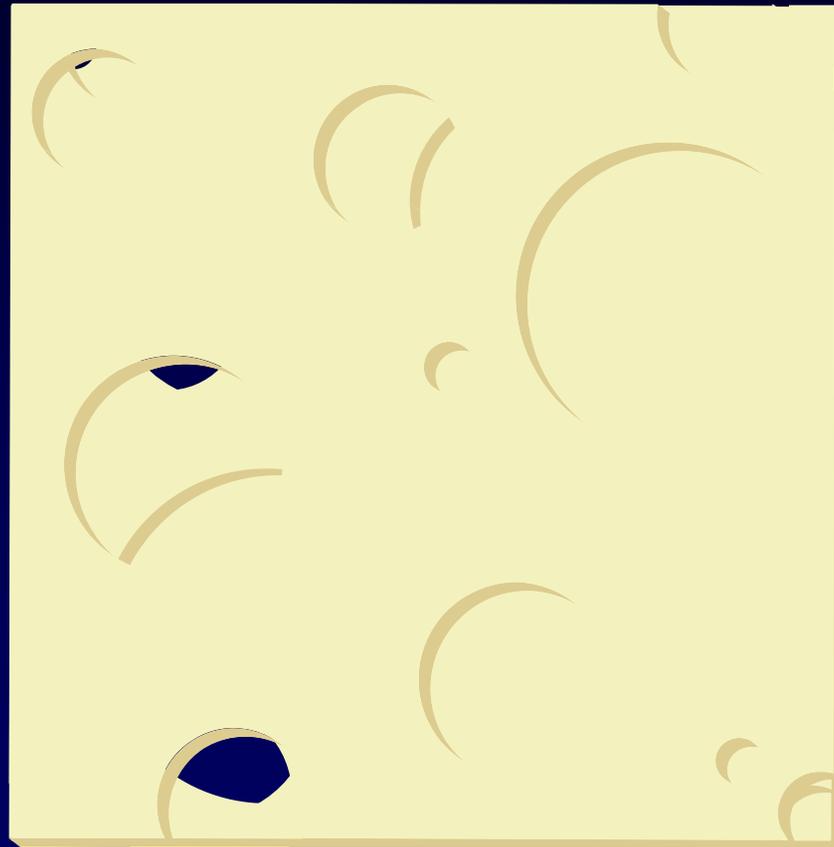
- **Individuals and Families**

- Income/job security related to absenteeism—especially prolonged absenteeism related to school dismissal and child minding
- Protecting children from exposure
- Continuity of education
- Fear, worry, stigma
- Access to essential goods and services
- Home-based healthcare

- **Communities**

- Maintaining business continuity
- Sustaining Critical infrastructure
- Availability of essential goods and services (supply chain)
- Supporting vulnerable populations

# “Layered Solutions”



# Individual, Family, and Community Response to Pandemic Influenza

## Community Response

Be Prepared

Be Aware

Don't Pass it On

Keep Your Distance

Help Your Community

Faith-Based,  
Community,  
and Social  
Gatherings

Individuals  
and Families  
at Home

At Work

At School

# Potential Roles of the MRC

- Educate community leaders and organizations
- Provide a hub for coordination of CBO and FBO efforts
- Facilitate planning, training and exercising
- Ensure that pandemic planning enables all-hazards preparedness

# Closing Thoughts

Leadership

Imagination

Resilience

NATIONAL STRATEGY FOR  
PANDEMIC  
INFLUENZA



HOMELAND SECURITY COUNCIL

NOVEMBER 2005

NATIONAL STRATEGY FOR  
PANDEMIC  
INFLUENZA

IMPLEMENTATION PLAN



HOMELAND SECURITY COUNCIL

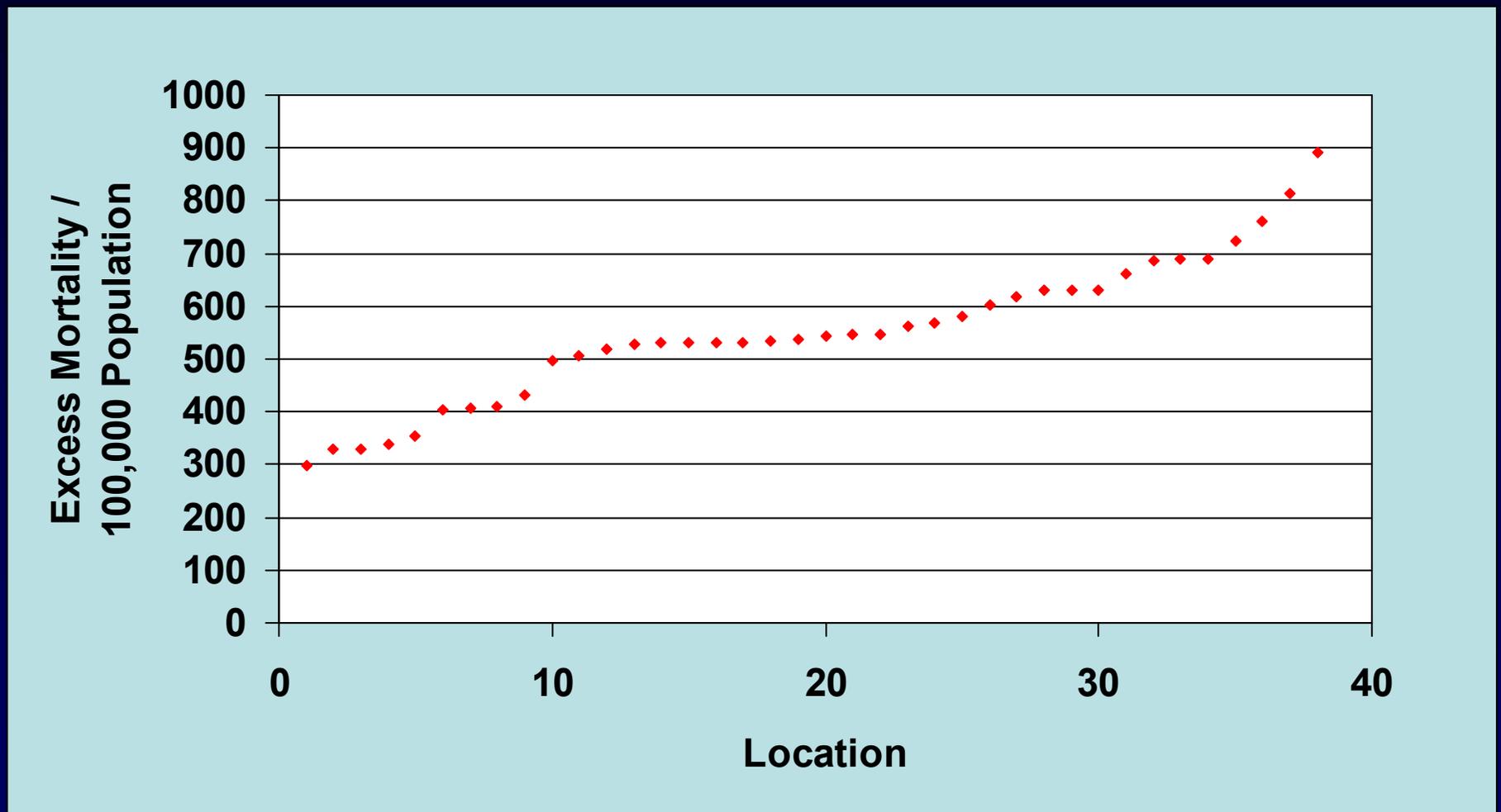
MAY 2006

<http://www.pandemicflu.gov>

## Table 2. Summary of Community Mitigation Strategies by Severity

Interventions* by Setting	Pandemic Severity Index		
	1	2 and 3	4 and 5
<b>Home</b>			
<b>Voluntary isolation</b> of ill at home (adults and children); combine with use of antiviral treatment as available and indicated	Recommend †§	Recommend †§	Recommend †§
<b>Voluntary quarantine</b> of household members in homes with ill persons ¶ (adults and children); consider combining with antiviral prophylaxis if effective, feasible, and quantities sufficient	Generally not recommended	Consider ≡	Recommend **
<b>School</b>			
<b>Child social distancing</b>			
-dismissal of students from schools and school based activities, and closure of child care programs	Generally not recommended	Consider: ≤4 weeks ††	Recommend: ≤12 weeks §§
-reduce out-of school social contacts and community mixing	Generally not recommended	Consider: ≤4 weeks ††	Recommend: ≤12 weeks §§
<b>Workplace / Community</b>			
<b>Adult social distancing</b>			
-decrease number of social contacts (e.g., encourage teleconferences, alternatives to face-to-face meetings)	Generally not recommended	Consider	Recommend
-increase distance between persons (e.g., reduce density in public transit, workplace)	Generally not recommended	Consider	Recommend
-modify, postpone, or cancel selected public gatherings to promote social distance (e.g., stadium events, theater performances)	Generally not recommended	Consider	Recommend
-modify work place schedules and practices (e.g., telework, staggered shifts)	Generally not recommended	Consider	Recommend

# Cumulative Excess Mortality by Location in 1918



# Questions

During a severe pandemic, how can communities use the resources at their disposal to limit illness, hospitalization and death?

Based upon the available evidence, what planning should be done now?

# Structure of the Implementation Plan

## PILLARS OF THE NATIONAL STRATEGY

### FUNCTIONAL AREAS

	Preparedness & Communication	Surveillance & Detection	Response & Containment
International Efforts	IPAPI	Capacity Building	International Stockpile
Borders & Transportation	N. America Planning	Port Screening	Layered Measures
Human Health	Countermeasure Development	Rapid Diagnostics	Community Mitigation
Animal Health	Education & Communication	Wild Bird Surveillance	AI Response Plans
Safety & Security	CM Distribution Planning		Fed/State/Local Coordination
Institutions & COOP	Department Plans		Business Continuity