

Immune Correlates of Protection Against Influenza A Viruses in Support of Pandemic Vaccine Development

Opening Remarks

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Director

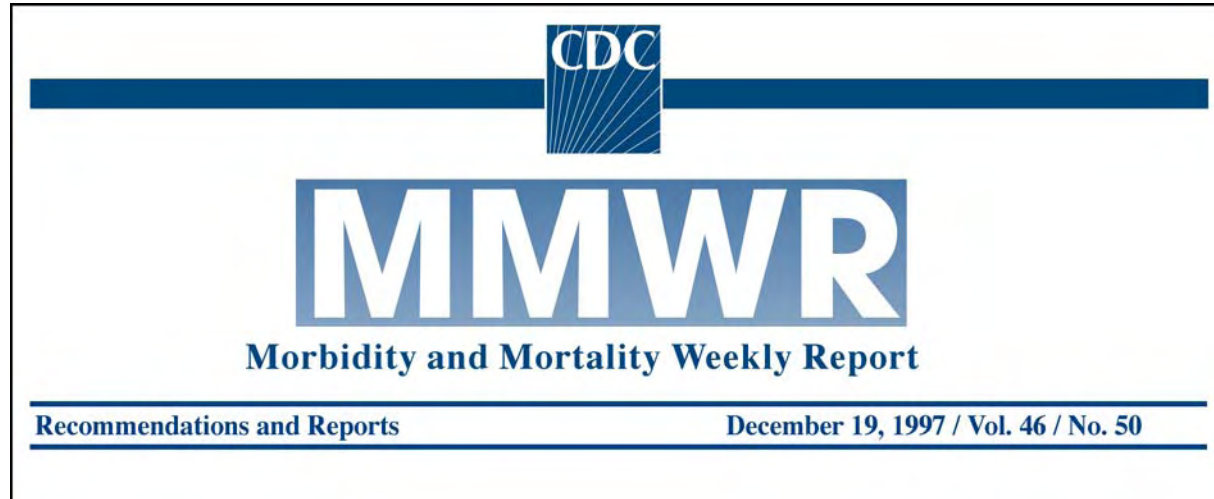
**National Institute of Allergy and
Infectious Diseases**

National Institutes of Health

December 10, 2007



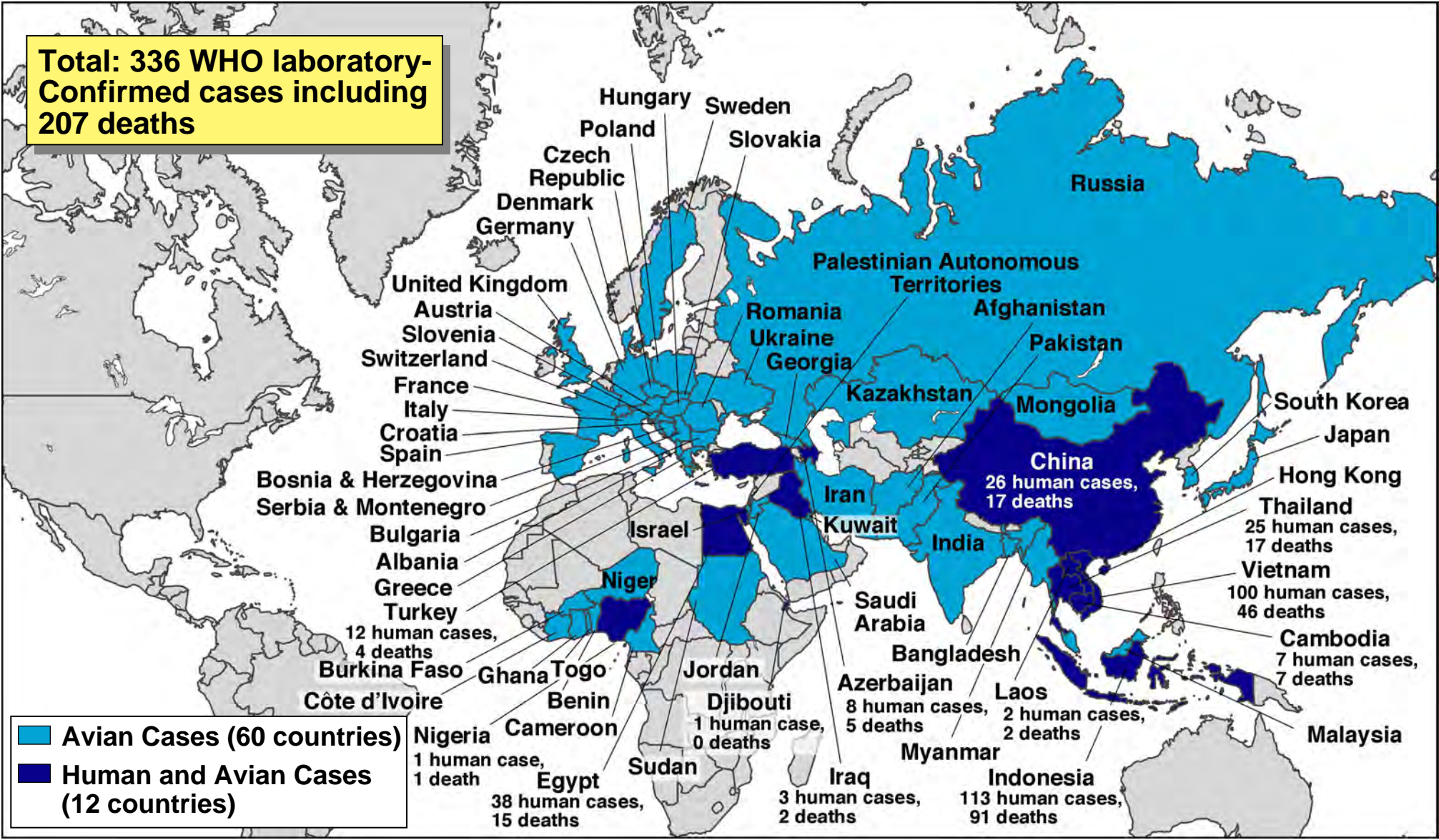
2007: The Ten Year "Anniversary" of the First Known Human H5N1 Infections



Isolation of Avian Influenza A(H5N1) Viruses from Human--Hong Kong, May-December 1997

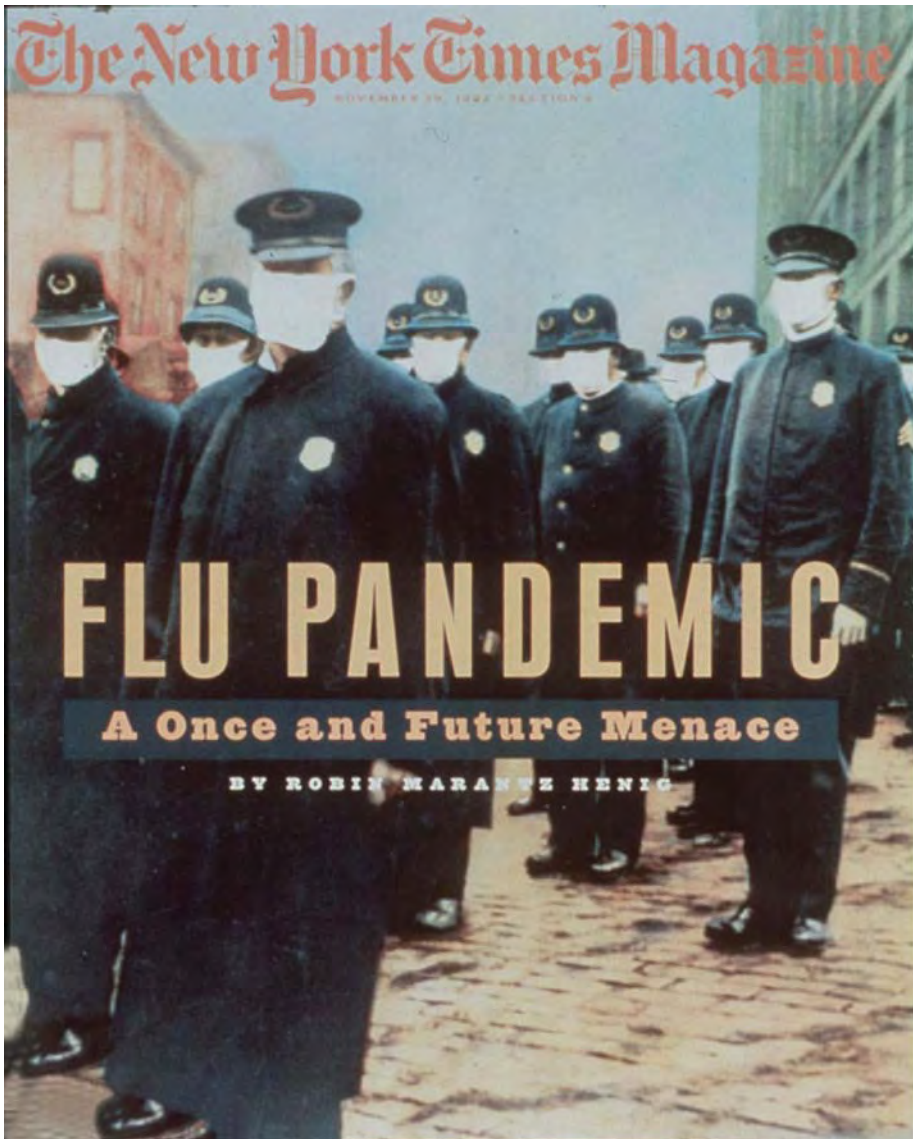
■ **18 cases (6 fatal) reported**

H5N1 Influenza Cases, 2003-2007



Source: WHO and OIE (World Organization for Animal Health), 12/52007

The Influenza Pandemic of 1918-1919



- **25-30% of world's population (~500 million people) fell ill**
- **>50 million deaths worldwide; ~60 percent in people ages 20-45**
- **>500,000 deaths in United States; 196,000 in October, 1918 alone**

Pandemic Influenza Preparedness Strategy and Implementation

NATIONAL STRATEGY FOR
PANDEMIC
INFLUENZA

IMPLEMENTATION PLAN



HOMELAND SECURITY COMMISSION
MAY 2006

NATIONAL STRATEGY FOR
PANDEMIC
INFLUENZA

HHS Pandemic
Influenza Plan



U.S. Department
of Health and
Human Services

November 2005



- **International Surveillance**
- **Domestic Surveillance**
- **Vaccines**
- **Antivirals**
- **Communications**
- **State and Local Preparedness**

Public Health Emergency Preparedness: Complementary Roles within HHS

CDC

- **Surveillance and Detection**
- **Train Local Response Teams**
- **Maintain Vaccine/Antimicrobial Stockpiles**

NIH

- **Conduct Basic Research**
- **Develop Medical Interventions**
- **Develop Research Infrastructure**

FDA

- **Regulatory Approval**
 - **Vaccines**
 - **Therapeutics**
 - **Diagnostics**

ASPR

- **HHS-Wide Coordination of Emergency Preparedness Activities**

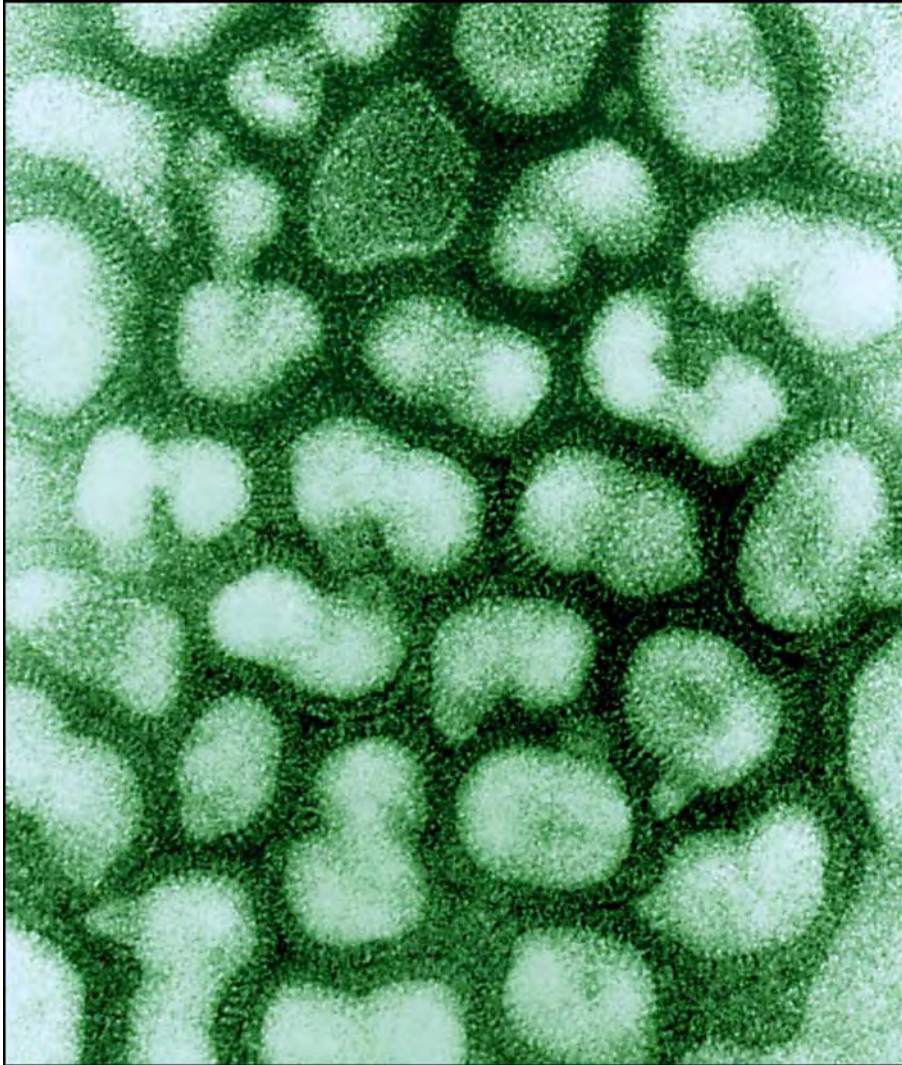
NIAID Research: A Dual Mandate

Maintain and “grow” a robust basic and applied research portfolio in microbiology, infectious diseases, immunology and immune-mediated diseases

Respond rapidly to new and emerging disease threats

New/Improved Interventions

Influenza

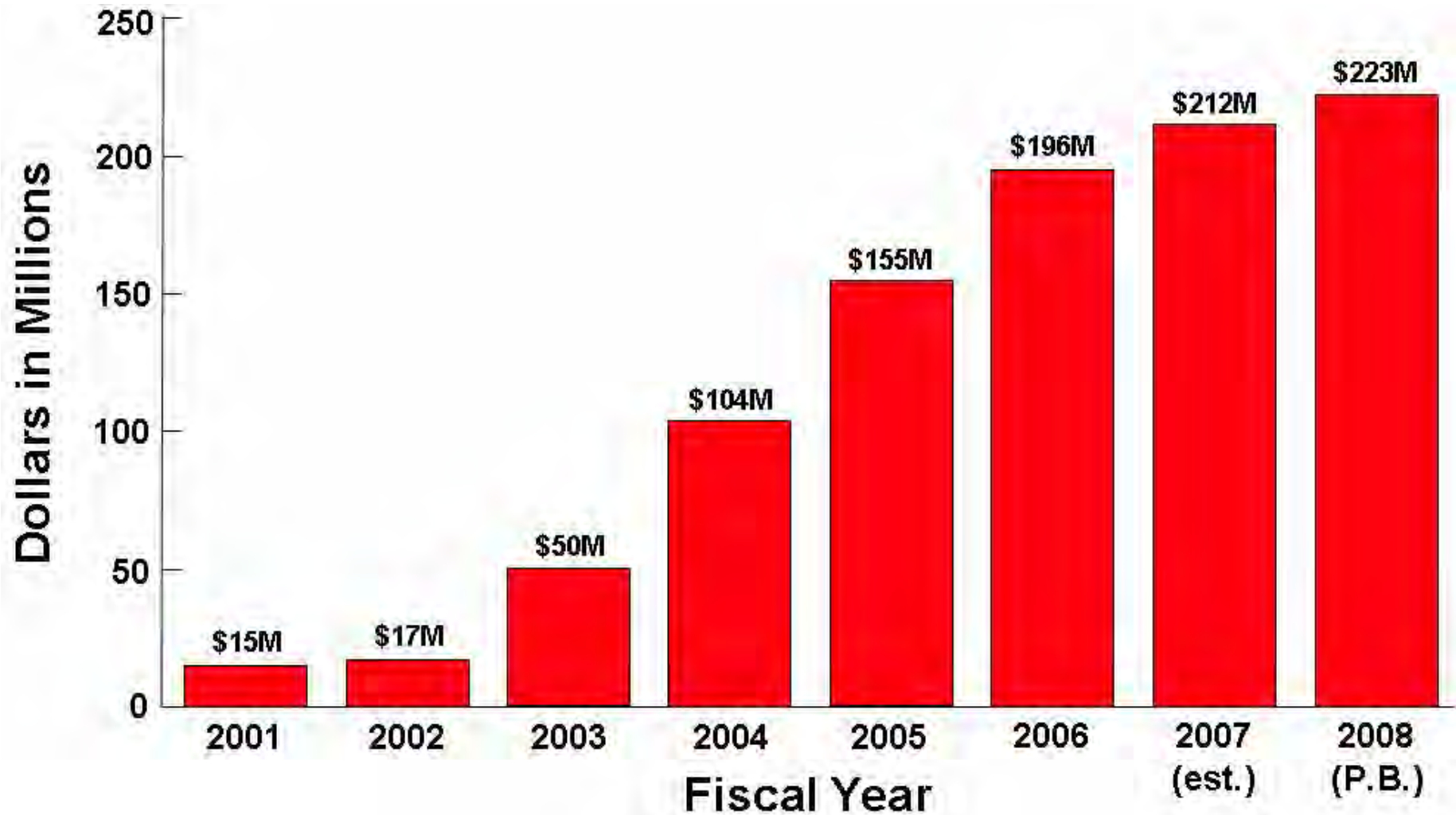


- **Re-emerging disease (seasonal flu)**
- **Newly emerging disease (potential pandemic flu)**

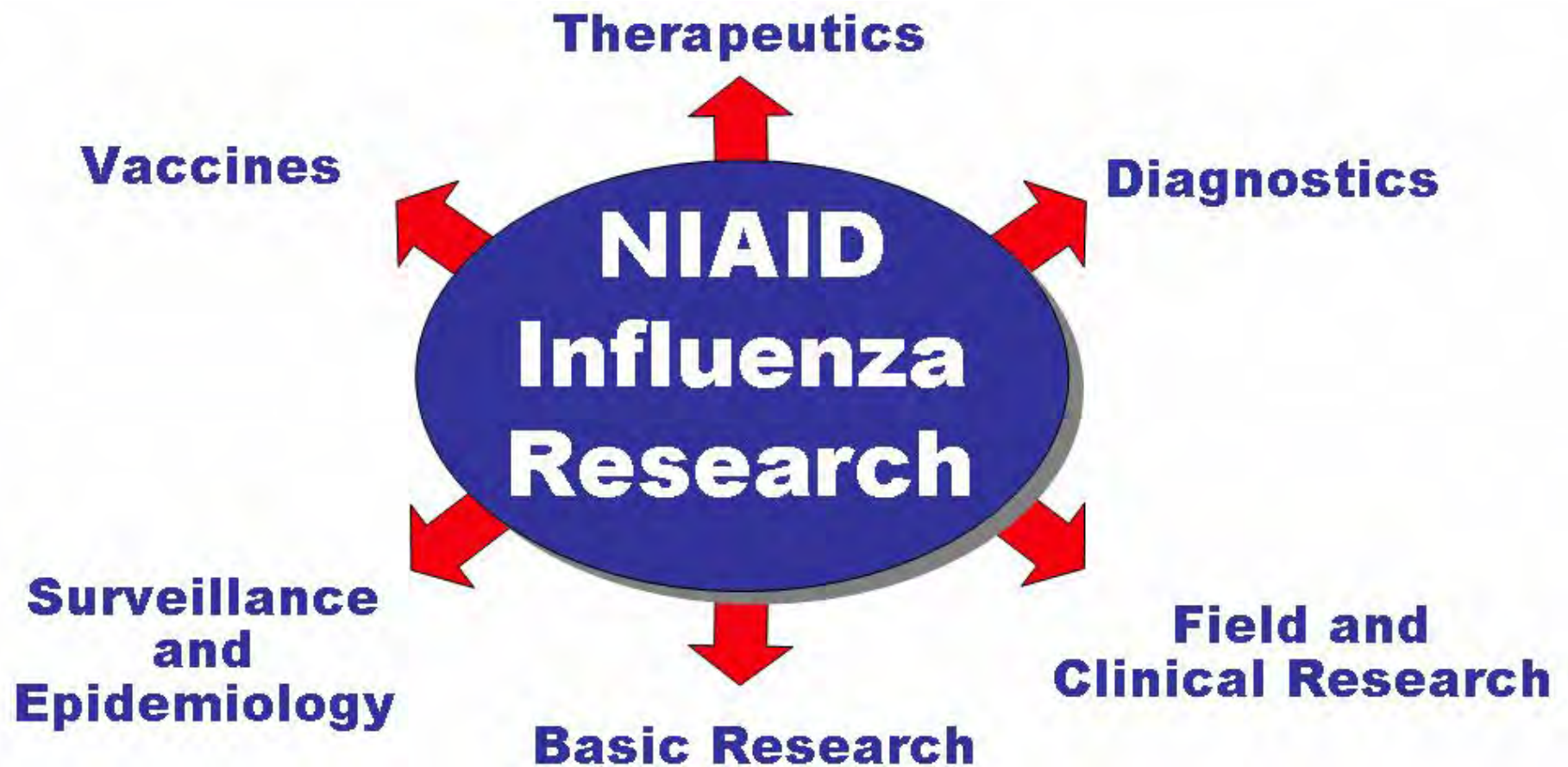
The Burden of Seasonal Influenza

- **250,000 to 500,000 deaths globally/yr**
- **36,000 deaths and >200,000 hospitalizations/yr in U.S.**
- **\$37.5 billion in economic costs/yr in U.S. related to influenza and pneumonia**

NIAID Influenza Research Funding*



*FY2006 includes \$18M funded through the PHSSEF.



Influenza Vaccine Development in 2007: Major Challenges

- **Better understanding of immune correlates**
- **New assays to measure immune responses**
- **New vaccine approaches**
- **Dose-sparing strategies, esp. adjuvants**
- **Refinement of cell-culture-based technology**
- **Cross-protection strategies**
- **Surrogate measures of efficacy**

**Seasonal
Influenza
Preparedness**

**Pandemic
Influenza
Preparedness**