

Avian Influenza Pandemic Influenza



Board of Supervisors

18 April 2006

TRACKING THE NEXT
KILLER



FLU

"The situation in Southeast Asia right now is the most significant setup for a very serious public health crisis that I've seen in my 30 years in this business. We're sitting on a time bomb."

Dr. Michael Osterholm
Director, Center for Infectious
Disease Research and Policy,
University of Minnesota

Epidemiology

- The study of the distribution and determinants of health related states or events in specified populations and the application of this study to control of health problems

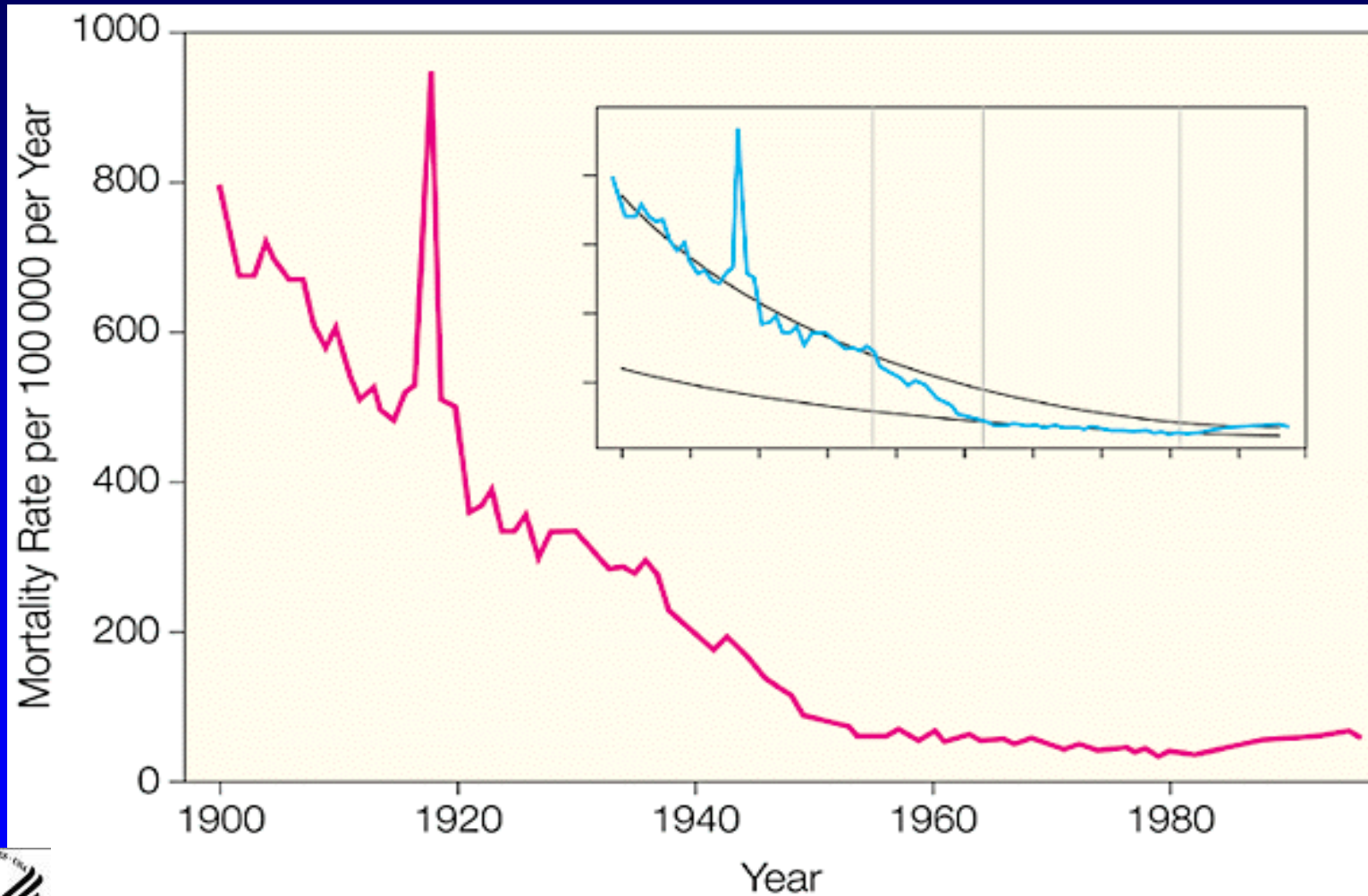
Objectives of Epidemiology

- **Identify:** Etiology and risk factors
- **Determine:** Extent of disease in community
- **Study:** Natural history and prognosis
- **Evaluate:** Preventive and therapeutic measures
- **Provide:** Scientific foundation for public policy and regulatory decisions

Definitions

- **Endemic:** the habitual presence of a disease within a given geographic area
- **Epidemic:** the occurrence in a community or region of an illness in excess of normal expectancy
- **Pandemic:** a worldwide epidemic

Infectious Disease Mortality, United States--20th Century



Armstrong, et al. *JAMA* 1999;281:61-66.



Avian Flu

Avian Influenza

- Infection caused by avian influenza viruses
- Highly contagious in birds
- Can spread from infected birds to humans
- Most cases in people with close contact with infected poultry
- To date no sustained spread from human to human
- High mortality in humans

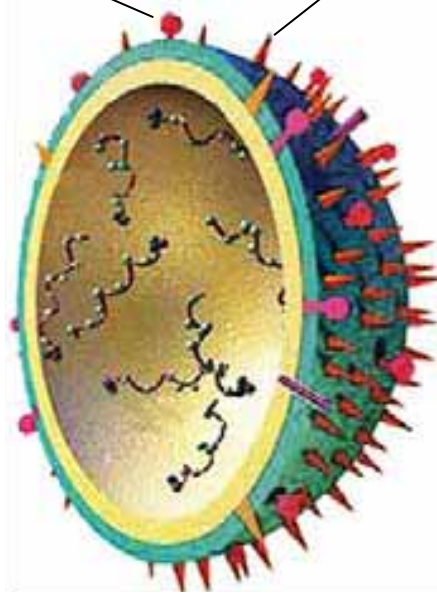
Recent History of Avian Influenza

1959 - 2003: 21 outbreaks reported worldwide; five outbreaks with significant spread

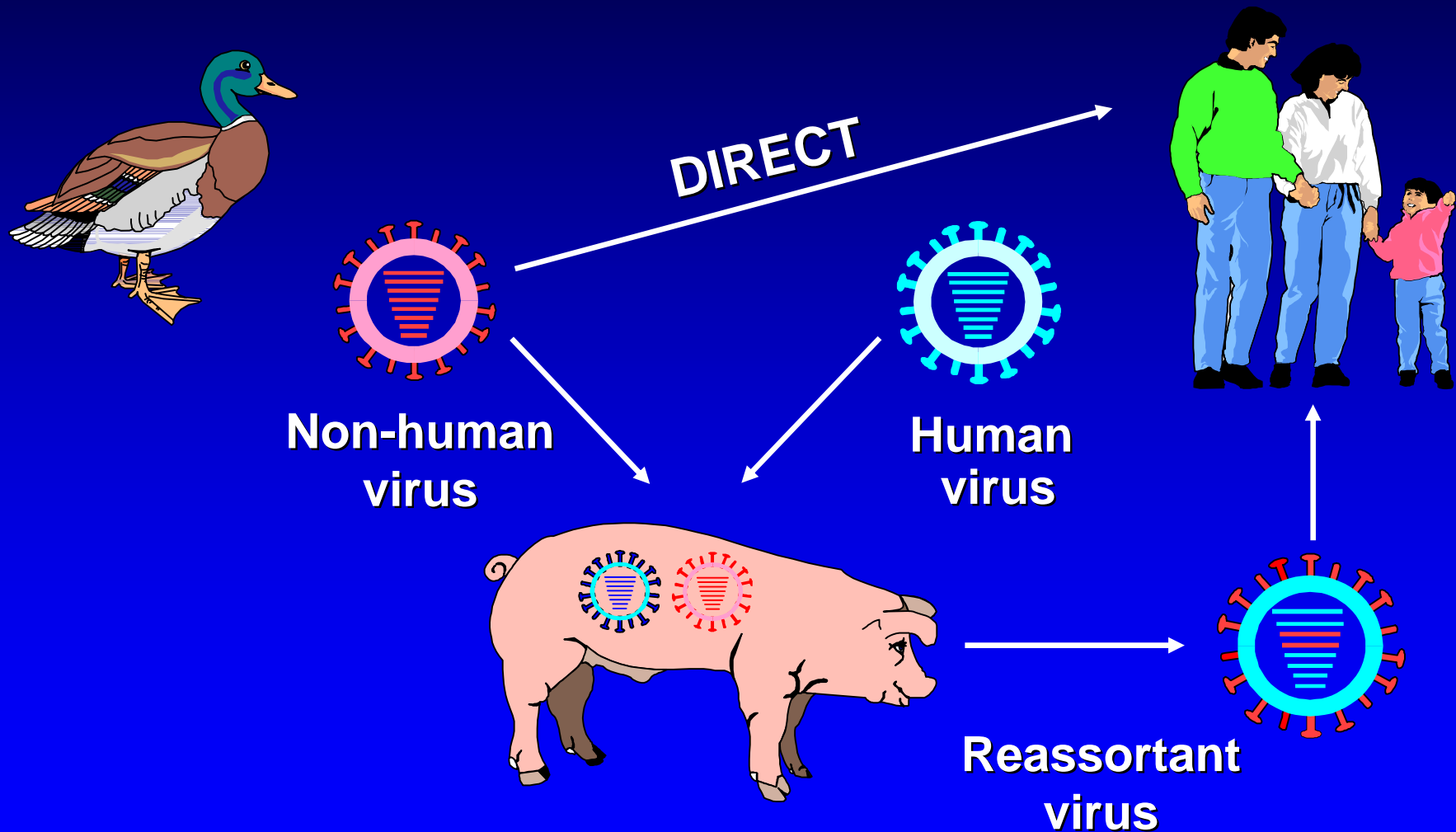
- **H5N2** 1983, US (Penn): 17 million birds culled
- **H5N1** 1997, Hong Kong: 1.5 million birds destroyed, 18 human cases, 6 deaths
- **H9N2** 1999 and 2003, China, Hong Kong
 - 9 human cases, no deaths
- **H6N2** 2001-2004 California, no human cases
- **H7N2** 2003, US, 2 cases, no deaths
- **H7N7** 2003, Netherlands: 30 million birds destroyed, 89 human cases, one death
- **H7N3** 2004, Canada: 2 cases, no deaths

Influenza Virus Typing

HA (haemagglutinin) NA (neuraminidase)



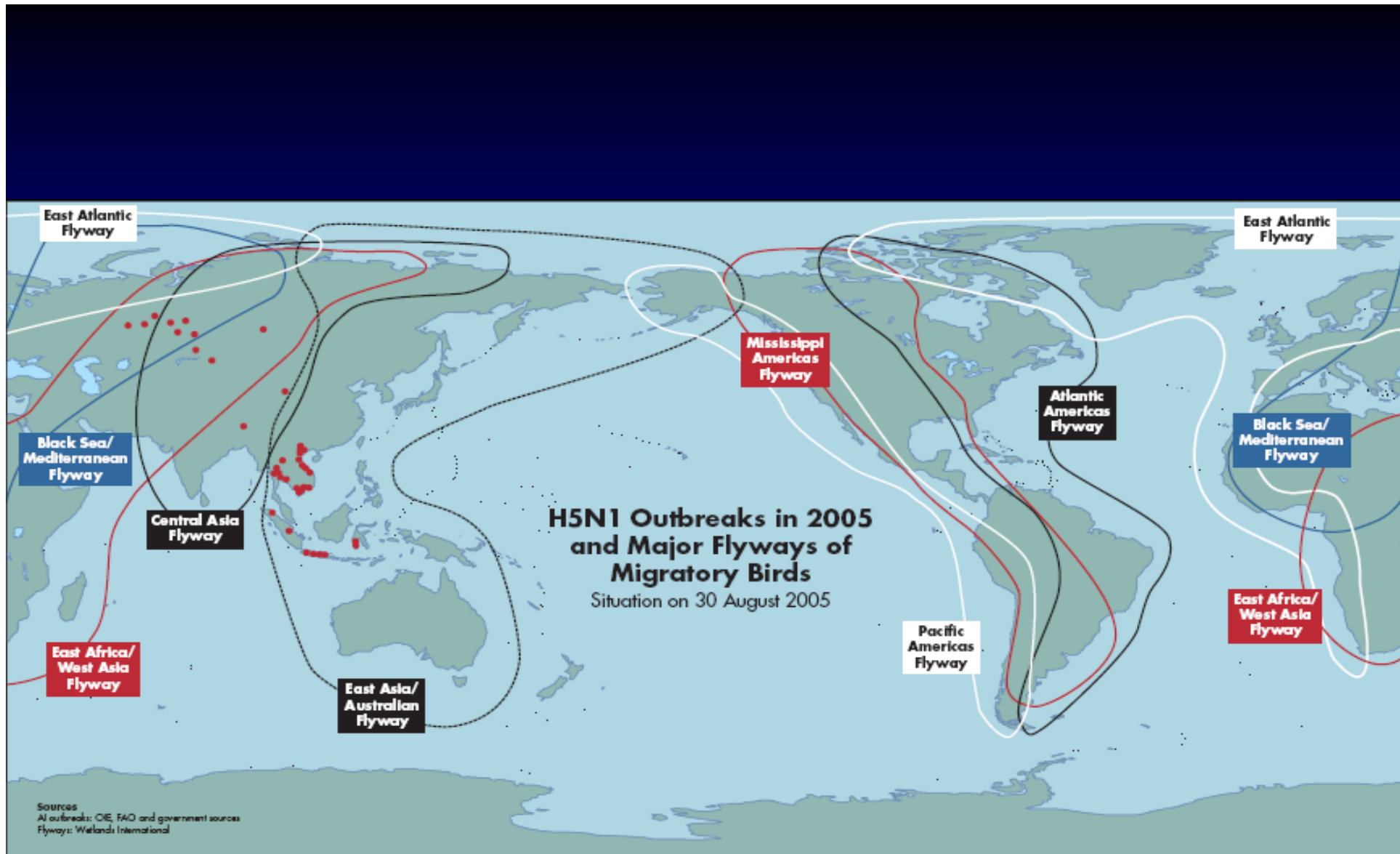
Mechanisms of Influenza Virus Antigenic "Shift"













PACIFIC

CENTRAL

MISSISSIPPI

ATLANTIC

WATERFOWL FLYWAYS OF NORTH AMERICA

Monitoring for avian influenza viruses in wild and domestic birds

- The CA Dept of Fish and Game
- UC Davis Wildlife Health Center
- U.S. Fish and Wildlife Service
- CA Dept of Food and Agriculture
- CA Dept of Health Services



**What Hunters Should Know
About Avian Influenza (Bird Flu)**

WHO Lab Confirmed Human Cases as of Oct 20, 2005

	Cases	Deaths
Indonesia	5	3
Vietnam	91	41
Thailand	18	13
Cambodia	4	4
Total	118	61

Mortality 52%



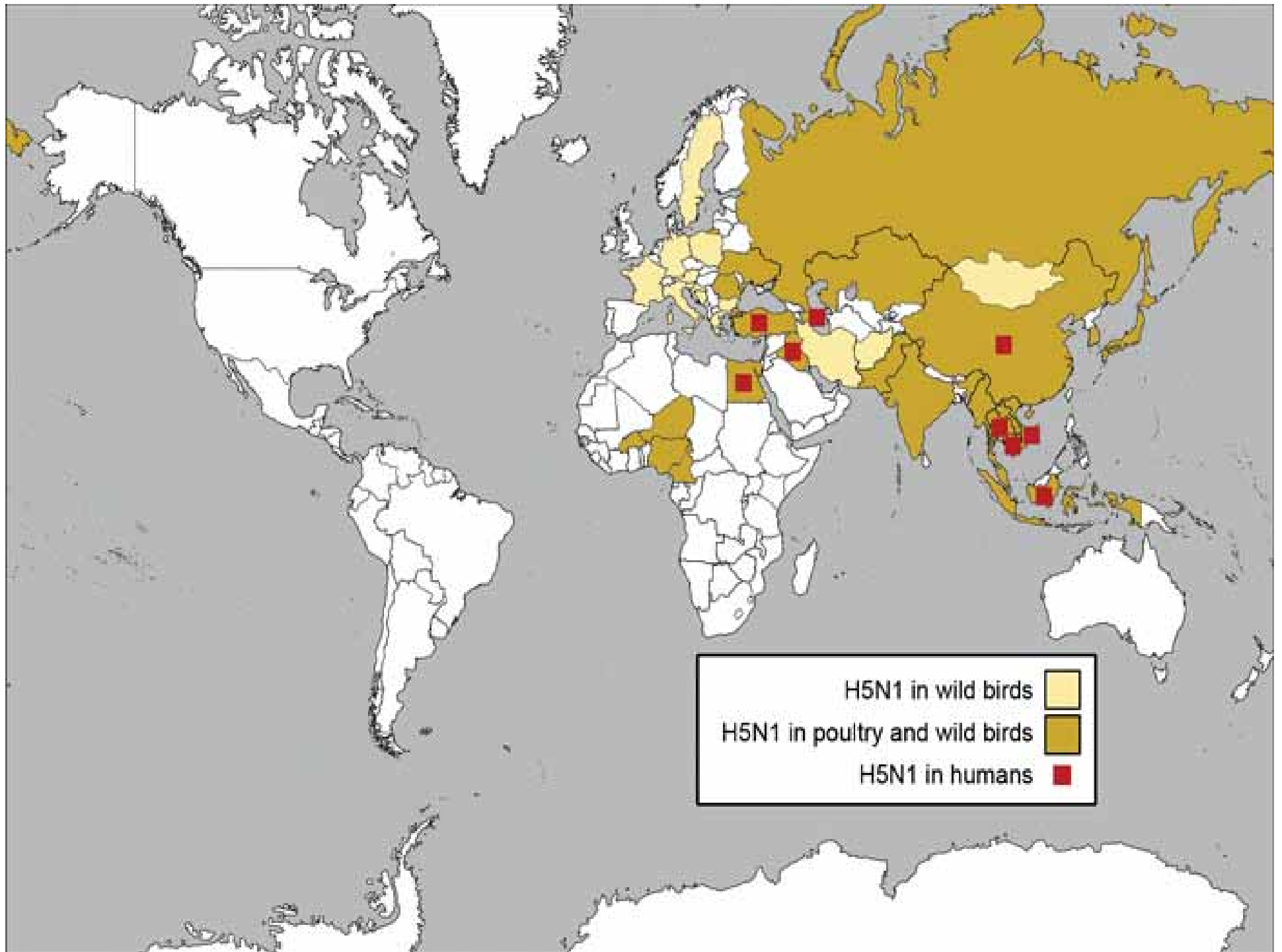
Cumulative Number of Confirmed Human Cases of Avian Influenza

- 2003 – 2006
- Total Cases 191
- Total Deaths 108
- WHO reports only lab- confirmed cases

Country	Cases	Deaths
Azerbaijan	7	5
Cambodia	5	5
China	16	11
Egypt	4	2
Indonesia	30	23
Iraq	2	2
Thailand	22	14
Turkey	12	4
Viet Nam	93	42
Total	191	108

Indonesia: Testing for H5N1 Human Transmission





For the first time mankind is
watching a potential pandemic
unfolding.

World Health Organization

Requirements for a Pandemic

- Isolation from humans of a novel influenza A virus
- Little or no immunity in the population
- Demonstrated ability of the virus to replicate and cause disease
- Efficient person-to-person transmission



Models suggest potential containment of initial clusters using a combination of:

- Isolation and Quarantine
 - Case treatment and contact prophylaxis with antivirals
 - Social vs geographic targeting
 - School and work closure
- After 4-5 weeks, it will probably be impossible to contain

BIRD FLU ALERT!



YOU MUST DECLARE

all poultry meat,
poultry products,
feathers, eggs or
egg products to a
Quarantine Officer.

Quarantine Matters!





Criteria for success of initial control

- Rapid identification of initial cluster
- Rapid case detection and treatment
- Rapid prophylaxis of targeted population
 - Sufficient drug available
 - No antiviral resistance
- Population cooperation with strategies

WHO Outbreak Control Measures

	Pre pandemic		Pandemic
	Phase 4	Phase 5	Phase 6
Confinement of cases	Yes	Yes	Yes
Face masks			
Symptomatic persons	Yes	Yes	Yes
Exposed persons	Consider	Consider	Consider
Persons seeking care	Yes	Yes	Yes
Tracing and follow up--contacts	Yes	Yes	No
Voluntary quarantine--healthy contacts	No	Yes	No
Antiviral Prophylaxis--Contacts	Yes	Yes	No
Voluntary home confinement of symptomatic persons	Yes	Yes	Yes
Closure of schools	No	Consider	Consider
Population-wide measures (e.g. close workplaces)	No	Consider	Consider



Potential Containment Measures

- Influenza more difficult than SARS or smallpox
- Measures would vary as pandemic develops
 - Isolation of ill persons
 - Quarantine of exposed persons Contact tracing
 - Cancellation of events (school, public meetings, etc)
 - Steps to reduce individual exposure to virus
 - Masks
 - Hand washing
 - Minimize public contacts

Pandemic Influenza Estimates for California

CDC Estimates of Percent of Population Affected by the Next Pandemic*	Number Affected in California (Pop. 36,363,502)**
15% to 35% of pop. will become ill with flu	5.4 – 12.7 Million
8% to 19% of pop. will require out-patient visits	2.9 – 6.9 Million
0.2% to 0.4% of pop. will require hospitalization	72 – 145 Thousand
0.04% to 0.1% of pop. will die of flu-related causes	14 – 36 Thousand

*Estimates from FluAid 2.0, CDC www2.cdc.gov/od/fluaid/default.htm

**California Department of Finance Pop. Projections for 2003

TODAY AMERICA IS WORKING IN THE LARGEST INITIATIVE IN HISTORY TO COMBAT THE AVIAN FLU. IT REQUIRES COUNTRIES WITH OUTBREAKS TO PROVIDE IMMEDIATE INFORMATION AND PROVIDE SAMPLES TO THE WORLD HEALTH ORGANIZATION. AND BY REQUIRING TRANSPARENCY, WE CAN RESPOND TO DANGEROUS OUTBREAKS AND STOP THEM ON TIME.

President G.W. Bush

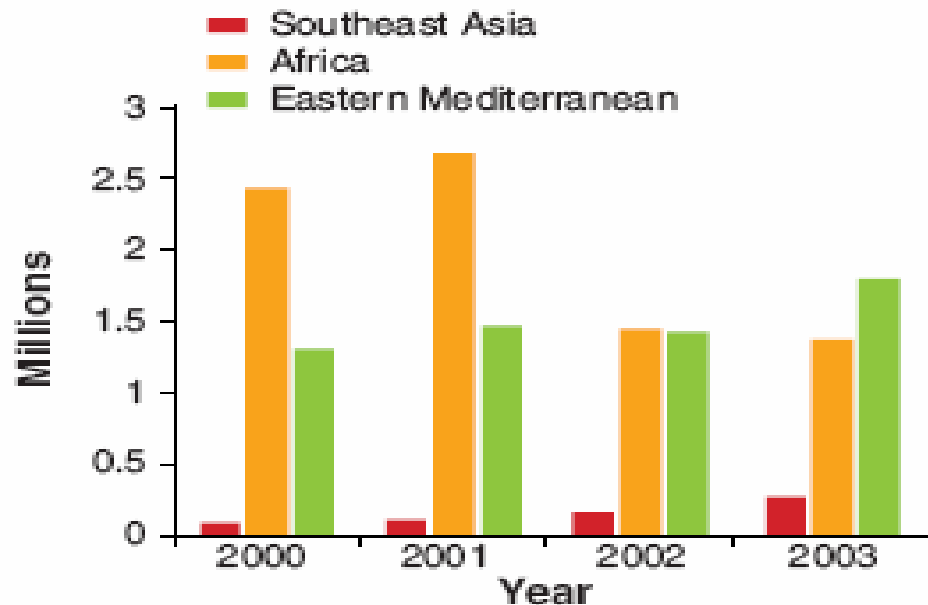
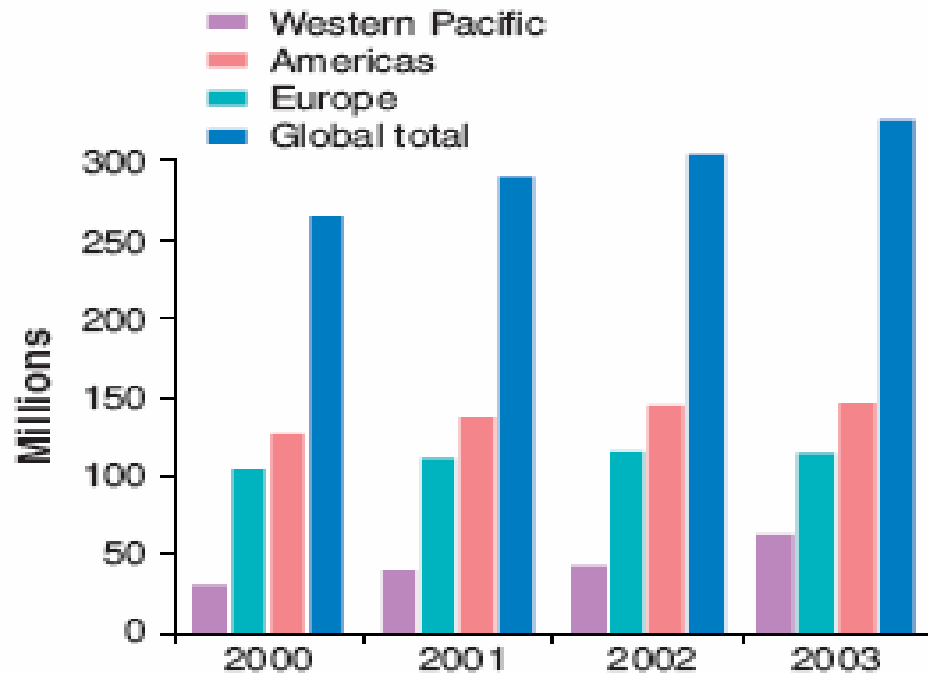
Sept 13, 2005

California Department of Health Services
Immunization Branch



\$7.1 Billion Federal Initiative

- 40 million vaccine doses by 2009
- Cell-based vaccine production: goal of 600 million doses within 6 months by 2010
- Add vaccine production capacity/retrofitting
- Antivirals stockpiled: 24 million Tx courses
- Develop new antivirals
- Subsidize state purchases of antivirals
- Enhance Strategic National Stockpile: ventilators



Global Influenza Vaccine Production

- Global production ~ 350 million doses

- 18 producers worldwide

Global distribution of influenza vaccine by WHO region. Data compiled by the Influenza

Advisory Committee Recommendation for Vaccine

- Federal government should purchase all influenza vaccine during a pandemic

Prioritization Project Goals

Develop a *systematic, justifiable, adaptable, and transparent* influenza vaccine prioritization plan to:

- **Minimize health consequences**
- **Minimize social disruption**
- **Minimize economic consequences**

National Vaccination Priority Recommendations*

		# indiv
1A	<ul style="list-style-type: none"> Health care involved in direct patient contact and essential support Vaccine and antivirals manufacturing personnel 	9 m 40 K
1B	<ul style="list-style-type: none"> Highest risk group 	26 m
1C	<ul style="list-style-type: none"> Household contacts of children <6 months and severely immune compromised, and pregnant women 	11 m
1D	<ul style="list-style-type: none"> Key government leaders and critical public health responders 	151 K
2	<ul style="list-style-type: none"> Remainder of high risk group Other public health responders and infrastructure personnel 	60 m 8.5 m
3	<ul style="list-style-type: none"> Other key government health decision makers and mortuary services 	500 K
4	<ul style="list-style-type: none"> Healthy 2-64 years not in other groups 	180 m

***Approved by NVAC/ACIP committee on July 19, 2005**

Tamiflu



Antiviral Issues

- Single manufacturer for world supply
 - US production expected 2006
- Limited courses in stockpile (2 million) and in pharmacies (1.5 million prior to 2005 season)
 - Short shelf life of 5 years
- Treatment vs prophylaxis
 - Can treat >5 times as many people with same amount
 - Prophylaxis necessary to significantly reduce transmission
- Developing resistance
- Cost \$65-130/treatment course of Tamiflu
 - \$185-\$520/person for prophylaxis

**“Prepare for massive social
and economic disruption.”**

World Health Organization

Pandemic Strategy Objectives

- Meets intervention goals
- Just
- Legal
- Politically feasible
- Practical to implement
- In accordance with National Prioritization recommendations

Command and Control

The head of the Department of Homeland Security said Tuesday his agency and not the federal health establishment will manage the country's response if a deadly new strain of bird flu evolves into a human pandemic.

Coercive public health action must be

- Effective
- Necessary
- The least restrictive means
- Proportional
- Impartial

Kayman: Albany School Public Health Presentation Aug 2005

CDHS Pandemic Planning

- Plan revision
 - Increased effort
 - Need to coordinate with federal plan
- Executive policy group
- DCDC planning group
- Legislative initiative
- Engagement of other gov't agencies, departments
- Surge capacity
 - Work with EMSA, hospitals, LHDs
- Communications

Santa Barbara County Preparedness In Progress

- Planning
 - Multi-functional Hazards Plan (OES)
 - Pandemic Influenza Response Plan (PHD)
 - Risk Communication Plan (PHD)
 - Multi-Casualty Incident Plan (EMS)
- Drills and Enactments
 - Mass Vaccination Drill
 - HOAC PH Preparedness Assessment (4/27/06)

Santa Barbara County Preparedness In Progress

- Surge Capacity
 - Staffing
 - Resources, Supplies
- Surveillance
 - Sentinel Providers
- Antivirals
 - Local Tamiflu Cache
 - Strategic National Stockpile

Santa Barbara County Preparedness In Progress

- County PH Lab
 - Influenza A/B & H1, H3 Test Capability
 - H5 Test Capability imminent
 - 20-40 tests/day
- Community Coordination
 - Hospitals
 - Providers
 - County Departments
 - Red Cross
- Personal Protective Equipment (PPE)
 - Emergency Responders

Santa Barbara County Preparedness In Progress

- Risk Communication
 - Emergency Communication Network
 - Nextel System for Disaster Responders
 - ReddiNet –Hospital Communication System
 - CAHAN –California Health Alert Network
 - Provider Alerts
 - Identify & management of suspect human cases
 - Media Information
 - PH Broadcast System
 - Prepared Press Releases & Templates
 - Future: Press and Public Information Packets
 - Public Information
 - Website
 - Information Sheets



Public Health Information

Choose a Health Topic

click on the drop down arrow to choose a health topic

www.sbcphd.org

Pandemic Influenza

[General Information](#)

[FAQ's](#)

[Information for Healthcare Providers](#)

[Surveillance and Detection](#)

[Response Plans](#)

[Links and Resources](#)

[La Gripe Pandémica y La Gripe Aviar](#)

1 - General Information

Introduction

An [influenza pandemic](#) is a global outbreak of disease that occurs when a new influenza A virus appears or "emerges" in the human population, causes serious illness, and

[Avian influenza](#) influenza virus the H5N1 virus (pandemic)

The World Health Organization's pandemic preparedness

Pandemic

[What is a Pandemic?](#)
[Pandemic on pan](#)

[Informa](#)
[Preven](#)
[The Ce](#)
[the Un](#)
[CDC is](#)

Public Health Information

Choose a Health Topic

click on the drop down arrow to choose a health topic

3 - Information for Healthcare Providers

- [Interim Infection](#)
- [California Depart](#)
- [H5N1 Case\(s\) M](#)
- [Enhanced Surve](#)
- [Forms for Health](#)
- [Laboratory Testir](#)
- [Infection Control](#)
- [Avian Influenza P](#)

Currently there are no confirmed cases of a pandemic anywhere in the nation. The local providers via its Health Department will monitor cases and individuals

The Public Health Department will coordinate medical planning and community in the event

Public Health Information

Choose a Health Topic

click on the drop down arrow to choose a health topic

5 - Response Plans: Local, State, and Federal

This page provides links to the local, state and federal pandemic influenza response plans.

Local

The [Santa Barbara County Public Health Department](#) has defined its responsibilities, communication and vaccination (once a vaccine is available) health officer.

Further response planning is being done by the Emergency Response Workgroup, which includes members from the local health department, home health, emergency services, law enforcement, and

Public Health Information

Choose a Health Topic

click on the drop down arrow to choose a health topic

7 - La Gripe Pandémica y La Gripe Aviar

Resources

[¿En qué se diferencia la gripe pandémica de la gripe aviar y de la gripe estacional?](#)

<http://www.cdc.gov/flu/pandemic/es/>

[Preguntas y repuestas sobre la gripe pandémica](#)

http://www.cdc.gov/flu/pandemic/qanda_es.htm

Si usted tiene preguntas sobre la gripe pandémica o la gripe aviar, mándenos su correo electrónico ([e-mail](#))

[Información importante sobre el virus de la gripe aviar \(gripe del pollo\) y de la gripe aviar A \(H5N1\)](#)

<http://www.cdc.gov/flu/avian/gen-info/es/facts.htm>

Un Plan Para Su Familia: [Lista para Individuos y Familias](#)

Guía provisional para la protección de personas que participen en

PHD Website Info & Resources

Pandemic Strategy Session

County Council	Public Works	County Fire
Sheriff Dept	Public Health	Agricultural Commissioner
ADMH	Social Services	County OES
Superior Court	General Services	EMS
Animal Services	Child Support Services	Clerk Recorder
County Executive Office	District Attorney	Housing and Community Development
Human Resources	Parks	Coroner
Public Defender	Planning Dept	Environmental Health
APCD	Probation	Clerk of the Board
Jail Services	Treasurer	State OES