



Pandemic Influenza & Planning

The Government Perspective

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Agenda

- **Define & clarify terms**
- **Explain the history of pandemic influenza**
- **Explain the threat that pandemic influenza represents**
- **Review public health, antiviral, & vaccine interventions**
- **Discuss federal, state, and local government planning activities**



A disease is . . .



- **Endemic**
 - Occurs in usual or expected numbers in an area
- **Epidemic**
 - Occurs in numbers greater than expected
- **Pandemic**
 - A widespread epidemic impacting a number of continents



Disaster vs Pandemic

Thailand Tsunami 2004 Khao Beach



Disasters vs Pandemics

- | | |
|---|---|
| <ul style="list-style-type: none">• Limited in scope to a certain area• Limited in time from minutes to days• Visible evidence• Material casualties predominate• Can count on local material aid and state/federal response• Localized economic impact | <ul style="list-style-type: none">• Widespread geographic impact• Occur in 6w to 2m waves over ~one year• Invisible evidence• Human casualties predominate• State/federal response may be very limited• Widespread economic crisis |
|---|---|



Avian vs Pandemic Influenza

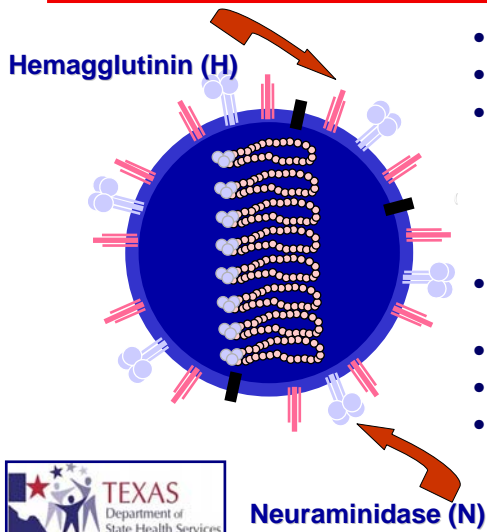


Epidemiology of Avian flu in humans

- Avian (Bird) Flu is a disease of birds
- All Avian Flu viruses are endemic in waterfowl & do not harm them
- Wild birds mix with domestic chickens in back yard farms
- Domestic chicken flocks mix in live poultry markets
- People mix with sick or dead chickens
- People catch Avian Flu











Influenza A Virus



- Influenza A viruses are
- subtyped based on two
- surface antigens
 - **Hemagglutinin (H)**
[cell entry]
 - **Neuraminidase (N)**
[cell escape]
- Immunity to surface antigens
- reduces likelihood and
- severity of infection to
- same or similar subtypes



Natural hosts of influenza viruses									
Haemagglutinin subtype					Neuraminidase subtype				
									
H1					N1				
H2					N2				
H3					N3				
H4					N4				
H5					N5				
H6					N6				
H7					N7				
H8					N8				
H9					N9				
H10									
H11									
H12									
H13									
H14									
H15									
H16									

Flu viruses are identified by their surface proteins: Hemagglutinin and Neuraminidase

The H and N are also called antigens since it is what stimulates antibody production

There are 16 types of H antigens and 9 types of N. All are endemic to wild fowl.

Horses and pigs are susceptible to 2 Hs and Ns

Humans to 4 Hs and 2 Ns.

Seasonal vs Pandemic Flu

Seasonal

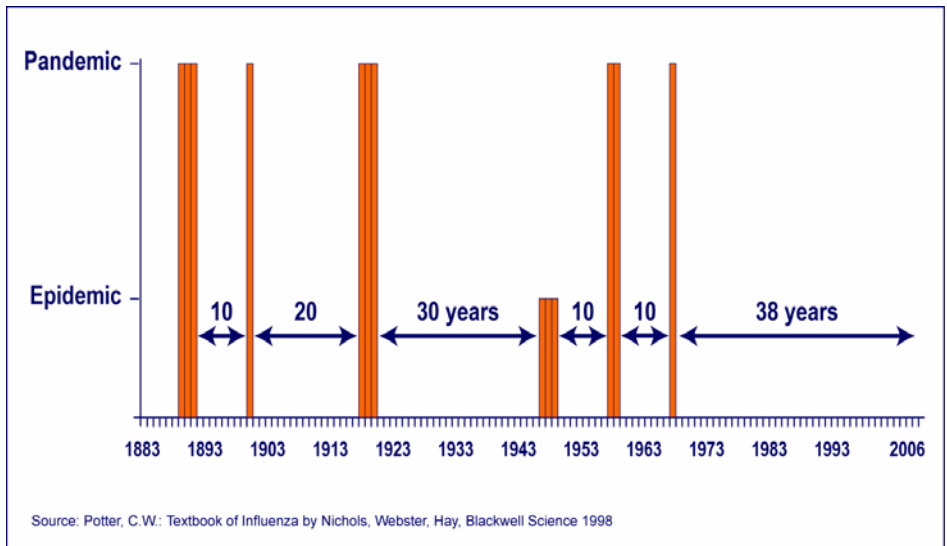
- Annually
- Known virus
- Vaccine available (usually)
- High mortality young & old esp. w/ health problems

Pandemic

- Irregular intervals
- Novel virus
- No or mismatched vaccine
- High mortality in 20-50 year olds; mortality in young similar to seasonal flu



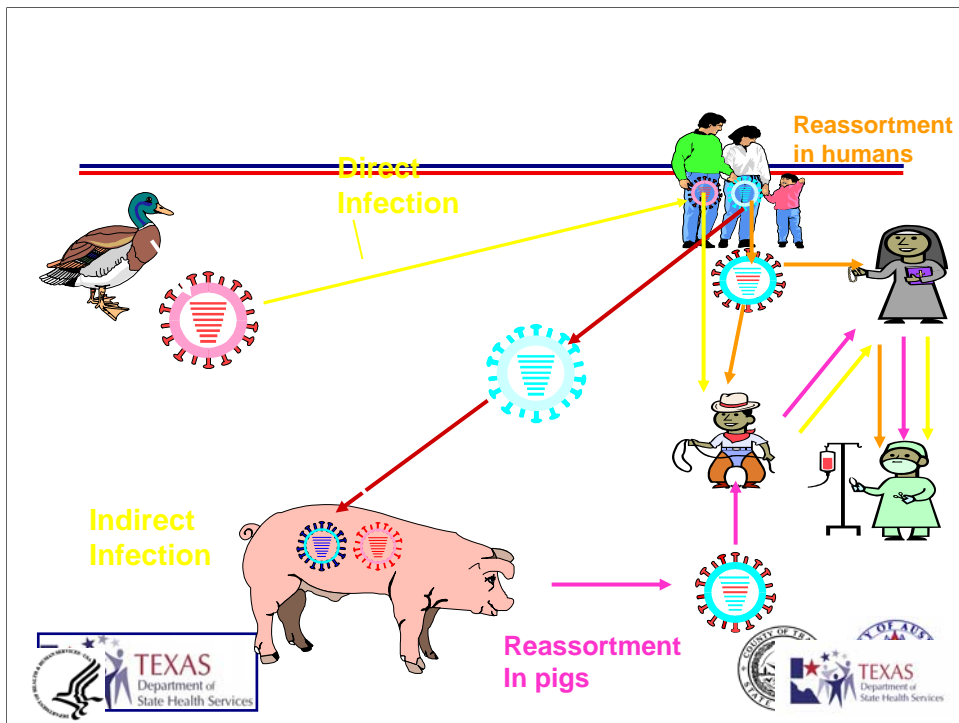
Recorded Influenza Pandemics



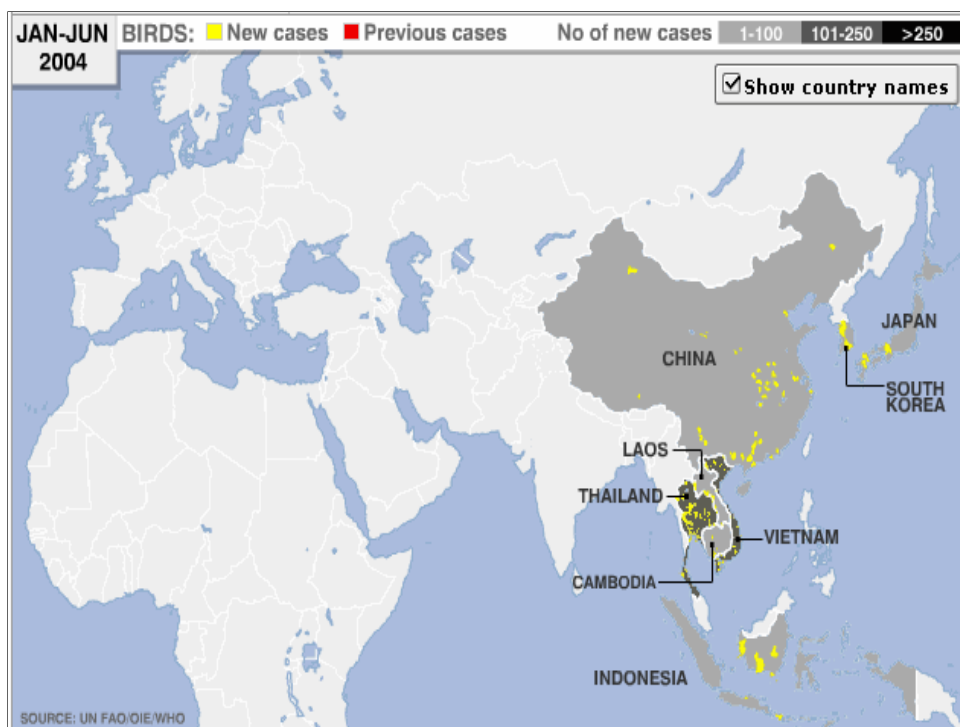
Pandemics of the 20th Century

<u>Year</u>	<u>Name</u>	<u>Strain</u>	<u>Actual Deaths</u>	<u>2006 Deaths</u>
1918	Spanish	H1N1	675,000	1,959,000
1957	Asian	H2N2	76,000	137,639
1968	Hong Kong	H3N2	34,000	50,760
1969- 2006	Seasonal Influenza	H1N1 H3N2	34,000- 40,000/ year	1,224,000- 1,440,000 since last pandemic

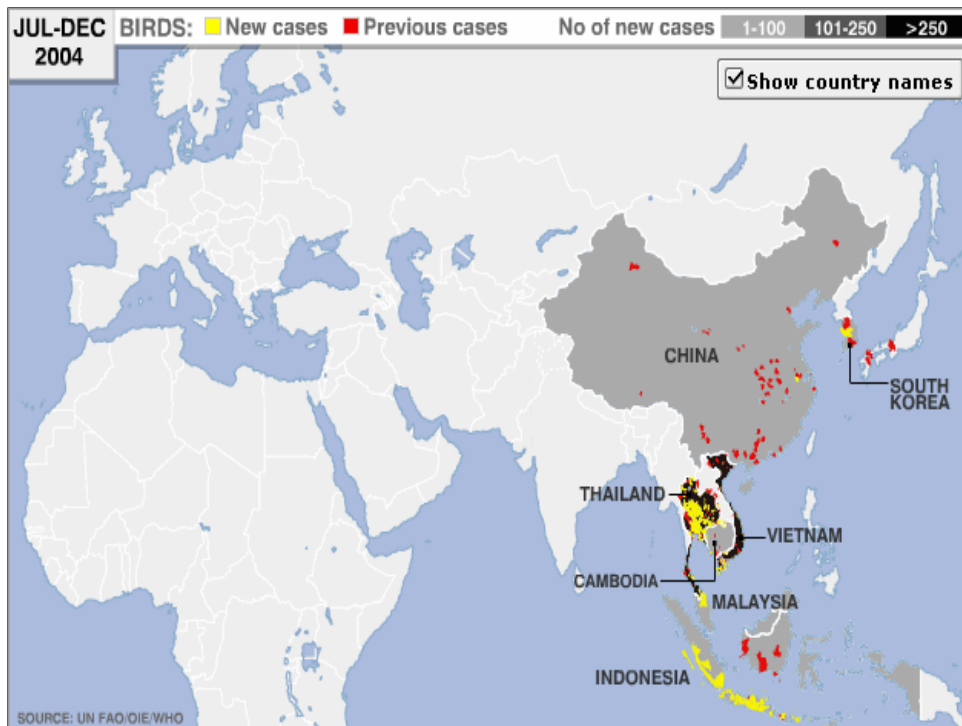


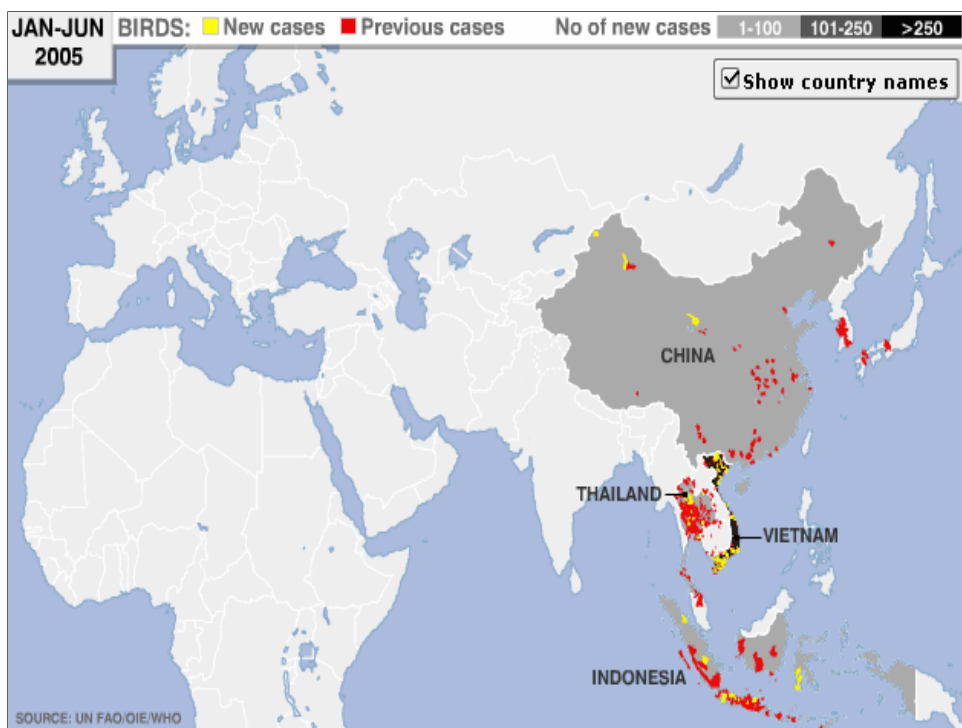


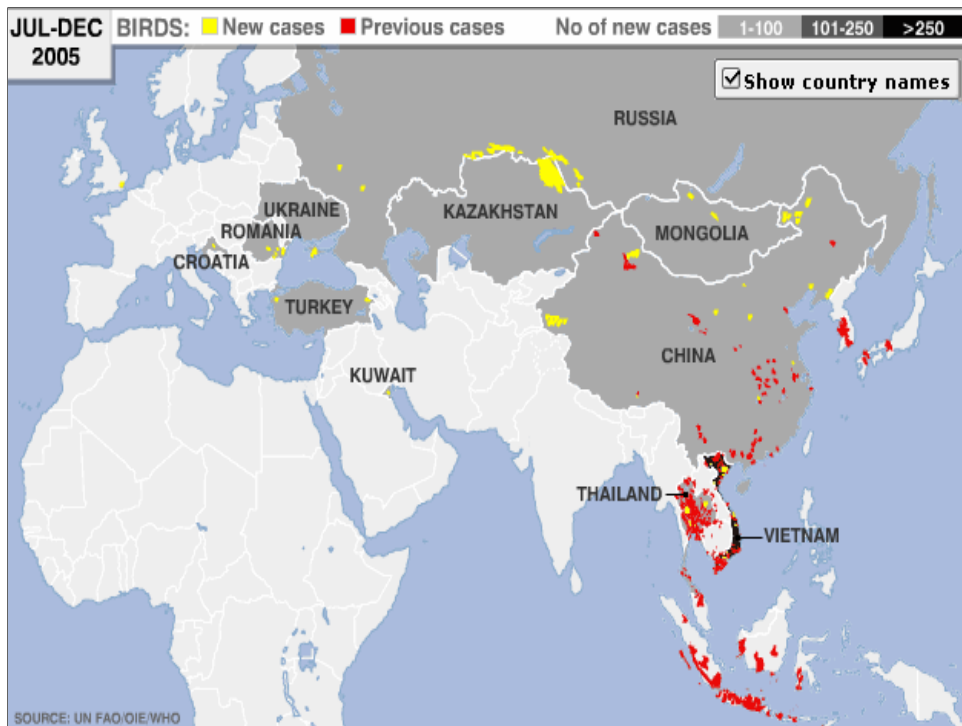
Since the H5N1 and the 1918 H1N1 (found last year) investigations we have learned that a reassortment event that could create a pandemic strain could directly occur in humans potentially increasing the likelihood of a pandemic. Recent research on the 1918 Spanish Flu virus seems to have done this.

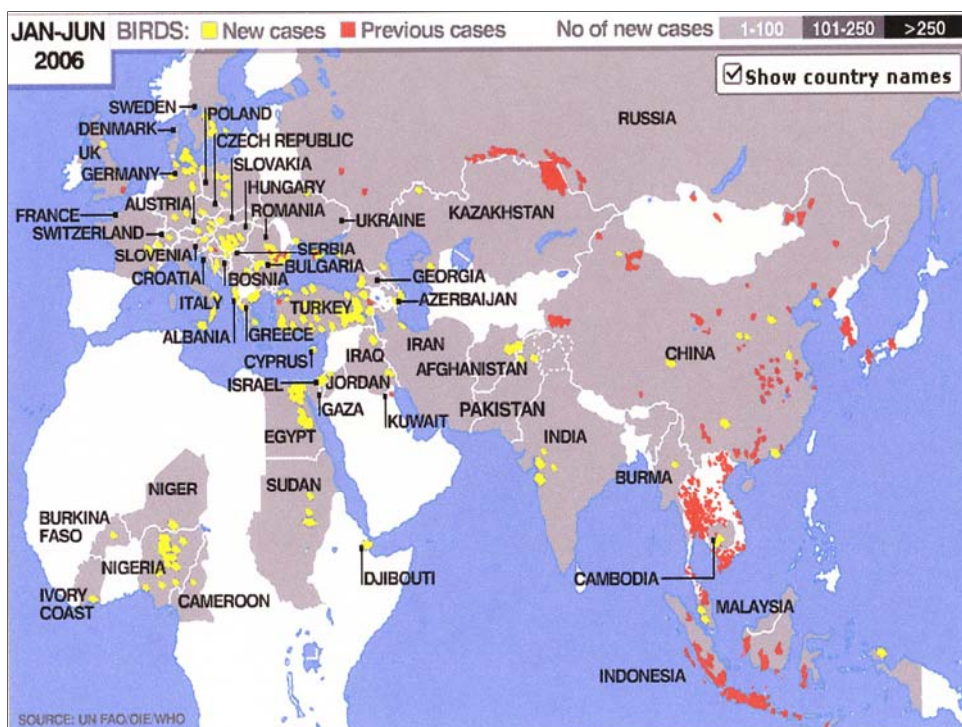


Series of maps each showing 6 month cumulative data beginning with Jan – June 2004 and ending with Jan – May 2006

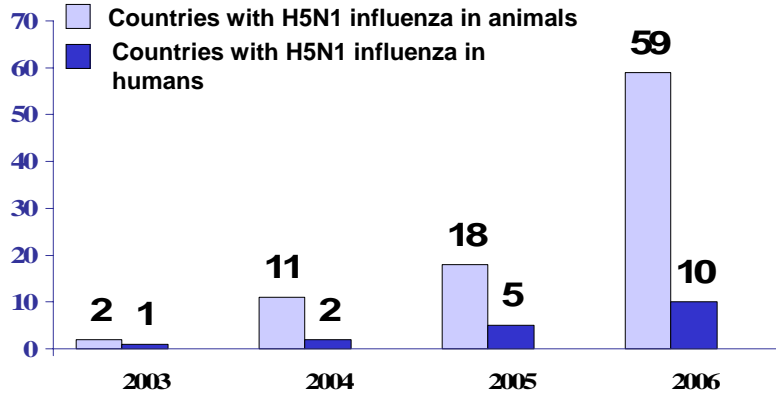








Countries with H5N1 Influenza in animals & humans



Through October 16, 2006

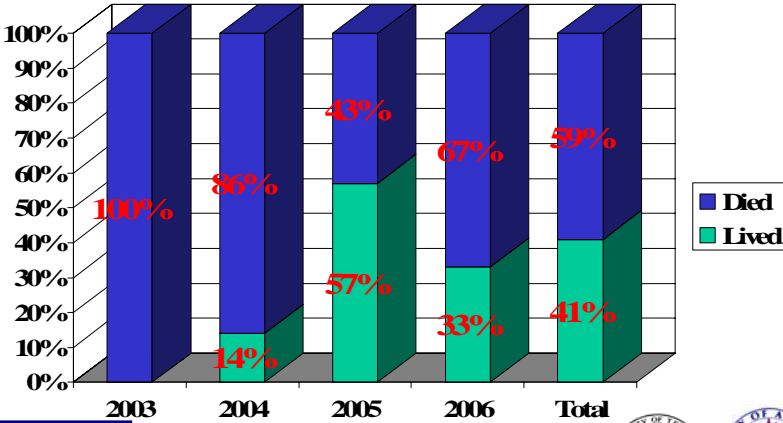


Concern – increasing speed of animal and human spread

As of October 16, 2006 there have been 256 cases with 151 deaths

- of those 109 cases and 73 deaths have occurred in 2006 which is 43% of cases and 48% of the deaths since 2003.

Case Fatality Rate

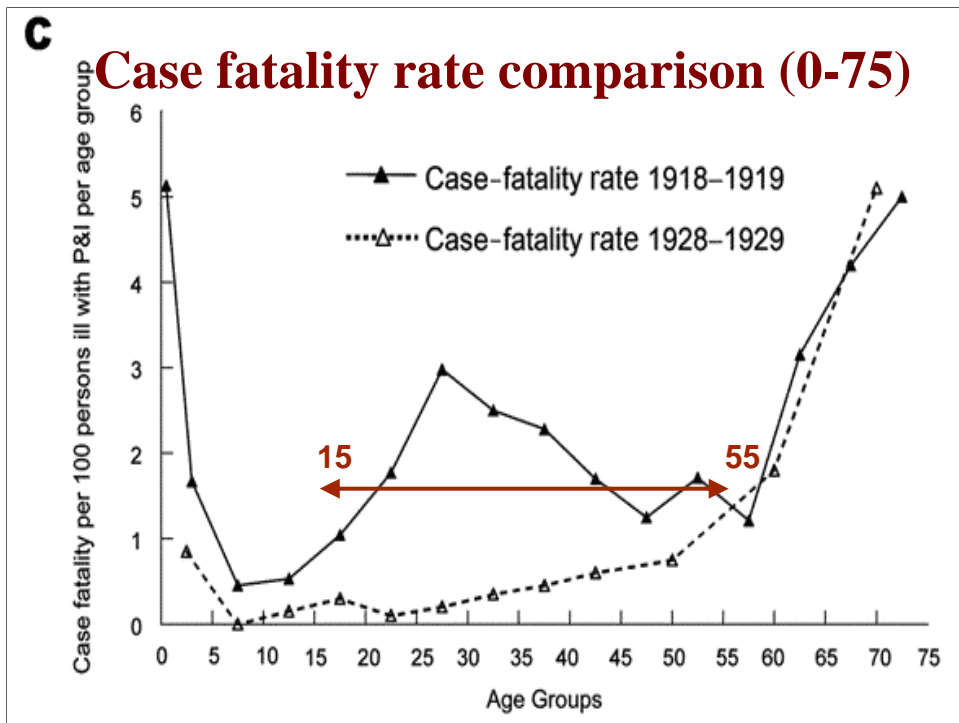


The H5N1 Flu Threat to Humans

1. A new virus to which humans have no immunity - **Yes**
2. The virus causes significant human illness or death - **Yes**
3. The virus spreads easily from person-to-person – **NO**

The Avian Flu (H5N1) virus has 2 out of 3 of these today...

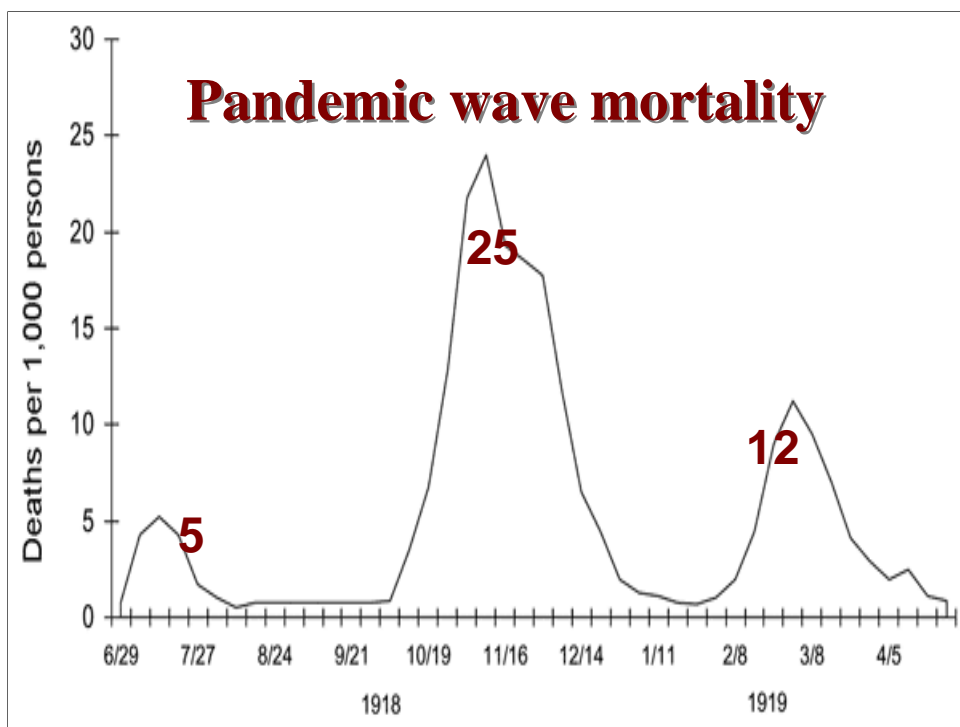




U-shaped is seasonal flu case fatality rate

W is pandemic; pattern is being seen with H5N1

Middle age has healthiest immune system. Over reacts to the highly virulent virus, Over reaction called cytokine storm. People die of Adult Respiratory Distress Syndrome. This was also seen with SARS.



Prevention and Containment

- **Public Health Population focused strategies**
- **Outbreak control**



Potential Community Measures Prevention

- Education of public about disease and personal preventive measures
- Travel advisories/limit travel to affected areas
- Screening travelers from affected areas*
- Vaccine development



Potential Community Measures Containment

- Education to allow early identification and isolation of cases*
- Travel advisories/limit travel to/from affected areas*
- Screening travelers from affected areas*
- Limit large public gatherings; close schools
- Limit availability of public transportation
- Isolate ill persons
- Quarantine of exposed persons*

*** Note: Some measures may be most useful early in outbreak and with strains that are not efficiently transmitted**



Federal Pandemic Influenza Planning

- **The National Strategy for Pandemic Influenza – November 2005**

- **Dept. of Homeland Security**

- **Pillars of the national strategy**

- Preparedness and Communication
- Surveillance and Detection
- Response and Containment

- **Identified roles and responsibilities**

- Federal, state, & local governments
- Private sector and critical infrastructure
- Individuals and families
- International partners



Federal Pandemic Influenza Planning

Private sector & critical infrastructure responsibilities

- Establishing an ethic of infection control at work including options for working offsite while ill, systems to reduce infection transmission, and worker education.
- Establishing contingency systems to maintain delivery of essential goods and services during times of significant and sustained worker absenteeism.
- Where possible, establishing mechanisms for workers to provide services from home if public health officials advise against non-essential travel outside the home.
- Establishing partnerships with other members of the sector to provide mutual support and maintenance of essential services during a pandemic.



Private sector

- Just-in-time society with ~1-2 weeks of warehoused goods
- Touches majority of people on a daily basis as customers or employees depending on a job

Critical infrastructure

- Societies dependence on services
- Society would have difficulty functioning w/o utilities, health care workers, death care workers, etc.

Responsibilities

- Reinforce during the annual influenza season

Federal Pandemic Influenza Planning

Pandemic Influenza Plan – November 2005

- US Department of Health & Human Services
- 396 pages
 - **Strategic plan for HHS & CDC**
 - Response actions & key capabilities
 - **Guidance for State and Local Partners**
 - Surveillance, diagnostics, partnering w/ healthcare systems, infection control, vaccine, antivirals, community disease control, travel, communication, and workforce support



Federal Pandemic Influenza Planning

National Strategy for Pandemic Influenza: Implementation Plan – May 2006

- Department of Homeland Security
- 233 page document
- Describes federal government's roles and responsibilities for :
 - Planning
 - Response at a national level
 - International control
 - Transportation and border containment
 - Activities to protect the public
 - Protecting animal health
 - Law enforcement and security
 - Protecting federal government infrastructure



Federal Pandemic Influenza Planning

- ❖ **Sets forth planning assumptions**
- ❖ **Defines how response to pandemic will be coordinated**
- ❖ **Delineates Federal departments and agencies roles and responsibilities**
- ❖ **Defines what the federal government will and won't do in a pandemic**



- ❖ (i.e. 40% absenteeism for two weeks during peak, with multiple waves of illness lasting 2-3 months/wave).
- ❖ and provides the structure and mechanisms for this coordination.
- ❖ and charges them with taking specific coordinated steps, including joint and integrated planning.
- ❖ and clearly defines expectations for non-federal stakeholders.

Federal Pandemic Influenza Planning

- ❖ Recognizes that protecting human health is the core of pandemic preparedness, but the economic and societal disruption could be significant and affect multiple sectors of society.
- ❖ Sector checklists
- ❖ HHS / CDC Implementation Plan Standard Operating Guidelines
- ❖ www.pandemicflu.gov



o Absenteeism related to illness or illness in family members,
Fear of contagion,
The movement of goods and services (85% of critical infrastructure is private sector), and
Operations of schools and universities.

- Developed by CDC

Individuals: personal/family;

Schools: childcare/preschool; K-12; higher ed

Business: businesses; critical infrastructure

Healthcare: home health; offices/clinics; EMS, hospitals; LTC

Community: faith based; medical reserve corps

- We learned last week that HHS is beginning to develop Standard Operating Guidelines.

Coming ??

Will serve as a guide for state plan revisions

Development of Texas Plans

- **Pandemic Influenza Plan Operating Guidelines (PIPOG)**
 - **Updating and final review**
 - **Due to CDC February 2007**
- **Public Plan**
 - **In development – 75% complete**
- **Appendix 7 to Annex H of the State Emergency Plan**
 - **In development – 66% complete**



➤ January 2004: Texas became one of eleven states to complete and publish a Draft Pandemic Influenza Plan.

➤ Following release of the 2004 HHS draft plan DSHS decided to revisit its draft and update it to reflect HHS's directions for planning.

➤ We began with the idea of developing the Appendix for our state emergency plan but stakeholders were requesting more detail so we decided there needed to be 2 plans:

We have had a draft on our website since 10/24/05. Meanwhile Version 1.0 has been completed, professionally edited, and is moving through the approval process. We hope to have it posted by 7/1 and begin work on the State Emergency Plan Appendix.

Phase 1 (\$5.875M) federal Emergency Supplemental Pandemic Influenza funding to the base Public Health Preparedness base grant has been helpful for providing financial resources for HSRs and LHDs to complete their plans. > 90% of the funding went to locals. The DSHS goal is 100% by 12/31; the HHS target is 80%.

Phase 2 (~15 M) will assist in filling gaps for infrastructure and developing aspects of plans.

What the PIPOG* is intended to do . . .

- Meet the HHS / CDC format and content requirements for state pandemic influenza plans
- Serve as a guide for planning for LHDs, community sectors, and individuals . . .
- . . . From the Interpandemic Period (Phase 1) through Post-pandemic Period (end of Phase 6)
- Serve as standard operating guidelines for DSHS and community stakeholders



- HHS and CDC has set specific requirements for organization and content of their required plans. For example, the plan must be organized according to the WHO periods and phases and delineate state and local public health responsibilities in each phase.
- The plan is to serve as a guide that will assist health service providers in the community with planning for surveillance, early detection, specimen submission, outbreak control, triage, treatment, and death care.

What the PIPOG is intended to do . . .

- Delineate roles and responsibilities in planning and service provision for DSHS Central office HSRs, LHDs, and the private sector
- Provide 'what' and 'how to' carry out certain activities
- Provide algorithms for decisions related to specific processes
- Provide best practices
- Provide details of alternate intervention strategies



•PIPOG is the detail that describes in detail expectations of Central office, HSRs, which are regional extensions of DSHS and independent LHDs. We have 254 counties. 64 full service LHDs serve 65 counties and 5 cities leaving 189 counties with either limited service LHDs or no LHD services at all. The 8 HSRs serve as LHDs for these counties.

•Various intervention strategies are described for situations that are moving targets. For example: Vaccine does not exist; Vaccine exists but supplies are limited and are in the public sector only for distribution; Vaccine is being produced in adequate amounts and will be distributed through normal vaccine distribution systems in the private sector.

•Develop easy to follow algorithms as possible such as submission of lab specimens

•Develop best practices scenarios for application to real life events, e.g Vietnamese woman arrives on international flight and present with ILI the next day.

Federal Emergency Supplemental Pandemic Influenza Funding Phase I - Scheduled Deliverables

Phase I - \$5.875 Million in Texas

- **Self-Assessments**
- **Pandemic Influenza Coordinating Council (PICC) (12/31/06)**
- **Pandemic Influenza Plans (CDC target 80% by 12/31/06)**
- **One exercise of pandemic plan – focus unspecified**
- **AAR within 60 days**



- Funds available in June – 90% to locals
- State and local levels
- Separate document or integrated with all hazards

Federal Emergency Supplemental Pandemic Influenza funding

Phase 1 (\$5.875 Million in Texas)

Provides resources for Health Service Regions and Local Health Departments to complete their plans;

One exercise required by December 31, 2006. (with AARs)

90% of the funding went to local partners.

Federal Emergency Supplemental Pandemic Influenza Funding Phase II - Scheduled Deliverables

Phase II - \$15.45 Million in Texas

- **Fill gaps identified Round 1 self-assessment**
- **Developing aspects of state plan**
 - **Antiviral allocation, distribution, and storage**
- **Coordinate & collaborate across sectors**
- **Year-round flu surveillance**
- **88.9% distributed to local and regional health departments for use by 8/31/2007**



Phase 2 (\$15.45 Million in Texas) The application for these funds is due August 31.

Assists in filling gaps for infrastructure and developing aspects of plans.

Focused exercises at local level

Full-scale state-wide exercise

Final plans for purchase, storage, and distribution of antivirals

Phase II - Scheduled Deliverables - DSHS

**Antiviral distribution and storage plan (draft
11/30/06; final 8/30/07)**

- **Vaccine distribution and storage plan (8/31/07)**
- **Pandemic Influenza Plan (2/1/07)**
- **PHIN – compliant vaccine / antiviral tracking system (8/30/07)**
- **Clinical guidelines for community isolation and quarantine (8/31/07)**
- **Conduct follow-up self assessments of LHDs and AI tribes (spring 2007)**



Phase II - Scheduled Deliverables – Local Health Departments

3 exercises

- **Mass prophylaxis using seasonal flu vaccine fall 2006**
- **Non pharmaceutical community containment**
- **Medical surge**
- **AARs within 60 days**
- **Identification of Alternate Care sites & plan to support them**
- **Based on identified gaps, conduct activities to fill them.**



Emergency funding Round III 6-15-06 (FY 07 or 08?)

- **Enhancing the pandemic influenza regulatory science base**
- **Accelerating" pandemic flu surveillance**
- **Developing registries to monitor influenza vaccine distribution and use**
- **Supporting pandemic flu research, including clinical trials**
- **Developing and buying vaccines, antivirals, and medical supplies**
- **Building or renovating private facilities for producing pandemic flu vaccines or biological products, if the secretary finds such steps necessary to secure supplies**
- **International surveillance**



Additional \$200M

Unsure how much will come to states – or if additional allocations

Base grant funding is being cut

Priorities for FY07

- **Development of Sector-Specific Guidelines:**
 - **Schools**
 - **Communities**
- **Best practices**
- **Formalize stakeholder processes**
- **Improve communication and sharing of ideas and resources among local, regional, and state health departments.**



Conference – satellite broadcast to regions to allow rural access

Articles in professional org newsletters

Presentation at professional org conferences and meetings; articles in newsletters

Priorities for FY07

- **Increase collaboration with various sectors**
 - **Military, AI tribes, Neighboring states, Mexico**
- **General public**
 - **Complete public plan; increase awareness w/o causing panic**
- **Improve surveillance**
- **Continue sector-specific assistance**



Austin/Travis County Local Public Health Response

- 1. Early Detection (Lead)**
- 2. Prevention of Transmission (Lead)**
- 3. Prevention of Disease (Lead)**
- 4. Primary Care (Support)**
- 5. Emergency Care (Support)**
- 6. Hospital Care (Support)**
- 7. Home Care (Support)**
- 8. Mortuary Capacity (Support)**
- 9. Rationing (Support)**
- 10. Crisis & Emergency Risk Communication (Lead)**



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Planning Assumptions

- **Short warning period of an approaching pandemic.**
- **No vaccine available until one month before the pandemic hits the U.S. and Texas**
- **Two doses of vaccine (administered 30 days apart) required to develop immunity to the novel virus**
- **Five months needed to produce an adequate supply of vaccine for the entire U.S. population**
- **Pandemic waves last about one month and peak at two weeks**



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Planning Assumptions

- The **first wave** will have the following effects on the general population in Austin Metro Area (est.1,306,627):
 - 326,657 people will be infected (ill 7 to 10 days)
 - 13,067 hospitalizations
 - 5,553 deaths
- The **second wave** :
 - 65,332 people will be infected (ill 7 to 10 days)
 - 2,614 hospitalizations
 - 1,111 deaths



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Pandemic Influenza Plan

Purpose

- To ensure a timely, effective response to pandemic influenza
- Foundation for further planning, drills and emergency preparedness activities

Scope

- Planning efforts fully integrated with international, national, and state directives
- Response limited to preparedness for pandemic influenza in Austin and Travis County
- External sources of support assumed to be unavailable



ATCHHSD Pandemic Influenza Plan

5 components:

- **Planning and Coordination**
- **Situation Monitoring and Assessment**
- **Prevention and Containment**
- **Health Systems Response**
- **Communications**



ATCHHSD Pandemic Influenza Plan

1. Planning and Coordination

- **Develop plans prior to an event**
- **Incident Command during an event**
- **Critical city services and business continuity during an event**
 - ✓ **Core services**
 - ✓ **Available resources**
 - ✓ **Alternative business operations**
 - ✓ **Disease prevention in the workplace**



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Pandemic Influenza Plan

2. Situation Monitoring & Assessment

- **Human Disease Surveillance activities**
- **Animal Disease Surveillance activities**
- **Health care provider monitoring**
- **Work/School absenteeism**
- **International Sentinel Monitoring**



Disease Surveillance

- The critical first step in preparedness
- Rapid identification and characterization of disease



Disease Surveillance Activities

- **Monitoring international, national, state and local influenza movement using Epi-X and HAN**
- **Sentinel Influenza Surveillance**
- **Active weekly disease surveillance for ILI and influenza with area infection control practitioners**
- **Passive disease surveillance with school nurses, nursing homes, group practices, workplaces**
- **Daily syndromic surveillance**
- **Influenza/pneumonia mortality**

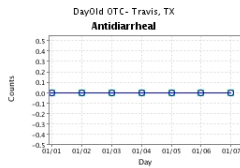


Components of Comprehensive Surveillance

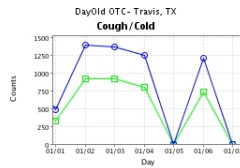
- **Pre-clinical Event Monitoring**
 - **OTC Drug Sales (National Retail Data Monitor)**
 - **Employer/School Absenteeism**
- **Automated Syndromic Surveillance**
 - **Primary Care Office Visits**
 - **Emergency Department Visits**
- **Human Intelligence**
 - **Mandatory Disease Surveillance**
- **Animal Health Surveillance**



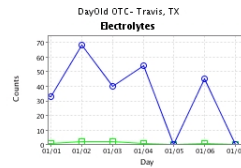
System Message Log



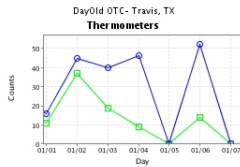
■ Non-promotion sales ■ All sales



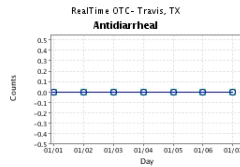
■ Non-promotion sales ■ All sales



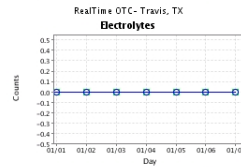
■ Non-promotion sales ■ All sales



■ Non-promotion sales ■ All sales



■ Non-promotion sales ■ All sales



■ Non-promotion sales ■ All sales

Data type: StateJurisdiction: County: ☐ Normalize
Note: If Alternating view is selected, the view will change every 2 minutes.



National Bioterrorism Syndromic Surveillance Demonstration Project (NBSSDP)

[Administration](#)
[Publications](#)
[Request Access](#)

Charts

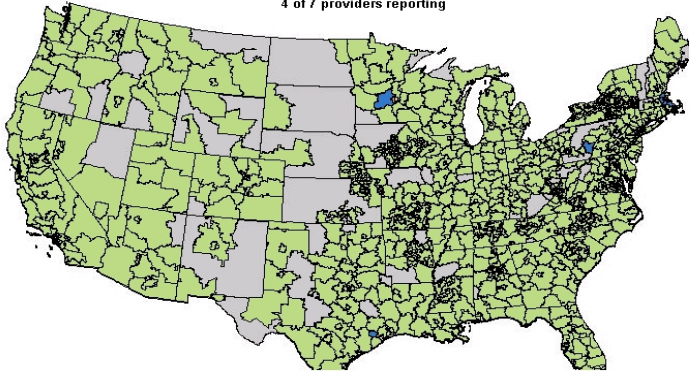
[Amalgamated National Counts](#)
[Colorado](#)
[Massachusetts](#)
[Minnesota](#)
[Texas](#)

Maps

[Colorado](#)
[Massachusetts](#)
[Minnesota](#)
[Texas](#)

Amalgamated Reported Data from all Providers

for: 06 Jan 2004
4 of 7 providers reporting



National Bioterrorism Syndromic Surveillance Demonstration Project (NBSSDP)

[Centers for Disease Control and Prevention](#) | [Harvard Pilgrim Health Care](#) | [Channing Laboratory](#) | [Harvard Medical School](#) | [American Association of Health Plans](#)

[Administration](#)
[Publications](#)
[Request Access](#)

TEXAS Coverage of ALL PROVIDERS

Daily Public Surveillance Report of Office Visits and Triage Calls
With Diagnoses Corresponding to [Infection Syndromes](#)



Unusual Events for 1/6/2004

ZIP3	STATE	COUNT	RECURRENCE INTERVAL(RD)
------	-------	-------	----------------------------

NO EVENTS CORRESPONDING TO A RI GREATER THAN 30 DAYS

ZIP5	TOWN	COUNT	RECURRENCE INTERVAL(RD)
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NO EVENTS CORRESPONDING TO A RI GREATER THAN 30 DAYS

[Tab Delimited File of all Data](#)

StartDate:	<input type="text" value="12/6/2003"/>
EndDate:	<input type="text" value="1/6/2004"/>
Syndrome	<input type="text" value="ALL SYNDROME"/>
State	<input type="text" value="TEXAS"/>
<input type="button" value="Regenerate"/>	

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Pandemic Influenza Plan

3. Prevention and Containment

- Isolation/Quarantine in home
 - ✓ Telephone contact
 - ✓ Food, meds, and other basic needs furnished
- Surgical masks in public places, hospitals
- Hand disinfection
- Public Functions
 - ✓ Community Control Measures, i.e. no large gatherings, stay at home when sick, etc.
 - ✓ When, who, how will public venues be cancelled, i.e. schools, churches, concerts, movies, market places, etc.
 - ✓ Control of incoming and outgoing traffic, i.e. airport, trains, buses, etc.

- Medications/vaccination



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Pandemic Influenza Plan

4. Health Systems Response

- **Surveillance of Health Care Work Force**
- **Surge Capacity Plan of local medical providers, hospitals, etc.**
- **Temporary Medical Facility Plan**
 - **Criteria**
 - **Resources needed**
 - **Staffing**
 - **Location**
- **Mortuary Services**



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Pandemic Influenza Plan

5. Communications

- Information communicated prior to and during an event
- Methods of communicating
- Culturally appropriate messages
- Credible spokespersons



Pandemic Influenza Resources

HUMAN HEALTH

- CDC Pandemic Flu Fact Sheet
 - <http://www.cdc.gov/flu/pandemic/pdf/pandemicflufacts.pdf>
- U.S. Pandemic Flu Plan
 - <http://www.hhs.gov/pandemicflu/plan/>
- Pandemic Flu Planning Tools, FluAid, FluSurge
 - <http://www.pandemicflu.gov/plan/tools.html>
- Checklists for Faith Based Org., Businesses, Child Care, etc.
 - <http://www.pandemicflu.gov/plan/checklists.html>

ANIMAL HEALTH

- Office International des Epizooties (OIE)
 - http://www.oie.int/eng/en_index.htm
- United States Department of Agriculture
 - <http://www.usda.gov/wps/portal/usdahome>



Questions?

