

EXTERNAL EVENTS

*The
WILDCARD
of
EMERGENCY
MANAGEMENT*

**Pandemic Influenza – Is the
deck stacked against us?**

**Nichole Ovens, MPH
May 3, 2006**



Defining Flu

- ***Seasonal (or common) Flu:*** Respiratory illness transmitted person to person
 - Most people have some immunity
 - Vaccine available
- ***Avian (or bird) Flu:*** Caused by influenza viruses that occur naturally among wild birds

H5N1 variant is deadly for poultry

No human immunity

No vaccine available yet



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Defining Pandemic Flu

- ***Pandemic Flu:*** Virulent human flu that causes a global outbreak of serious illness
- Little natural immunity
- Disease can spread easily from person-to-person

**CURRENTLY THERE IS NO
PANDEMIC FLU**

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Can we predict the next pandemic?

- Most scientists believe only a matter of time until next influenza pandemic
- Cannot predict timing and severity of next pandemic
 - Over 30 different influenza pandemics in recorded history
- Influenza pandemics occurred three times last century

1918-19: Spanish Flu (H1N1)

1957-58: Asian Flu (H2N2)

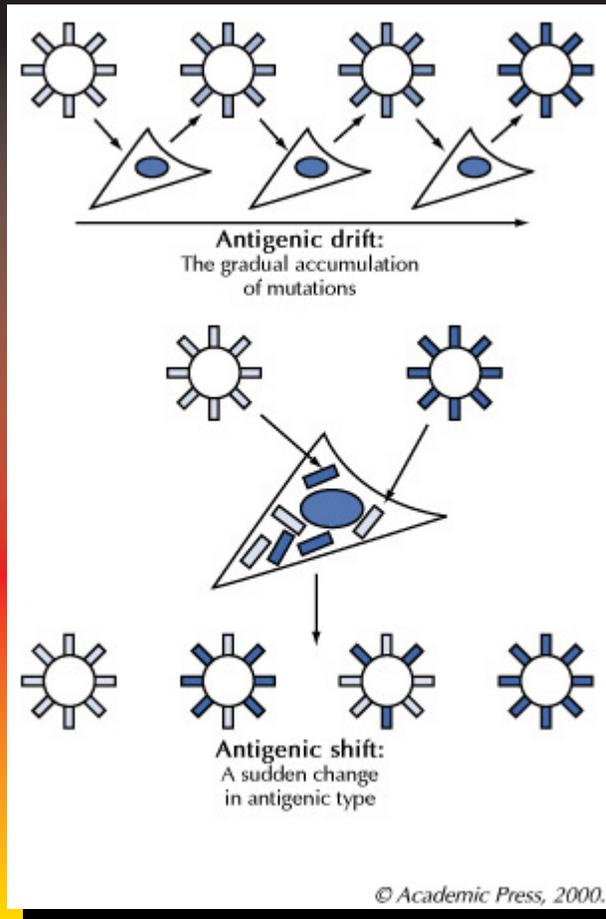
1968-69: Hong Kong Flu (H3N2)



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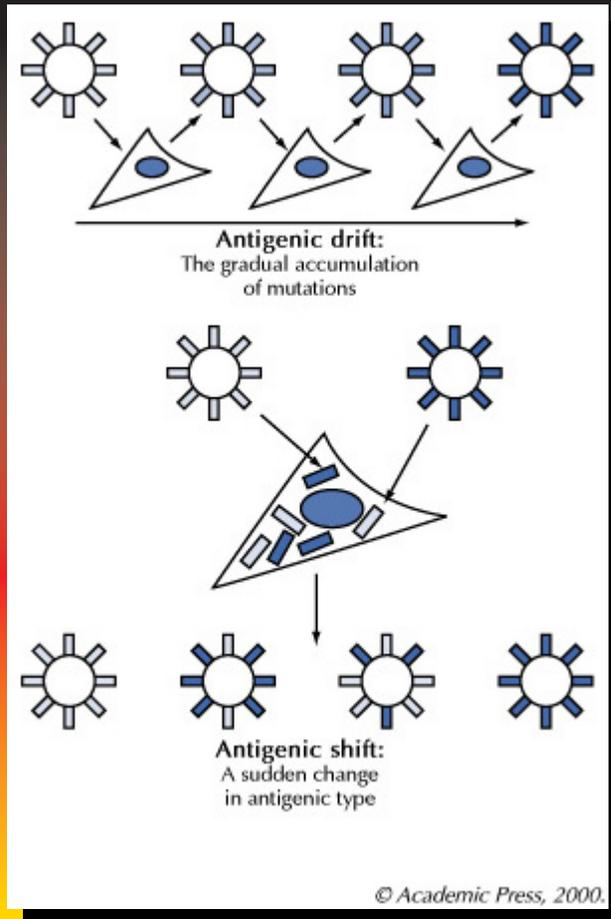
Why do pandemics occur?

ANTIGENIC DRIFT



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Why do pandemics occur?



ANTIGENIC SHIFT



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Will H5N1 cause the next pandemic?

H5N1 raises concern about potential human pandemic because:

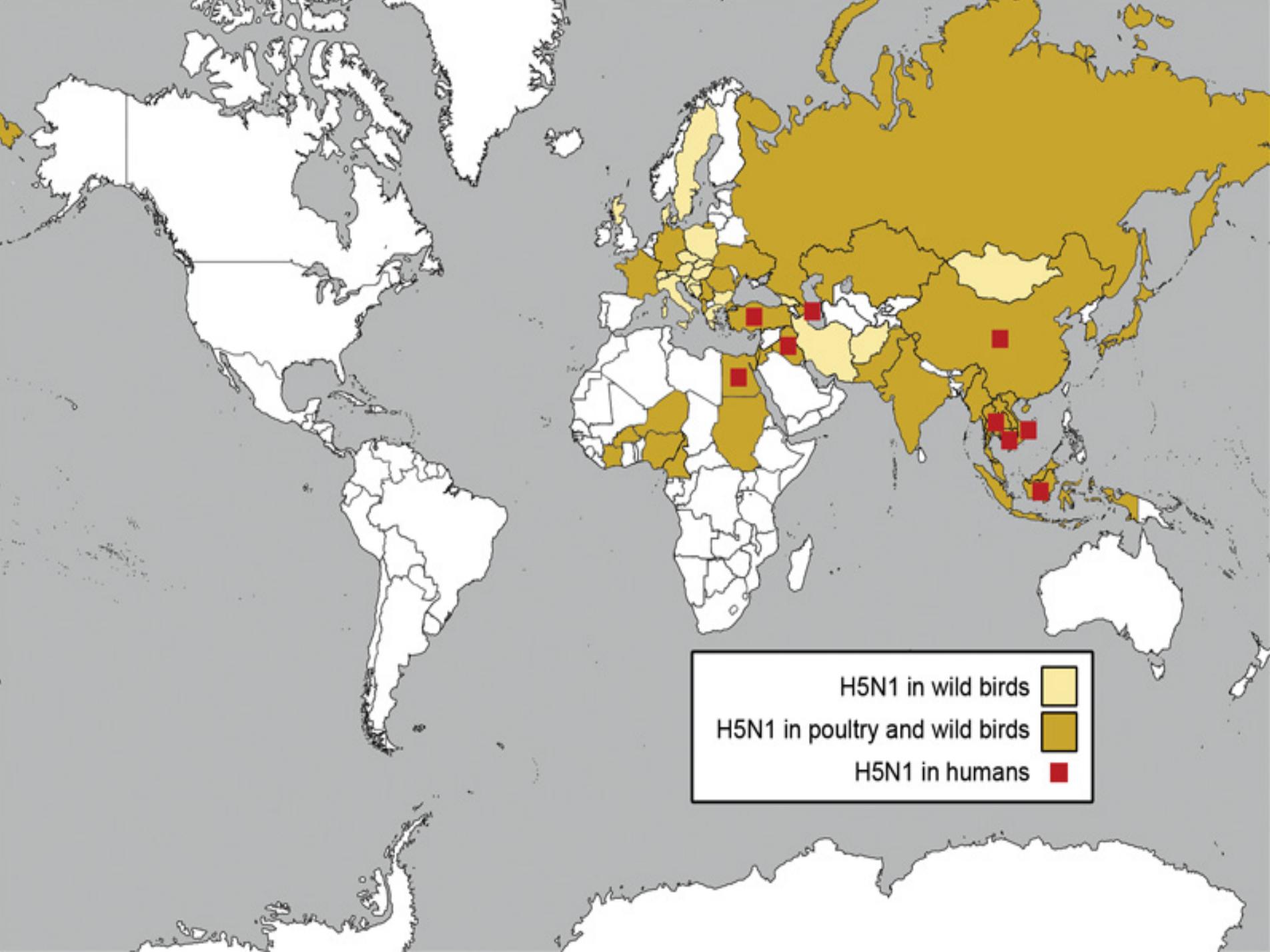
- History
- Very virulent
- Spread by migratory birds
- Transmitted from birds to mammals
 - Limited circumstances to humans
- Continues to evolve



NIAID: Timeline of Human Flu Pandemics



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Cumulative Number of Confirmed Human Cases of Avian Influenza A/(H5N1) Reported to WHO*

Country	2003		2004		2005		2006		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	8	5
Cambodia	0	0	0	0	4	4	2	2	6	6
China	0	0	0	0	8	5	10	7	18	12
Egypt	0	0	0	0	0	0	12	4	12	4
Indonesia	0	0	0	0	17	11	13	12	32	24
Iraq	0	0	0	0	0	0	2	2	2	2
Thailand	0	0	17	12	5	2	0	0	22	14
Turkey	0	0	0	0	0	0	12	4	12	4
Viet Nam	3	3	29	20	61	19	0	0	93	42
Total	3	3	46	32	95	41	48	33	205	113

*As of April 27, 2006

Total number of cases includes number of deaths. WHO reports only laboratory-confirmed cases.

Will there be a vaccine?

***Vaccine is the best defense against influenza –
it is also the most difficult defense to achieve***

HHS Secretary Leavitt



**NIAID: Flu vaccine
grown in eggs, slow but
dependable**



**CDC: Examining the
1918 Pandemic Flu virus**



**CDC: Extracting
the flu vaccine**



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Will there be a vaccine?

- **High priority, White House/HHS:**
 - Develop vaccines
 - Improve vaccine production capacity
- **Vaccine development: Greatest portion of all pandemic funding**
 - HHS 2006 appropriations = \$3.3B
 - Vaccine development accounts for \$1.78B
 - Planned Strategic Stockpiling = 8M doses



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Will there be a vaccine?

- **2004: H5N1 reference virus developed by St. Jude Children's Hospital, Memphis, TN**
 - Pre-pandemic vaccines made from inactivated H5N1 for clinical trials
 - NIAID awarded two contracts for production and clinical testing of investigational vaccines
- **2006: Pre-pandemic vaccine doses delivered**

sanofi pasteur delivered >8,000 doses

Chiron: 10,000 doses coming



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Will there be a vaccine?

- **Flu Pandemic Onset: HHS to acquire a vaccine for specific pandemic strain**
 - 4 – 6 months
- **Distribution by vaccine distributors or direct from the manufacturer**
 - Your plans determine this process
 - **Initial Onset:**
Stockpiled pre-pandemic vaccines may be distributed



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How will antivirals be used?

- Antivirals have two roles:
 - Prophylaxis: decrease likelihood of developing flu
 - Treatment: lessen impact of flu (if taken immediately after onset of symptoms)
- Two main choices for battling H5N1
 - Oseltamivir “Tamiflu” (Roche)
 - Zanamivir “Relenza” (GlaxoSmithKline)
- Both can now be used for treatment or prevention



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How will antivirals be used?

- **Right now:** Used to treat patients and prevent infection in close contacts:
 - Health care workers
 - Family Members
- **Flu begins spreading:** Can be given to a community where clusters of cases occur to delay spread
- **Start of pandemic:** They will be the only medical intervention available to reduce morbidity and mortality



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Should we stockpile antivirals?

- **\$731M in the budget for stockpiling**
 - \$200M for research and development of new antivirals
- **HHS Antiviral Purchasing/Stockpiling Goal:**
Purchase enough to treat 25% of U.S. population (75M)
- **HHS will purchase 50M courses and subsidize states for 31M**



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Should we stockpile antivirals?

- Some organizations have purchased large quantities of Tamiflu for their employees
- Antivirals require prescriptions
- Stockpiling requires
 - Medical oversight
 - Legal oversight
 - Purchasing agreements
 - Planning
 - Logistics



CDC: Strategic National Stockpile



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How will a pandemic affect our lives and business operations?

- **Average Seasonal Flu:**
 - 5% to 20% of the population gets the flu
 - >200,000 people are hospitalized from complications
 - Approximately 36,000 people die
 - Employee absence average in U.S. = 1.5 days
 - Cost of absence for business = \$600/employee



\$10B



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How will a pandemic affect our lives and business operations?

- **Moderate Pandemic Flu:**
 - 25% of the population gets the flu
 - 20 – 47 million additional illnesses
 - 18 – 42 million outpatient visits
 - 314,000 – 734,000 people are hospitalized from complications
 - Between 89,000 – 207,000 deaths
 - Significant employee absenteeism
 - Cost to U.S. economy:
 - \$71.3 - \$166.5 billion
 - This does not include disruptions to commerce and society



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How will a pandemic affect our lives and business operations?

Characteristic	Moderate (1958)	Severe (1918)
Illness	90 million (30%)	90 million (30%)
Outpatient medical care	45 million (50%)	45 million (50%)
Hospitalization	865,000	9,900,000
ICU care	128,750	1,485,000
Mechanical ventilation	64,875	745,500
Deaths	209,000	1,903,000

Number of Episodes of Illness, Healthcare Utilization, and Death Associated with Moderate and Severe Pandemic Scenarios*

** Estimates based on extrapolation from past pandemics in the U.S. These estimates do not include the potential impact of interventions not available during previous pandemics. www.pandemicflu.gov*

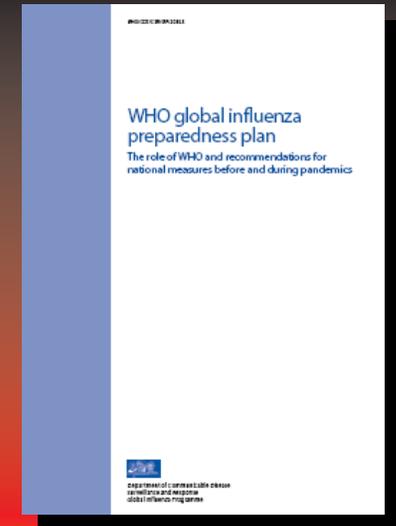
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How do we plan for a pandemic?

WHO Global Pandemic Preparedness Plan

Phase	Strategic Action
Pre-pandemic	<ol style="list-style-type: none">1. Reduce opportunity for human infection2. Strengthen early warning system
Emergence of pandemic virus	<ol style="list-style-type: none">3. Contain and/or delay the spread at source
Pandemic declared	<ol style="list-style-type: none">4. Reduce morbidity, mortality and social disruption5. Conduct research to guide response measures

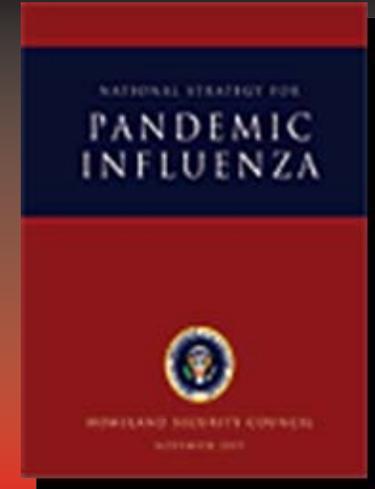


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How do we plan for a pandemic?

U.S. National Strategy

Pillar	Goals
Preparedness & Communication	<ol style="list-style-type: none">1. Work with all levels of government and industry2. Provide guidance3. Clearly communicate expectations/responsibilities
Surveillance & Detection	<ol style="list-style-type: none">4. Ensure rapid reporting5. Close monitoring
Response & Containment	<ol style="list-style-type: none">6. Contain outbreaks7. Increase surge capacity8. Sustain critical infrastructure9. Ensure effective risk communication

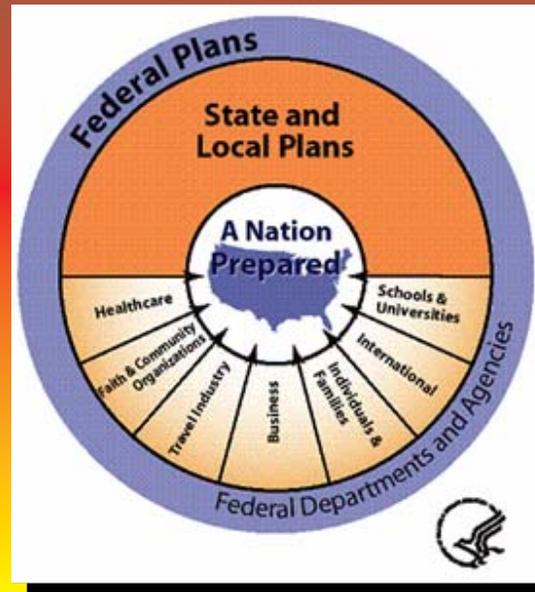


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How do we plan for a pandemic?

The U.S. National Strategy for Pandemic Influenza guides planning with the intent of:

1. Stopping, slowing or otherwise limiting the spread of a pandemic to the U.S.
2. Limiting the domestic spread of a pandemic and mitigating disease, suffering and death
3. Sustaining infrastructure and mitigating impact to the economy and the functioning of society



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How do we plan for a pandemic?

The DOE Pandemic Planning Approach is to support 4 major topics called out in the National Strategy:

- 1. Protect the Health of Employees**
- 2. Continue Performance of Mission Essential Functions**
- 3. Support the Federal Response**
- 4. Communicate with Stakeholders**



Office of Environment, Safety and Health

Federal Employee Occupational Safety and Health Subcommittee for Infectious Diseases



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How do we plan for a pandemic?

The Biological Event Monitoring Team (BEMT):

- **Standing Members**
 - Chair
 - DOE Counter-Terrorism
 - DOE Medical Officer
 - NNSA – Bioterrorism
 - Admin/Health and Safety Officer
 - Security
 - Continuity Programs
 - Emergency Operations Center (EOC)
 - Chief Information Officer
- **Ad Hoc Members**
 - SMEs and Advisors
 - Site medical representatives
 - Occupational Medical Director



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How do we plan for a pandemic?

- **Activate Continuity Plan based on MEDCON levels and disease spread**
- **Minimize exposure and transmission**
 - Most employees remain at home/Telework encouraged
 - Employees remain in close contact with managers
- **“Mission essential” employees report to work**

Some Essential Functions may be transferred to other locations

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How do we plan for a pandemic?

- **Social Distancing**

- Limited use of mass transit
- Meetings and gatherings restricted
- Conference calls encouraged
- Extensive use of technology
- Shift work encouraged



- **Health Protection Measures**

- Frequent Hand Washing
- Protective Equipment
- Prophylaxis
- Periodic Medical Exams



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How do we plan for a pandemic?

- **Confined Teams – A reverse isolation strategy**
 - A team of employees can remain at work for an extended period
 - Could be an approach for secure facilities (NNSA, OI, OC)
- **Other Considerations**
 - Security Restrictions
 - Limited Facility Entrances
 - Limited Access and Exclusion Areas
 - Personnel Accountability
 - Replacement of personnel performing essential functions



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What concerns do you have?

Open discussion on planning issues



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What are you doing now?

Open discussion on strategies



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Pandemic Influenza – Is the deck stacked against us?

QUESTIONS???



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