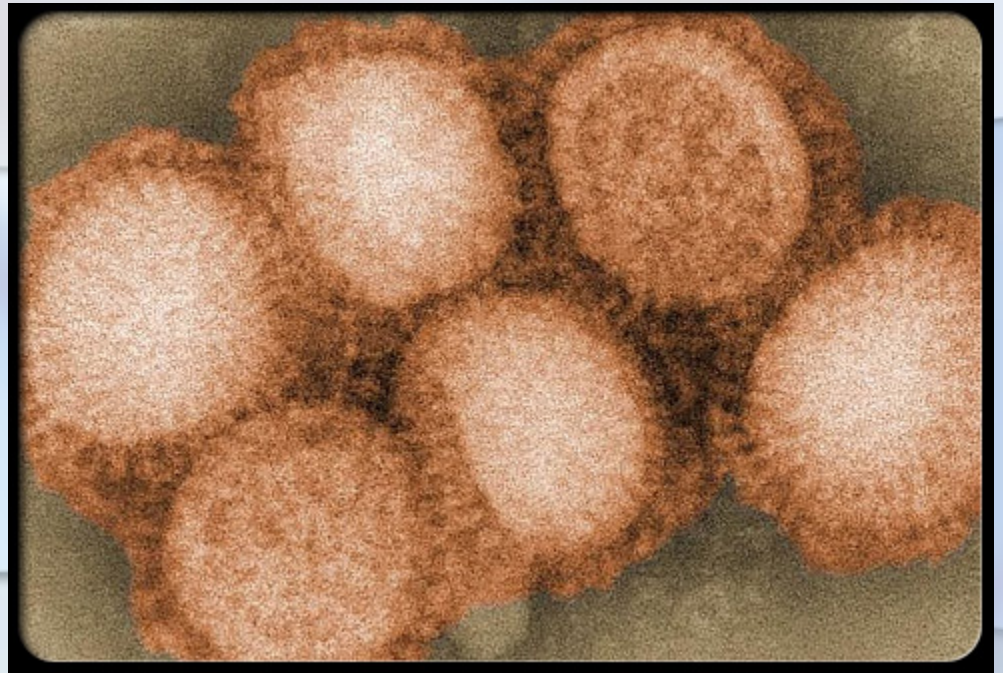


National Association of State EMS Officials



What Is All the Fuss?



A "Just-in-Time" Primer on H1N1 Influenza A and Pandemic Influenza
provided by the National Association of State EMS Officials

Revised June 12, 2009



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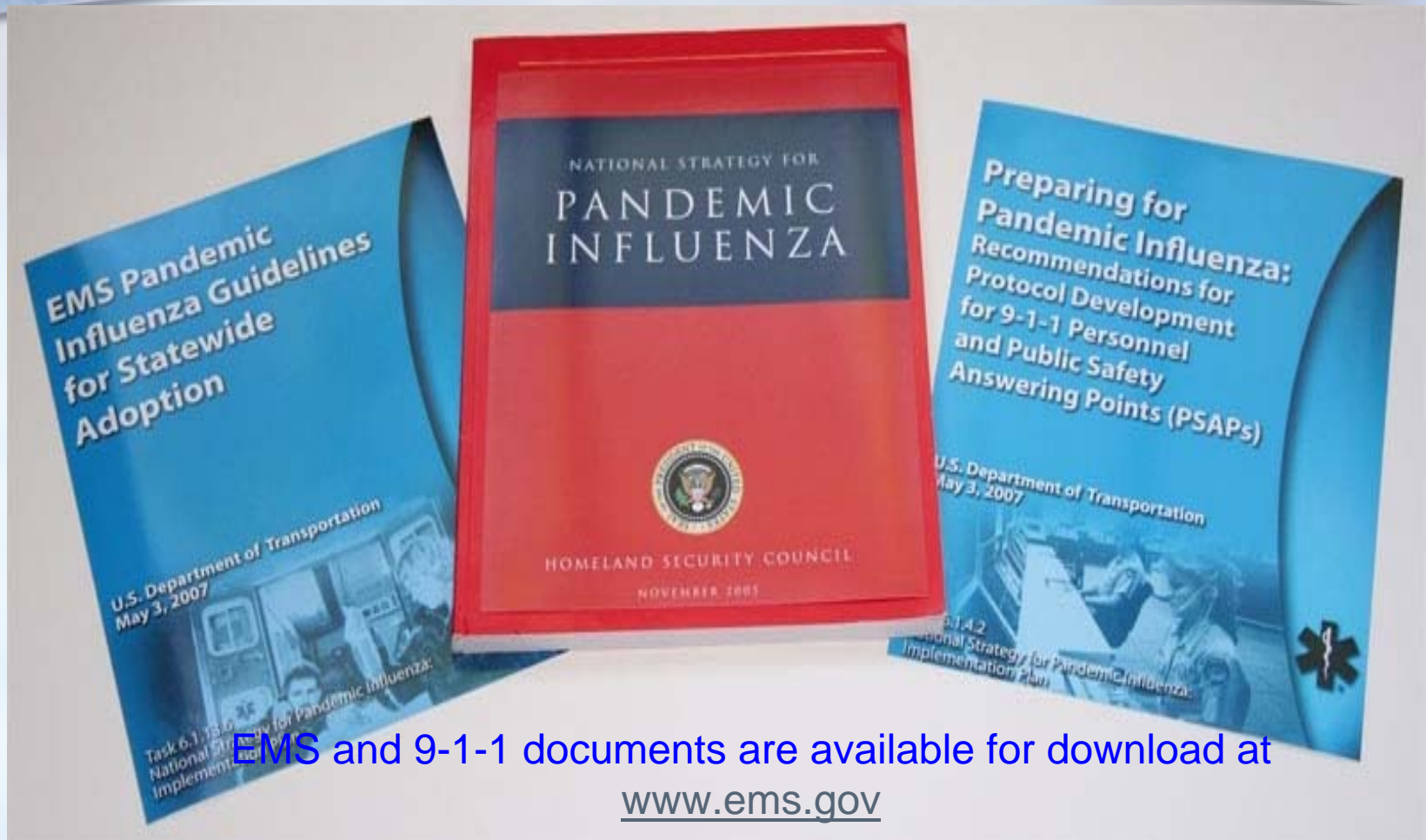


Disclaimer

- This self-learning module was developed by the National Association of State EMS Officials. The content was collated from various sources and current as of June 12, 2009. Users are strongly encouraged to review situational reports and updates from the Centers for Disease Control and Prevention, the US Department of Health and Human Services, the US Department of Agriculture, the World Health Organization, and similar entities as revised and additional information becomes available. NASEMSO did not review or approve material which may have been added beyond the distributed version which is on our web site at www.nasemso.org .



EMS & 9-1-1 Critical Components of the National Strategy



EMS and 9-1-1 documents are available for download at
www.ems.gov



Current H1N1 Overview

- Most people recover from infection without the need for hospitalization or medical care.
- Overall, national levels of severe illness from influenza A (H1N1) appear similar to levels seen during local seasonal influenza periods, although high levels of disease have occurred in some local areas and institutions.
- Overall, hospitals and health care systems in most countries have been able to cope with the numbers of people seeking care, although some facilities and systems have been stressed in some localities.



Part I

UNDERSTANDING INFLUENZA AND THE CURRENT INFLUENZA PANDEMIC



Definitions

- Endemic is the constant presence of a disease or infectious agent in a certain geographic area or population group.
- Epidemic is the rapid spread of a disease in a specific area or among a certain population group.
- Pandemic is a worldwide epidemic; an epidemic occurring over a wide geographic area and affecting a large number of people.



Seasonal Influenza

- Seasonal influenza viruses:
 - Are a public health problem every year.
 - Circulate throughout the human population.
 - Spread easily from person to person.
 - Generally do not reach pandemic proportions.



Incidence of Seasonal Influenza

- Seasonal influenza results in 200,000 hospitalizations annually in the United States.
- Seasonal influenza causes 36,000 thousand deaths each year in the US, ranking it among the nation's top 10 causes of death.
- Influenza related deaths are usually due to secondary pneumonias, exacerbated cardiopulmonary conditions, or other chronic diseases.



Populations Most Seriously Affected by Seasonal Influenza

- Rates of serious illness and death as a result of the flu are greatest:
 - among people aged 65 and older.
 - children under the age of two.
 - those with underlying chronic medical conditions (e.g., diabetes mellitus; chronic lung, liver, kidney & heart disease; HIV infection; and cancer).



Economic Impact of Seasonal Influenza

- Seasonal influenza's total economic burden is estimated at \$87.1 billion (2003 dollars).
- Direct medical costs total \$10.4 billion, which includes 3.1 million hospitalized days and 31.4 million outpatient visits.
- Persons aged 18 to 64 incurred 30% of these hospitalizations and outpatient visits, which translates into 128,000 life years lost as a direct result of the flu.

Source: unpublished CDC data



Influenza Viruses

- There are three types of influenza virus—
 - A, B, and C
- Only the A and B types can cause flu epidemics.
- Influenza A virus is found in humans and many other animals.
- There are over 100 subtypes of Influenza A virus.

Source: CDC at <http://www.cdc.gov/flu/avian/gen-info/transmission.htm>



Modes of Influenza Transmission

- The vast majority of influenza is spread from person to person by **droplet spread or direct contact**. Outside the body the influenza virus may persist for sometime, especially in conditions of low relative humidity and cooler temperatures. Specifically, the influenza virus can survive for 1-2 days on hard surfaces, 8-12 hours on soft surfaces, and 5 minutes on hands, resulting in some spread by indirect contact.

Source: Toronto Pandemic Influenza Plan (2005)



Beyond Seasonal Influenza

- Outbreaks of influenza in animals, especially when happening simultaneously with annual outbreaks in humans, increase the chances of a pandemic, through the merging of animal and human influenza viruses.

Source: WHO at <http://www.who.int/csr/disease/influenza/pandemic/en/>



Potential Affects of a Pandemic in the US

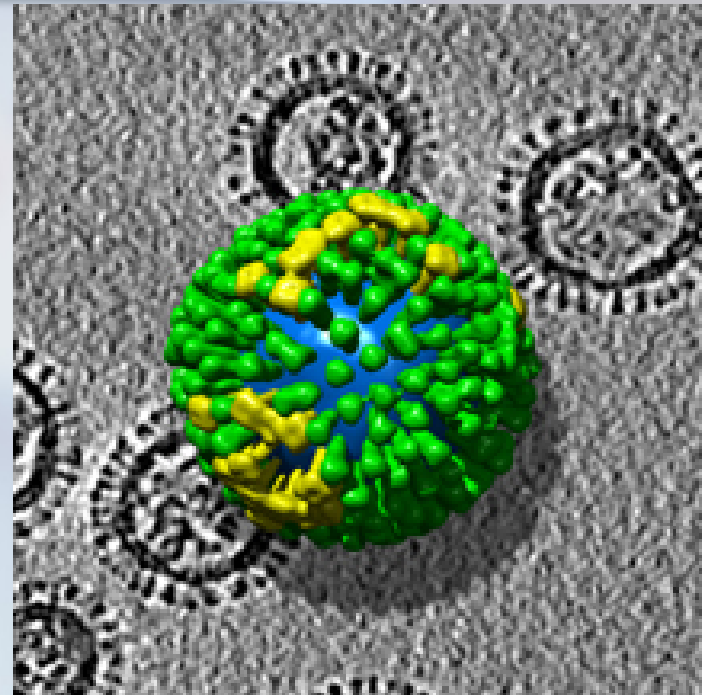
- The US Department of Health and Human Services has previously estimated that in a moderate influenza pandemic, the United States might experience 209,000 deaths, with 128,750 patients requiring ICUs and 64,875 patients needing mechanical ventilators.

Source: <http://www.pandemicflu.gov/plan/pandplan.html>



Influenza Viruses

- Influenza viruses contains two glycoproteins: hemagglutinin (HA) and neuraminidase (NA). These two proteins determine the subtypes of Influenza A virus. There are 16 H subtypes and 9 N subtypes.



Influenza A virus particles

Courtesy of Audray Harris, Bernard Heymann and Alasdair C. Steven, LSBR, NIAMS, NIH.



Influenza A Virus

- All Influenza A virus subtypes have been found in wild birds, which are thought to be a natural reservoir of Influenza A virus and the source of influenza A viruses in all other animals.

Source: www.cdc.gov/flu/about/viruses/transmission.htm



The Perfect Epidemiologic Storm

Three essential conditions must be met for an outbreak to begin:

- A new flu virus must emerge from the animal reservoirs that have produced and harbored such viruses —one that has never infected human beings and therefore one for which no person has developed antibodies.
- The virus has to make humans sick (most do not).
- It must be able to spread efficiently, through coughing, sneezing, or a handshake.

Source: NGA Pandemic Primer, 2007
<http://www.nga.org/Files/pdf/0607PANDEMICPRIMER.PDF>



Part II

UNDERSTANDING THE TERMINOLOGY



What is Swine Flu?

- Swine flu is NOT a human disease. It is a respiratory illness of pigs caused by a type A influenza virus that regularly causes outbreaks of influenza in pigs.
- Swine flu viruses cause high levels of illness and low death rates in pigs.

Source: CDC at www.cdc.gov/flu/swine/key_facts.htm and www.usda.gov



What is Swine Flu?

- Swine influenza viruses may circulate among swine throughout the year, but most outbreaks occur during the late fall and winter months similar to outbreaks in humans. The classical swine flu virus (an influenza type A H1N1 virus) was first isolated from a pig in 1930.

Source: CDC at www.cdc.gov/flu/swine/key_facts.htm and www.usda.gov



What is Swine Flu?

- There is no evidence at this time that swine in the United States are infected with this virus strain and therefore, this is not an animal health or food safety issue.

Source: CDC at www.cdc.gov/flu/swine/key_facts.htm and www.usda.gov



Types of Swine Flu Viruses

- All influenza viruses change constantly.
- Over the years, different variations of swine flu viruses have emerged. At this time, there are four main influenza type A virus subtypes that have been isolated in pigs: H1N1, H1N2, H3N2, and H3N1.
- Most of the recently isolated influenza viruses from pigs have been H1N1 viruses.

Source: CDC at www.cdc.gov/flu/swine/key_facts.htm and www.usda.gov



How does H1N1 Influenza A spread?

- Although it is unusual for people to get influenza virus infections directly from animals, sporadic human infections and outbreaks caused by certain avian influenza A viruses and pig influenza viruses have been reported.

Source: CDC at http://www.cdc.gov/swineflu/key_facts.htm



How does H1N1 Influenza A Spread Between Species?

- In general, human infection with flu viruses from pigs are most likely to occur when people are in close proximity to infected pigs, such as in pig barns and livestock exhibits housing pigs at fairs, or environments contaminated with swine flu viruses.

Source: CDC at http://www.cdc.gov/swineflu/key_facts.htm



How to Define the Current H1N1 Influenza A Outbreak

- “Swine flu” is a misnomer and **should not be used** to describe the current H1N1 outbreak in the human population.
- The proper name is “H1N1 Influenza A”.
- The World Health Organization has stopped using the term “swine flu” to avoid confusion over the danger posed by pigs.



H1N1 or S-OIV

- “S-OIV” or swine-origin influenza virus is another term currently being used by the CDC although a direct link to a specific swine herd has not been established.
- The current H1N1 virus causing infection in the population **contains genetic fragments from birds, pigs, AND human influenza viruses.**



H1N1 or S-OIV

- Further study has shown that this new virus is very different from what normally circulates in North American pigs.
- It has two genes from flu viruses that normally circulate in pigs in Europe and Asia, avian (flu virus) genes, and human (flu virus) genes.



How could an H1N1 “novel” strain have emerged?

- Pigs may be infected with influenza A viruses from different species (e.g., ducks and humans) at the same time.
- This may allow the genes of these viruses to mix, creating new variants of the hemagglutinin and/or neuraminidase proteins on the surface of the virus.
- If these variants spread to humans, then they would not be recognized by the immune system, and so can cause seasonal epidemics of flu.

Source: CDC-- www.cdc.gov/flu/about/viruses/transmission.htm



Swine-Origin Influenza Virus (S-OIV) is an H1N1 Influenza A “Novel” Virus



- “Novel” simply means a “new” strain, one that has not been previously identified in animal or human species.
 - **The novel virus contains genetic fragments from birds, pigs, AND human influenza viruses**



Concerns About the Current H1N1 Strain

- This (H1N1) outbreak certainly poses the potential to be at least as serious as seasonal flu if not more so.
- Because this is a new (“novel”) virus, most people will not have immunity to it and so illness may be more severe and widespread as a result.
- The farther the virus spreads, the more chance it will mix, or “reassort” with other flu viruses in circulation and turn into something more lethal.

Source: ScienceNow Daily News at <http://sciencenow.sciencemag.org/cgi/content/full/2009/429/1>



Updated Info on the Virus

- Scientists call this a “quadruple reassortant” virus.
- It possesses characteristics of an H1N1 Influenza A viral strain previously identified in 2005.



Updated Info on the Virus

- The overwhelming majority of cases have been mild and self-limiting, with no need for treatment.
- Cases of severe or fatal infections have been largely, but not exclusively, confined to people with underlying chronic conditions.



Current Outbreak of H1N1 Influenza A Virus

- The current outbreak is believed to have started in March 2009. Local outbreaks of an influenza-like illness were first detected in three areas of Mexico, but the virus responsible was not clinically identified as a new strain until April 24, 2009.

Source: Wikipedia at http://en.wikipedia.org/wiki/2009_swine_flu_outbreak



Updated Info on the Virus

- Scientists are concerned about possible changes that could take place as the virus spreads to the southern hemisphere and encounters currently circulating human viruses, as the normal influenza season in this hemisphere begins.



Populations at Greatest Risk to H1N1 Flu Related Complications

- People 65 years and older
- Children younger than five years old
- Pregnant women
- People of any age with certain chronic medical conditions



Definition of **Acute Febrile Respiratory Illness**

- A measured temperature 100 degrees Fahrenheit **and**
- Recent onset of at least one of the following: rhinorrhea or nasal congestion, sore throat, or cough.

Source: CDC at http://www.cdc.gov/swineflu/casedef_swineflu.htm



CDC Case Definition of Novel Influenza A (H1N1) Cases

- ***A confirmed case*** --an **acute febrile respiratory illness** with laboratory confirmed S-OIV infection at CDC by one or more of the following tests:
 - real-time RT-PCR
 - viral culture

Source: CDC at http://www.cdc.gov/swineflu/casedef_swineflu.htm



CDC Case Definition of Novel Influenza A (H1N1) Cases

- A ***probable case*** --an **acute febrile respiratory illness** who is positive for influenza A, but negative for H1 and H3 by influenza RT-PCR.

Source: CDC at http://www.cdc.gov/swineflu/casedef_swineflu.htm



CDC Case Definition of Novel Influenza A (H1N1) Cases

- ***A suspected case*** --an **acute febrile respiratory illness** with onset:
 - within 7 days of close contact with a person who is a confirmed case of S-OIV infection, or
 - within 7 days of travel to community either within the United States or internationally where there are one or more confirmed cases of S-OIV infection, or
 - resides in a community where there are one or more confirmed cases of S-OIV infection.



Common Symptom Set of Current H1N1 Influenza A Virus

- Fever
- Cough
- Body aches
- A significant number of people have reported vomiting and diarrhea



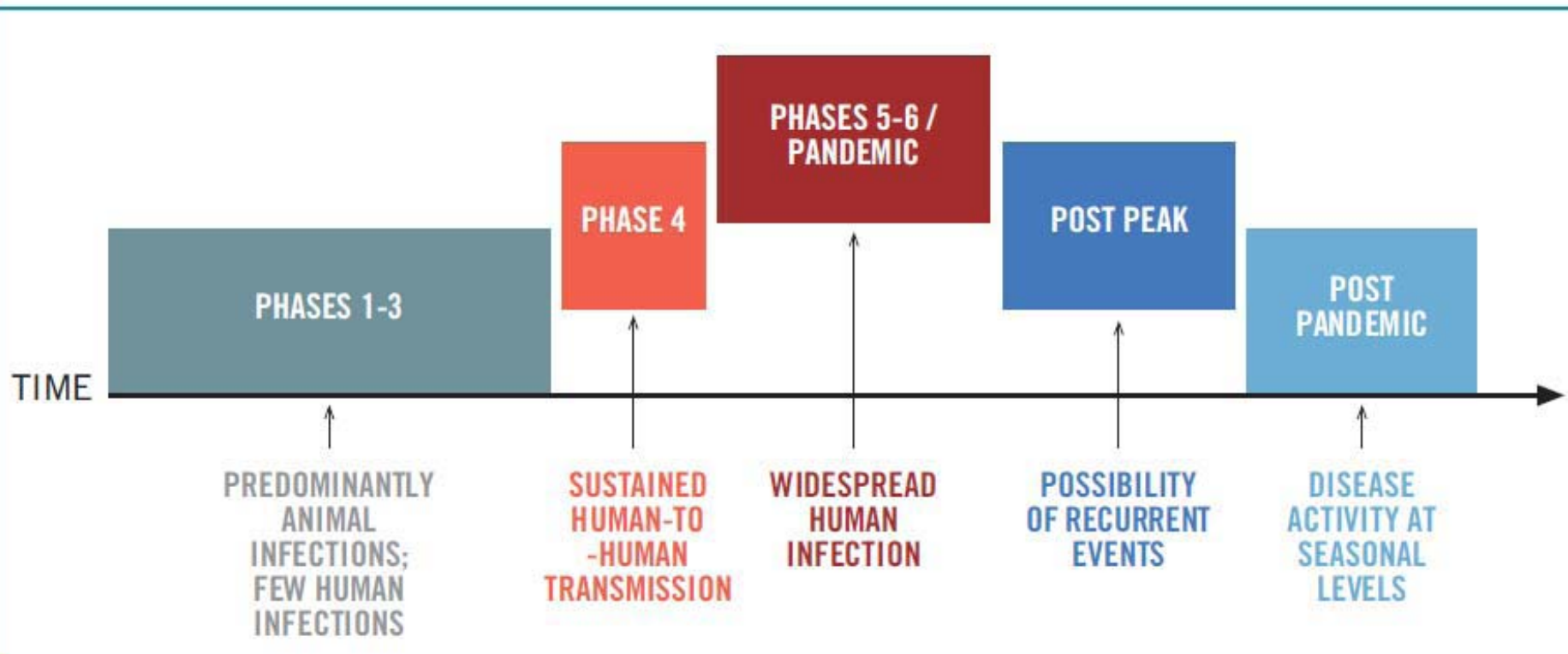
Definition of a Pandemic

- Pandemic is a worldwide epidemic; an epidemic occurring over a wide geographic area and affecting a large number of people.



WHO Pandemic Influenza Phases

FIGURE 3
PANDEMIC INFLUENZA PHASES (2009)





Stages of an Influenza Pandemic

- **Phase 1**-- no viruses circulating among animals have been reported to cause infections in humans.

Source: World Health Organization



Stages of an Influenza Pandemic

- **Phase 2**-- an animal influenza virus circulating among domesticated or wild animals, known to have caused infection in humans.
- **Phase 3**-- an animal or human-animal influenza reassortant virus has caused sporadic cases or small clusters of disease in people (but no human-to-human transmission sufficient to sustain community-level outbreaks).

Source: World Health Organization



Stages of an Influenza Pandemic

- **Phase 4**--characterized by verified human-to-human transmission of an animal or human-animal influenza reassortant virus able to cause “community-level outbreaks.” The ability to cause sustained disease outbreaks in a community marks a significant upwards shift in the risk for a pandemic.

Source: World Health Organization



Phase 5- Pandemic Is Imminent

- Characterized by human-to-human spread of the virus into at least two countries in one WHO region.
- The declaration of Phase 5 is a strong signal that a pandemic is imminent and that the time to finalize the organization, communication, and implementation of the planned mitigation measures is short.
- The designation of the global pandemic phase will be made by the Director-General of WHO.

Source: World Health Organization



Stage 6-The Pandemic Stage

- Characterized by community level outbreaks in at least one other country in a different WHO region in addition to the criteria defined in **Phase 5.**
- Designation of this phase will indicate that a global pandemic is under way.

Source: World Health Organization



WHO -- Currently at Phase 6

- Designation is related to geographic spread.
- Doesn't mean anything concerning severity of illness caused by the virus.



Part III

UNDERSTANDING H1N1 INFLUENZA A



What You Need to Know About the H1N1 Influenza A Virus

- Influenza viruses are not transmitted by food.
- You cannot get influenza from properly handled and cooked food, eating pork or pork products.
- Our food supply is protected.
- Testing programs are in place.
- All animals used for food, including pigs, are inspected by USDA.

Source: CDC at http://www.cdc.gov/swineflu/key_facts.htm and www.usda.gov



How does H1N1 Influenza A spread?

- Human-to-human transmission of the H1N1 virus is thought to occur in the same way as seasonal flu occurs in people, which is mainly **person-to-person transmission through coughing or sneezing** of people infected with the influenza virus.
- People may become infected by touching something with flu viruses on it and then touching their mouth or nose.

Source: CDC at http://www.cdc.gov/swineflu/key_facts.htm



A Diagnostic Challenge

- A pandemic flu carrier might not show any symptoms for up to two days while still shedding the virus, thus making it harder to isolate.

Source: NGA Pandemic Primer, 2007
<http://www.nga.org/Files/pdf/0607PANDEMICPRIMER.PDF>

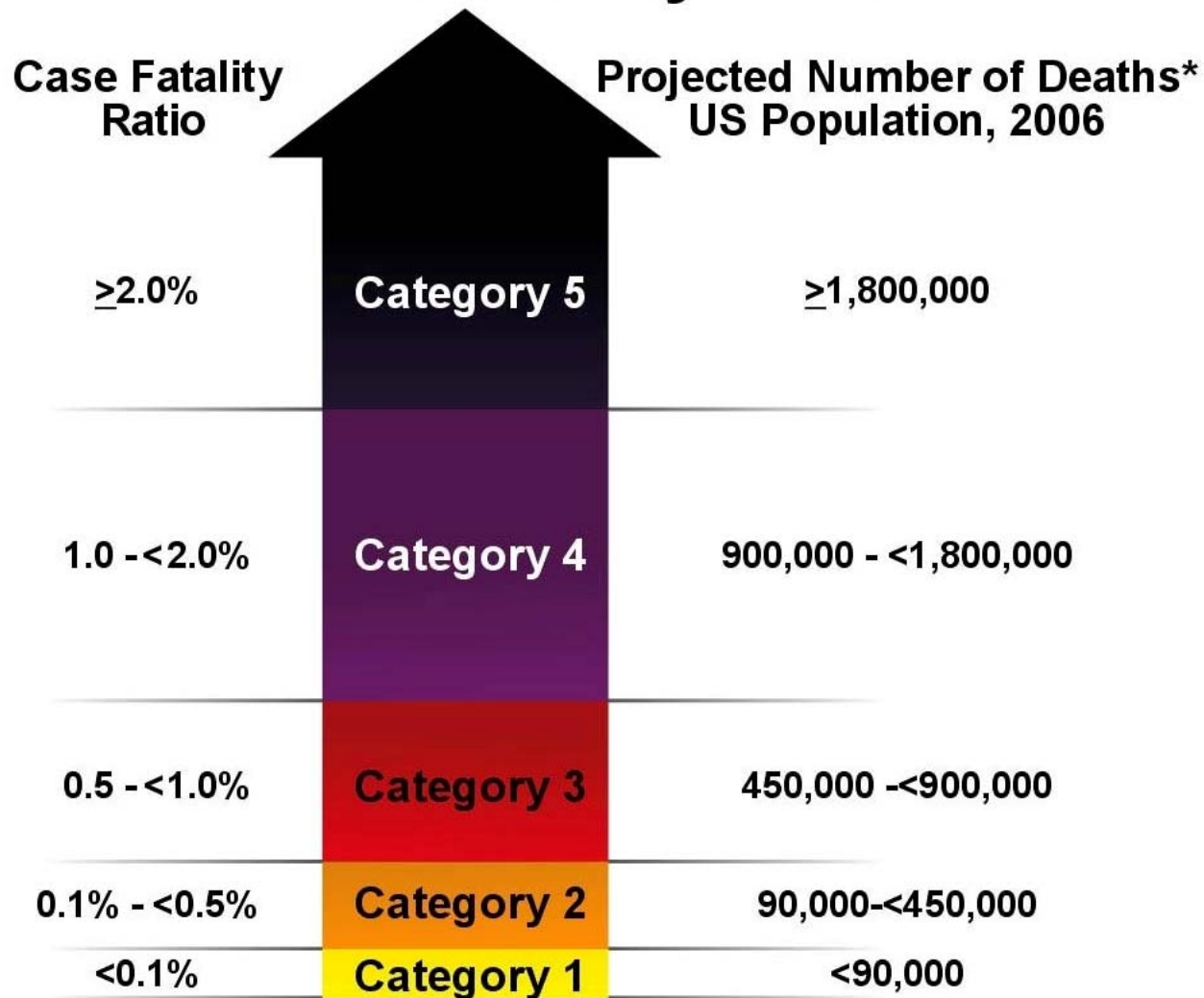


Pandemic Planning Assumptions

- The typical incubation period for influenza averages 2 days.
- Persons who become ill may transmit infection for one half to one day before the onset of illness.
- On average about 2 secondary infections will occur as a result of transmission from someone who is ill.
- In an affected community, a pandemic outbreak will last about 6 to 8 weeks.
- Work/school absenteeism may be as high as 40% at the peak.
- At least two pandemic disease waves are likely.



Pandemic Severity Index



* Assumes 30% Illness Rate



Pandemic Severity

- At the current time, CDC estimates that the pandemic situation in the U.S. would be equivalent to a pandemic severity index of 2 (out of 5.)
- WHO has a three point scale to determine pandemic severity – mild, moderate and severe.
- At this time, WHO has indicated this seems to be a moderately severe pandemic.

Community Strategies by Pandemic Flu Severity (1)

<i>Interventions by Setting</i>	<i>Pandemic Severity Index</i>		
	<i>1</i>	<i>2 and 3</i>	<i>4 and 5</i>
<p>Home</p> <p>Voluntary isolation of ill at home (adults and children); combine with use of antiviral treatment as available and indicated</p> <p>Voluntary quarantine of household members in homes with ill persons (adults and children); consider combining with antiviral prophylaxis if effective, feasible, and quantities sufficient</p>	Recommend	Recommend	Recommend
<p>School</p> <p>Child social distancing –dismissal of students from schools and school-based activities, and closure of child care programs –reduce out-of-school contacts and community mixing</p>	<p>Generally not recommended</p> <p>Generally not recommended</p>	<p>Consider</p> <p>Consider: ≤ 4 weeks</p> <p>Consider: ≤ 4 weeks⁵⁷</p>	<p>Recommend</p> <p>Recommend: ≤ 12 weeks</p> <p>Recommend: ≤ 12 weeks</p>

Community Strategies by Pandemic Flu Severity (2)

<i>Interventions by Setting</i>	<i>Pandemic Severity Index</i>		
	<i>1</i>	<i>2 and 3</i>	<i>4 and 5</i>
<p>Workplace/Community Adult social distancing</p> <p>–decrease number of social contacts (e.g., encourage teleconferences, alternatives to face-to-face meetings)</p> <p>–increase distance between persons (e.g., reduce density in public transit, workplace)</p> <p>–modify, postpone, or cancel selected public gatherings to promote social distance (e.g., stadium events, theater performances)</p> <p>–modify workplace schedules and practices (e.g., telework, staggered shifts)</p>	<p>Generally not recommended</p> <p>Generally not recommended</p> <p>Generally not recommended</p> <p>Generally not recommended</p>	<p>Consider</p> <p>Consider</p> <p>Consider</p> <p>Consider</p>	<p>Recommend</p> <p>Recommend</p> <p>Recommend</p> <p>Recommend</p>



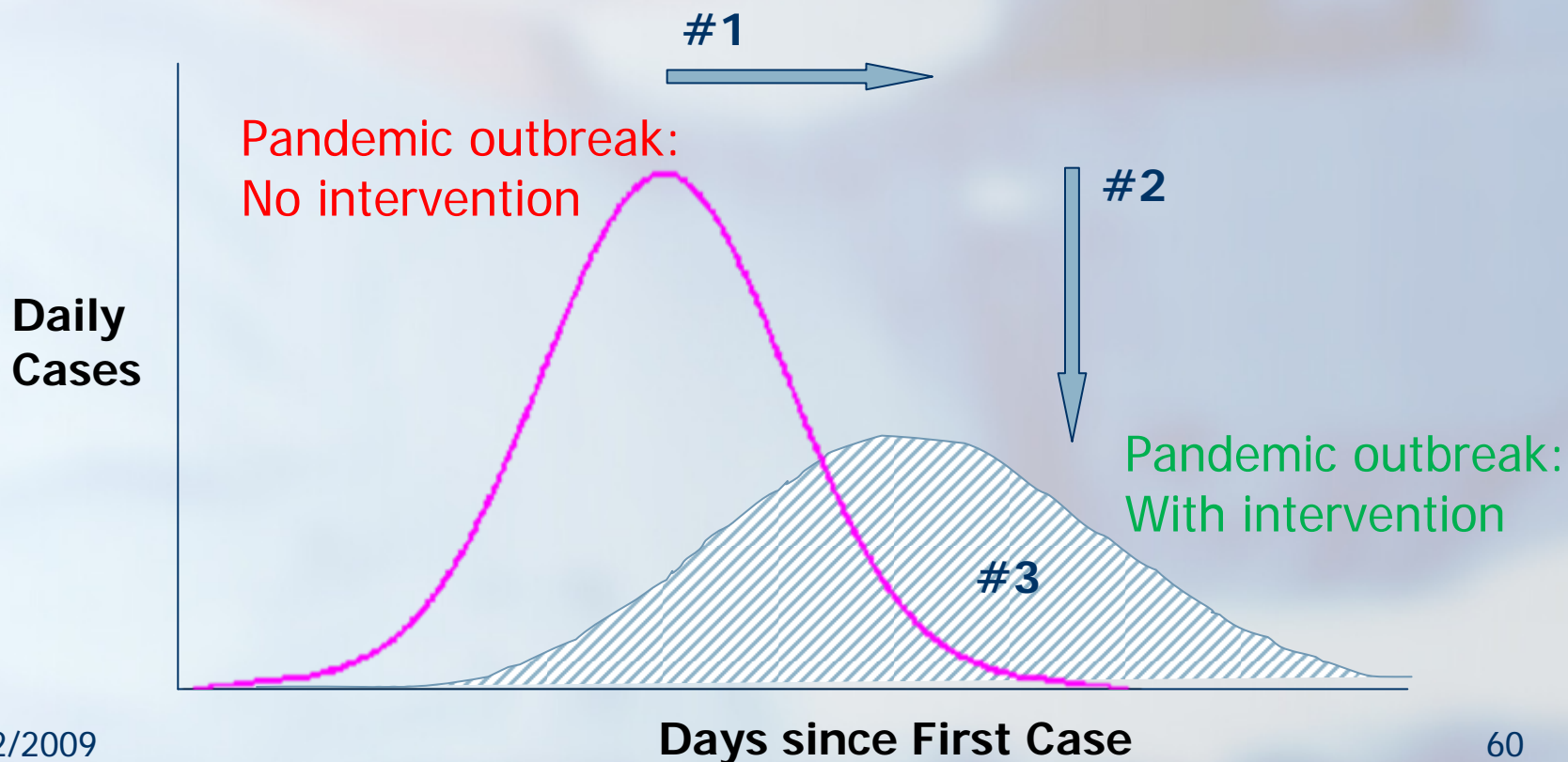
Good Question!

Why is there an emphasis on community mitigation such as school closings?



Effect of Community-Based Interventions

1. Delay disease transmission and outbreak peak
2. Decompress peak burden on healthcare infrastructure
3. Diminish overall cases and health impacts

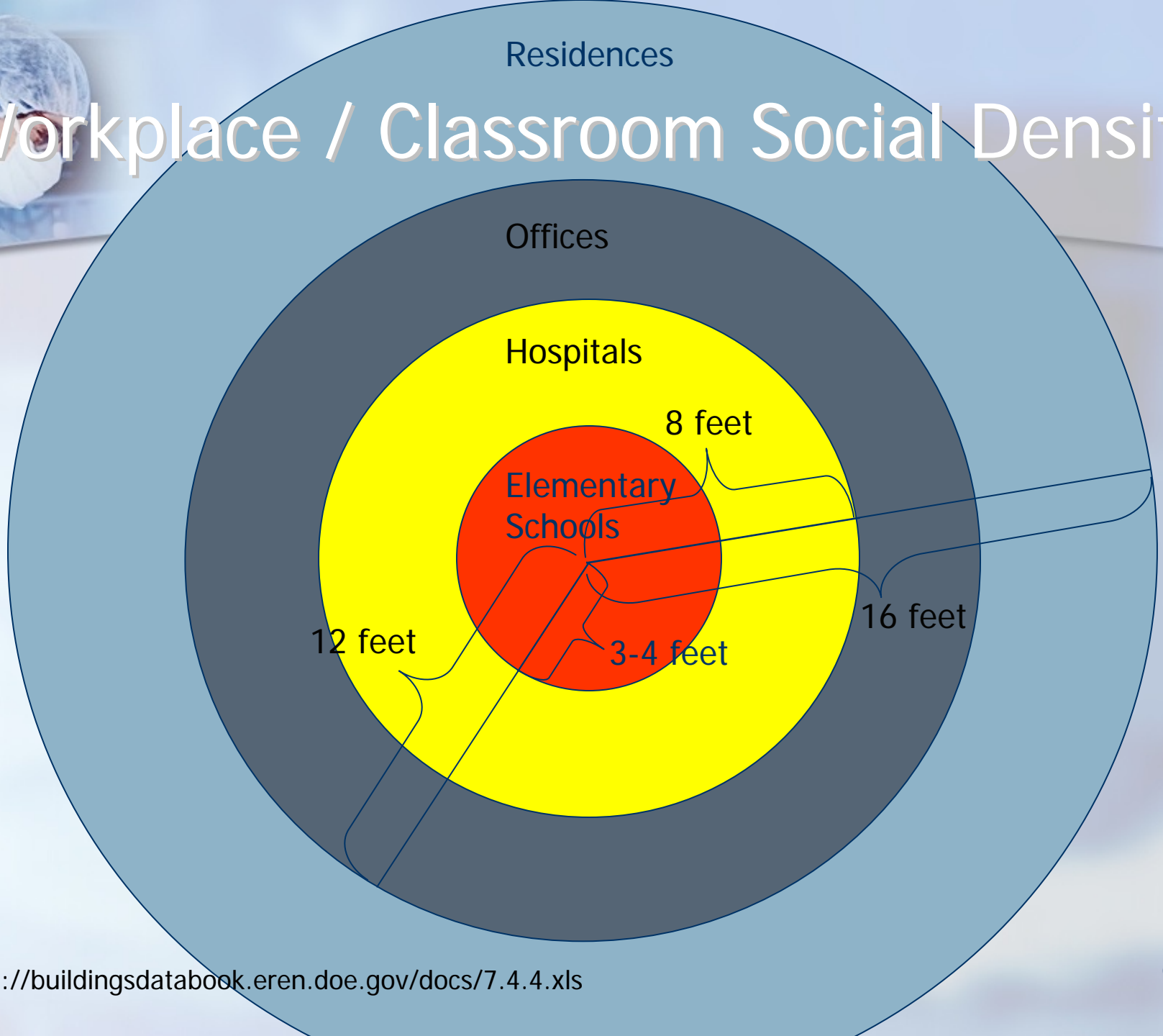


Population Density and Mitigation

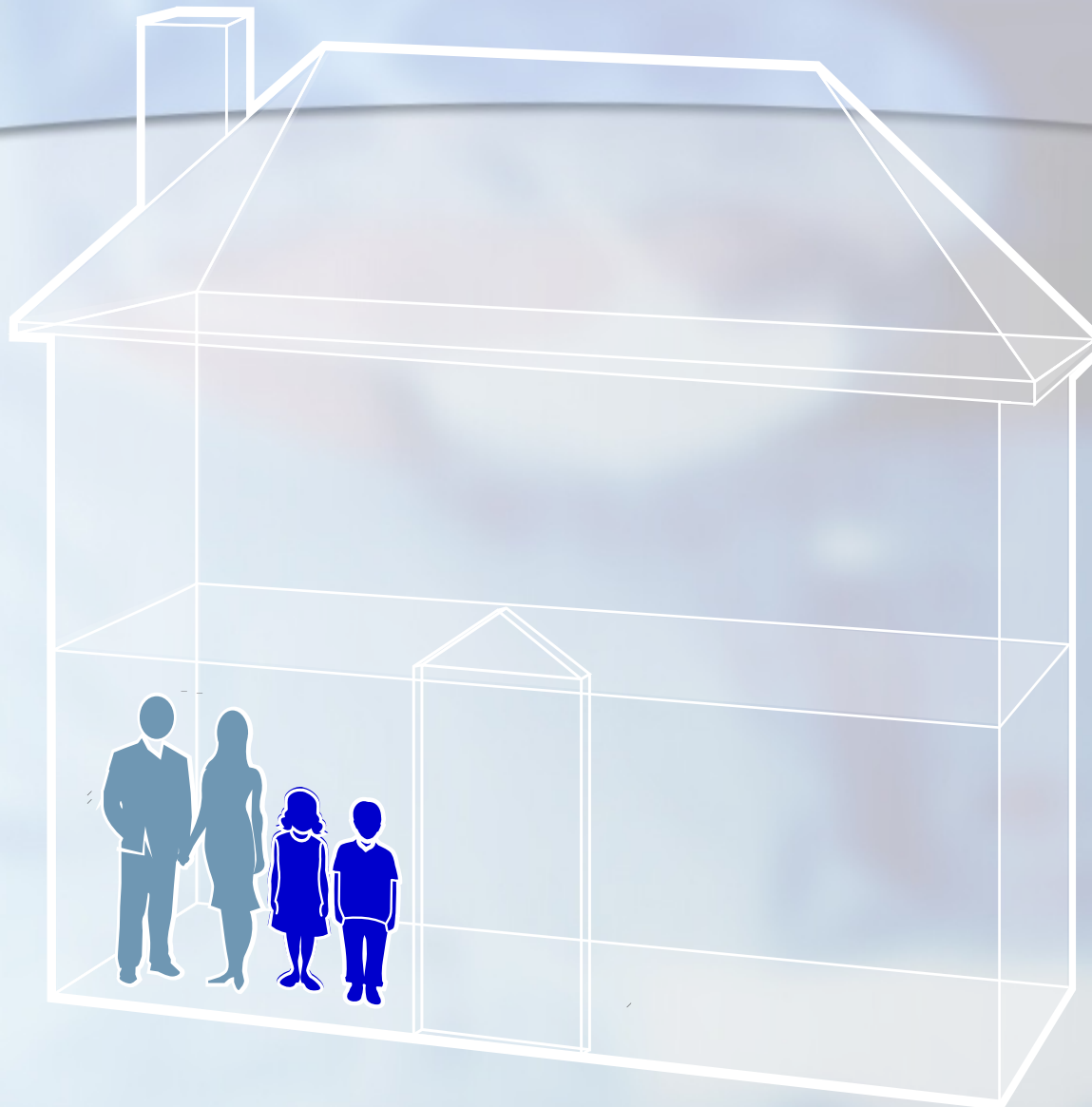




Workplace / Classroom Social Density



Spacing of people: If homes were like schools

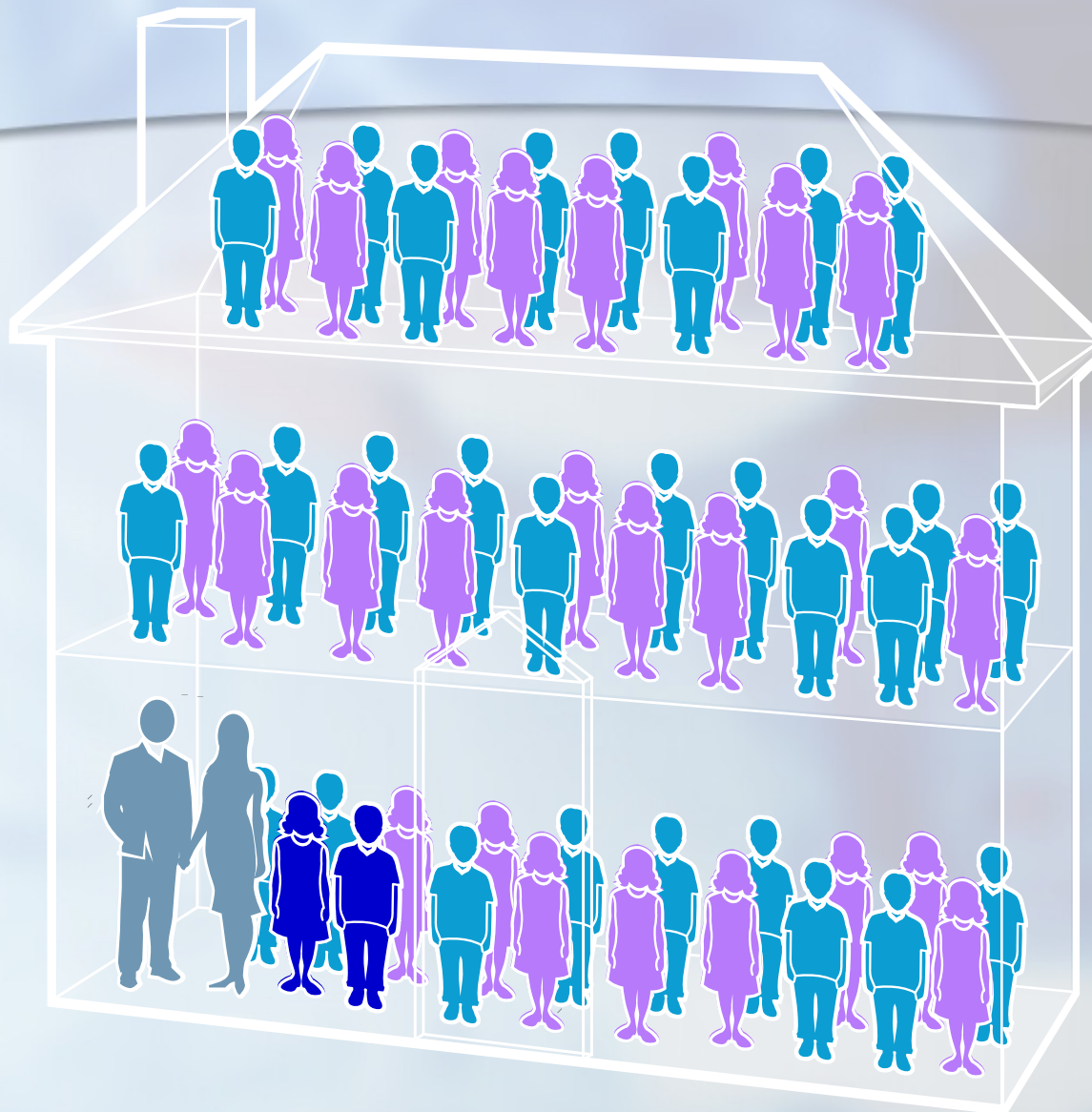


6/12/2009

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



Spacing of people: If homes were like schools



6/12/2009

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



Potential Strategies to Decrease the Impact

- Prevent or delay introduction of the virus
- Disease containment
- Social distancing
- Antiviral treatment and isolation for people with illness
- Voluntary quarantine for those exposed
- Vaccine when available

Source: DHHS Community Strategy for Pandemic Influenza Mitigation (2007)



CDC Interim Guidance IS Currently Available

- Multiple topics to meet a variety of needs
- This is a rapidly evolving situation
- All guidance should be considered interim and checked frequently for updates
- <http://www.cdc.gov/swineflu/guidance/>



Critical Strategies

- **Respiratory Hygiene**
 - Cover your mouth when you sneeze or cough
 - **WASH YOUR HANDS FREQUENTLY**
 - Avoid touching your face, eyes, nose, mouth
 - If you are sick, **STAY HOME**
 - Immediately discard used tissues and then **WASH YOUR HANDS!**





Role for Antivirals

- Antiviral drugs are being used to treat H1N1 Influenza A or to prevent infection with H1N1 viruses.
- These medications must be prescribed by a health care professional.
- Influenza antiviral drugs work best when started soon after illness onset (within two 2 days), but treatment with antiviral drugs should still be considered after 48 hours of symptom onset, particularly for hospitalized patients or people at high risk for influenza-related complications.



Role for Antivirals

- Influenza antiviral drugs work best when started soon after illness onset (within two 2 days), but treatment with antiviral drugs should still be considered after 48 hours of symptom onset, particularly for hospitalized patients or people at high risk for influenza-related complications.



Use of Antivirals

- Laboratory testing on these H1N1 Influenza A viruses so far indicate that they are **susceptible** (sensitive) to **oseltamivir** and **zanamivir**.





Vaccines for the Novel Strain of H1N1

- Development started as soon as the new strain was identified.
- May not be available for 4-6 months.

Worth Repeating...

Coughing spreads germs. Protect yourself and others.



- Cover your cough.



- A face mask may be needed if you are coughing.



- Wash hands often.



Family Plan

- If you haven't developed a personal/family emergency plan yet, consider developing one now as a precaution. This should include storing a supply of extra food, medicines, facemasks and other essential supplies.



Update on Cases – June 12, 2009

- Influenza illness, including illness associated with the novel influenza A H1N1 virus is ongoing in the United States.
- Influenza activity is decreasing in the United States; however, levels of influenza-like illness are higher than normal for this time of year.
- The majority of influenza viruses isolated in the United States are now novel H1N1 viruses.



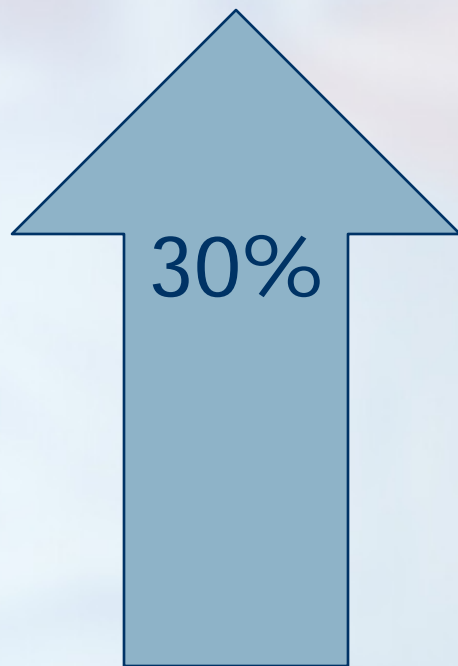
Stats as of June 12, 2009

- 74 countries have officially reported 29,699 cases of influenza A(H1N1) infection, including 145 deaths.
- In the US, 17,855 confirmed and probable cases and 45 deaths in 52 states & territories.
- The states that have reported the most novel H1N1 activity are California, Illinois, Massachusetts, New York, Texas, Washington (state) and Wisconsin.

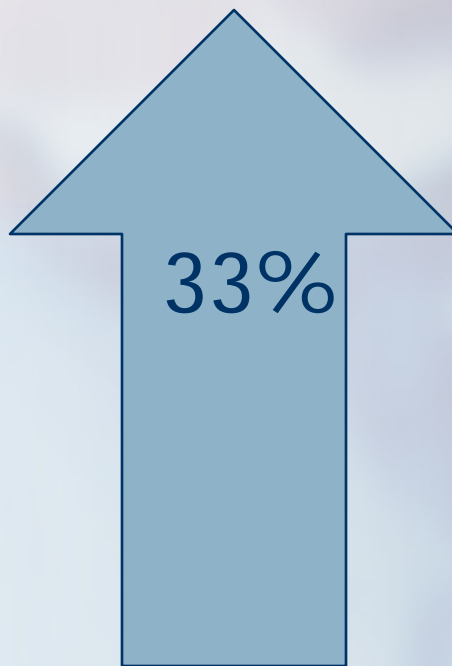


Influenza on the Rise

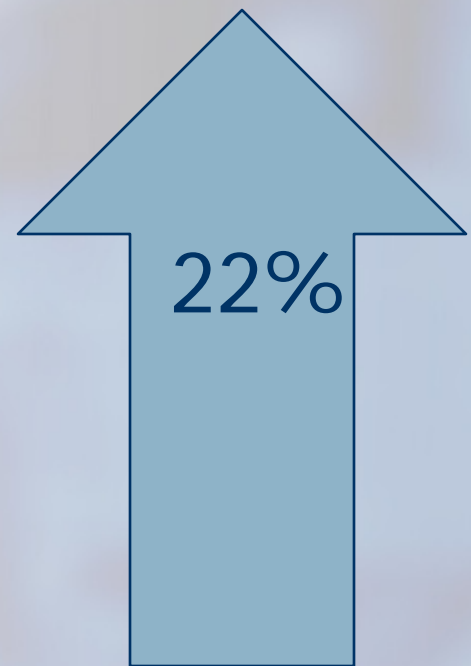
Typical Week: May 26-June 3, 2009



Countries
Affected



Worldwide
Cases



Total Deaths



Vaccine for H1N1 Novel Virus

- CDC has isolated the novel H1N1 flu virus and is working to make a candidate vaccine virus that can be provided to industry so that manufacturers can scale up for production of a vaccine, if necessary.
- \$1 billion in existing funds that will be used for clinical studies that will take place over the summer and for commercial-scale production of two potential vaccine ingredients for the pre-pandemic influenza stockpile.



Part IV

PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR EMS



First Line of Defense

- **Implementation of Respiratory Hygiene/Cough Etiquette**
- **Masking Persons with Respiratory Symptoms**
- **Droplet Precautions**



Instructions for Patients

- Cover the nose/mouth when coughing or sneezing;
- Use tissues to contain respiratory secretions and dispose of them in the nearest waste receptacle after use;
- Perform hand hygiene (e.g., hand washing with non-antimicrobial soap and water, alcohol-based hand rub, or antiseptic handwash) after having contact with respiratory secretions and contaminated objects/materials.



Instructions for EMS

- Provide tissues and no-touch receptacles for used tissue disposal.
- Provide conveniently located dispensers of alcohol-based hand rub; where sinks are available, ensure that supplies for hand washing (i.e., soap, disposable towels) are consistently available.



Cache of Masks and Respirators

- DHHS predicts more than 30 billion masks needed in a pandemic
 - *SNS contains 119 million*
- DHHS predicts 27 billion surgical masks needed in a pandemic
 - *SNS contains 39 million*
- DHHS predicts 5 billion N-95 respirators needed in a pandemic
 - *SNS contains 80 million N-95's*



Surgical Facemasks

- A facemask is a loose-fitting, disposable device that creates a physical barrier between the mouth and nose of the wearer and potential contaminants in the immediate environment. They may come with or without a face shield.
 - Does not filter or block very small particles.
 - Incomplete protection because of loose fit.



N-95 Respirators

- An N95 respirator is a respiratory protective device designed to achieve a very close facial fit and very efficient filtration of airborne droplet particles.
- In addition to blocking splashes, sprays and large droplets, the respirator is also designed to prevent the wearer from breathing in very small particles that may be in the air.



N-95 Respirators

- An N-95 respirator is one of nine types of disposable particulate respirators.
 - They protect by filtering particles out of the air as you breathe.



N-95 Respirators

- NIOSH uses very high standards to test and approve respirators for occupational uses.
- NIOSH-approved disposable respirators are marked with the manufacturer's name, the part number (P/N), the protection provided by the filter (e.g., N-95), and "NIOSH."
- This information is printed on the facepiece, exhalation valve cover, or head straps.



N-95 Respirators

- A listing of all NIOSH-approved disposable respirators is available at http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/. **If a disposable respirator does not have these markings and does not appear on one of these lists, it has not been certified by NIOSH.**



N-95 Respirators

- If respirators are used for people in occupational settings, employers must comply with the OSHA Respiratory Protection Standard, (29 CFR 1910.134), which can be found at <http://www.OSHA.gov>.



Fit-Test Methods

- See 29 CFR 1910.134
 - Examples include
 - Bitrex™
 - Saccharin
 - TSI PortaCount Plus™ with N95 Companion
- See also
<http://www.osha.gov/SLTC/etools/respiratory/fittesting.html>



Shortages of N-95 Respirators

- In the event of actual or anticipated shortages of N95 respirators:
 - Other NIOSH-certified N-, R-, or P-class respirators should be considered in lieu of the N95 respirator.
 - If re-useable elastomeric respirators are used, these respirators must be decontaminated according to the manufacturer's instructions after each use.



Proper Use of Masks

- Surgical mask or respirator use should not take the place of preventive interventions, such as respiratory etiquette and hand hygiene.
- To offer protection, surgical masks and respirators must be worn correctly and consistently throughout the time they are used.
- Wearing a surgical mask or respirator incorrectly, or removing or disposing of it improperly, could allow contamination of the hands or mucous membranes of the wearer or others, possibly resulting in disease transmission.



Use of Masks

- Based on currently available information, *for non-healthcare settings where frequent exposures to persons with novel influenza A (H1N1) are unlikely*, masks and respirators are not recommended.



Use of Masks

- All patients with acute febrile respiratory illness should wear a surgical mask, if tolerated by the patient.
- Persons who are ill with influenza-like symptoms should stay home and limit contact with others as much as possible.



Use of Masks

- Respirators (meaning N-95 or higher filtering facepiece respirator certified by NIOSH) should be considered for use by individuals for whom close contact with an infectious person is unavoidable.



EMS Protection

- EMS personnel who are in close contact with patients with suspected or confirmed swine-origin influenza A (H1N1) cases should wear a **fit-tested** disposable N95 respirator, disposable non-sterile gloves, eye protection (e.g., goggles; eye shields), and gown, when coming into close contact with the patient.



EMS Guidance

- *If there HAS NOT been swine-origin influenza reported in the geographic area:*
 - EMS personnel should stay more than 6 feet away from patients and bystanders with symptoms and exercise appropriate routine respiratory droplet precautions while assessing all patients for suspected cases of swine-origin influenza.



EMS Guidance

- *If there HAS NOT been swine-origin influenza reported in the geographic area:*
 - Assess all patients for symptoms of acute febrile respiratory illness (fever plus one or more of the following: nasal congestion/ rhinorrhea, sore throat, or cough.)



EMS Guidance

- *If the CDC has confirmed swine-origin influenza in the geographic area:*
 - If PSAP advises potential for acute febrile respiratory illness symptoms on scene, EMS personnel should don PPE for suspected cases of swine-origin influenza prior to entering scene.



EMS Guidance

- *If the CDC has confirmed swine-origin influenza in the geographic area:*
 - If PSAP has not identified individuals with symptoms of acute febrile respiratory illness on scene, EMS personnel should stay more than 6 feet away from patient and bystanders with symptoms and exercise appropriate routine respiratory droplet precautions while assessing all patients for suspected cases of swine-origin influenza.



In other words...

- If no symptoms of acute febrile respiratory illness ➡ *provide routine EMS care.*
- If symptoms of acute febrile respiratory illness ➡ *don appropriate PPE (if not already on) prior to providing care.*



To Work or Not?

- In communities without novel H1N1 transmission, healthcare personnel who develop a febrile respiratory illness and have been working in areas where swine influenza patients are present, should be excluded from work for 7 days or until symptoms have resolved, whichever is longer.



To Work or Not?

- In communities where novel H1N1 transmission is not occurring, healthcare personnel who develop febrile respiratory illness and have not been in areas where swine influenza patients are present should follow facility guidelines on returning to work.



Part V

DECONTAMINATION OF AMBULANCES



Decontamination

- Routine cleaning with soap or detergent and water to remove soil and organic matter, followed by the proper use of disinfectants, are the basic components of effective environmental management of influenza.



Decontamination

- After the patient has been removed and prior to cleaning, the air within the vehicle may be exhausted by opening the doors and windows of the vehicle while the ventilation system is running. This should be done outdoors and away from pedestrian traffic.



Decontamination

- Some reusable equipment may need to be covered with disposable plastic covers to protect it from contamination if it cannot be decontaminated with disinfectants without the chance of damage to the equipment (per the manufacturers' recommendations).



Decontamination

- Frequently touched surfaces in patient-care compartments that become directly contaminated with respiratory secretions and other bodily fluids during patient care, or indirectly by touching the surfaces with gloved hands, should be cleaned first with detergent and water and then disinfected using an EPA-registered hospital disinfectant in accordance with the manufacturer's instructions.



Decontamination

- Ensure that the surface is kept wet with the disinfectant for the full contact time specified by the manufacturer.
- Adhere to any safety precautions or other recommendations as directed (e.g., allowing adequate ventilation in confined areas, and proper disposal of unused product or used containers).



Decontamination

- Non-porous surfaces in patient-care compartments that are not frequently touched can be cleaned with detergent and water. Avoid large-surface cleaning methods that produce mists or aerosols or disperse dust in patient-care areas (e.g., use wet dusting techniques, wipe application of cleaning and/or disinfectant solutions).



Decontamination

- Clean any small spills of bodily fluids (e.g., vomit from an ill patient) by cleaning first with detergent and water followed by disinfection using an EPA-registered hospital disinfectant from EPA List D or E in accordance with the manufacturer's use instructions and safety precautions.



For More Information...

- http://www.pandemicflu.gov/plan/healthcare/cleaning_ems.html
- http://www.cdc.gov/ncidod/dhqp/gl_environmentinfection.html



Part VI

INFLUENZA AND EMTALA



Influenza Patient Destination

- Increased referrals from primary care practices TO 9-1-1, EMS, and hospital emergency departments have been documented.
- Hospitals CAN divert influenza patients away from the ED and not violate EMTALA.



Influenza, ED Triage, and EMTALA

- CMS permits hospitals to move individuals out of their dedicated emergency departments to another part of the hospital (on the hospital's same campus) in order to provide the required medical screening examination (MSE) and then, if an emergency medical condition is found to exist, to provide stabilizing treatment or arrange for an appropriate transfer.



Influenza, ED Triage, and EMTALA

- Prior to directing the individual elsewhere in the hospital, if qualified medical personnel in the emergency department completed an appropriate MSE and determined that the individual does not have an emergency medical condition, then the hospital has no further EMTALA obligation to that individual and the issue of moving the individual to an alternate site, either on or off the hospital's campus, would be moot from an EMTALA perspective.



“Worried Well”

- At some location before the person reaches the emergency department, the facility can post signs or staff that direct non-ill persons who would like or need information about the flu to another site on the campus that would not require medical screening, establishment of a medical record or logging in.
- That location could serve as an education or information distribution center to ease the public’s concerns.



Proactive Collaboration Is Essential!!

- EMS should partner with the local health authority and health care facilities to help determine appropriate community policies regarding influenza.
- EMS should accurately communicate influenza patient status and needs in a timely manner to the receiving facility.
- Confrontational communications regarding influenza patient destination during transport should be avoided!



More on Influenza and EMTALA

- http://www.cms.hhs.gov/Emergency/10_PandemicFlu.asp
- http://www.cms.hhs.gov/Emergency/Downloads/H1N1_QsAs.pdf



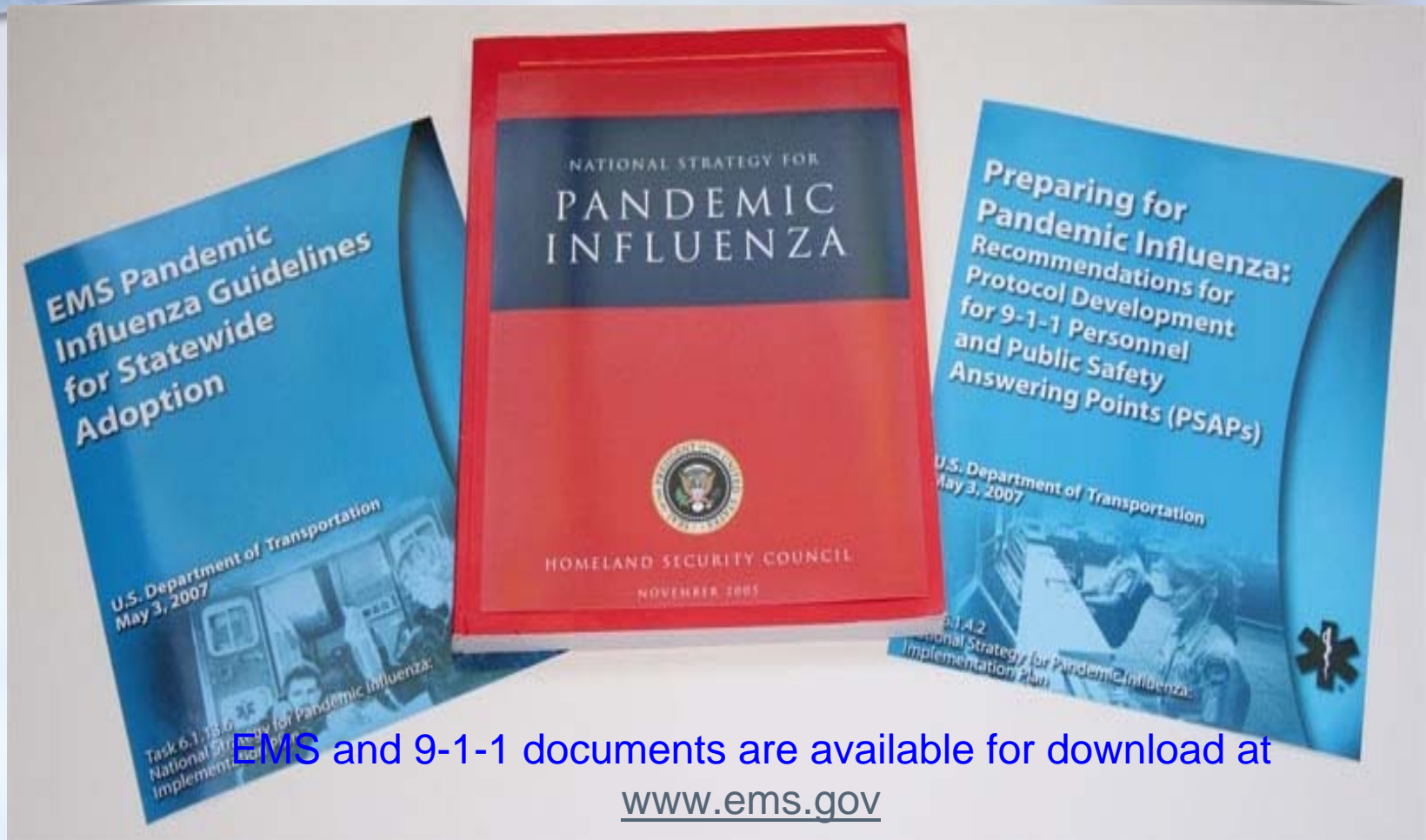
Part VII

PLANNING CONSIDERATIONS



EMS & 9-1-1

Critical Components of the National Strategy



EMS and 9-1-1 documents are available for download at www.ems.gov

EMERGENCY MEDICAL SERVICE AND NON-EMERGENT (MEDICAL) TRANSPORT ORGANIZATIONS PANDEMIC INFLUENZA PLANNING CHECKLIST



Planning for pandemic influenza is critical for ensuring a sustainable health care response. The Department of Health and Human Services (HHS) and the Centers for Disease Control and Prevention (CDC) have developed the following checklist to help emergency medical services (EMS) and non-emergent (medical) transport organizations assess and improve their preparedness for responding to pandemic influenza. EMS organizations will be involved in the transport of acutely ill patients with known or suspected pandemic influenza to emergency departments; some of these patients might require mechanical ventilation for life support and/or other lifesaving interventions. Non-emergent (medical) transport organizations will be called upon to transport recovering pandemic influenza patients to their home, residential care facility, or possibly to alternate care sites set up by state or local health departments. This checklist is modeled after one included in the HHS Pandemic Influenza Plan (www.hhs.gov/pandemicflu/plan/sup3.html#app2). The list is comprehensive but not complete; each organization will have unique and unanticipated concerns that also will need to be addressed as part of a pandemic planning exercise. Also, some items on the checklist might not be applicable to all organizations. Collaborations among hospital, public health and public safety personnel are encouraged for the overall safety and care of the public. Further information can be found at www.pandemicflu.gov.

This checklist identifies key areas for pandemic influenza planning. EMS and non-emergent (medical) transport organizations can use this tool to self-assess and identify the strengths and weakness of current planning. Links to websites with information are provided throughout the document. However, actively seeking information that is available locally or at the state level will be necessary to complete the development of the plan. Also, for some elements of the plan (e.g., education and training programs), information may not be immediately



EMS Planning Priorities

- EMS participation in health surveillance
- Vaccination and prophylaxis for personnel (and families when feasible)
- Sheltering employees
- Role in medical surge
- Supply chains (& expanded storage)
- Operational continuity in face of competing demands for service



Looking forward...

- Preliminary analysis of serum from people immunized with the seasonal influenza vaccine done at the CDC suggests that the seasonal vaccine is unlikely to provide protection against 2009-H1N1.
- This virus does not have the genetic markers for virulence seen in the 1918 pandemic virus, or seen today in the H5N1 virus in Asia that has been lethal among people.

Looking forward...



- The Southern Hemisphere is just going into their flu season and how this virus behaves will give us some clues about what we can expect for the Northern Hemisphere in Fall 2009.
- Some experts predict re-emergence with increased viral acuity, higher rates of disease and death.

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