

Understanding

Influenza A (H1N1)



Influenza is usually a *respiratory* infection

Transmission:

- *Regular person-to-person transmission*
- Primarily through contact with respiratory droplets
- Transmission from objects (fomites) possible



Key Characteristics

Communicability

- Viral shedding can begin 1 day before symptom onset
- Peak shedding first 3 days of illness
- Correlates with temperature
- Subsides usually by 5-7th day in adults
- can be 10+ days in children
- Infants, children and the immunocompromised may shed the virus longer



Incubation period

- Time from exposure to onset of symptoms
- 1 to 4 days (average = 2 days)

Seasonality

- In temperate zones, sharp peaks in winter months
- In tropical zones, circulates year-round with seasonal increases.



Individuals at Increased Risk for Hospitalizations and Death

- **Elderly \geq 65 years**
- **Children less than two years**
- **Certain chronic diseases**
 - Heart or lung disease, including asthma
 - Metabolic disease, including diabetes
 - HIV/AIDs, other immunosuppression
 - Conditions that can compromise respiratory function or the handling of respiratory secretions
- **Pregnant women**



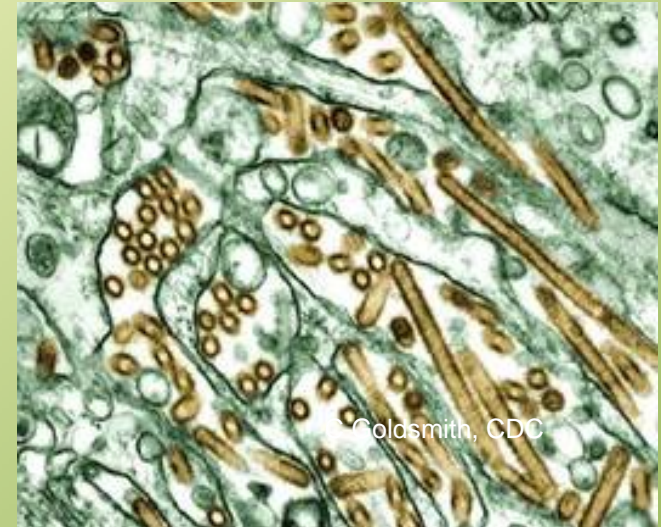
Vaccination



- **Influenza vaccine is the best prevention for seasonal influenza.**
- **Live, intranasal spray vaccine for healthy non-pregnant persons 5-49 years**
- **Inactivated, injectable vaccine for persons 6 months and older**

Influenza Viruses

- **Classified into types A, B, and C**
 - Only Types A and B cause significant disease
 - Types B and C limited to humans
 - Type A viruses
 - More virulent
 - Affect many species



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Influenza A (H1N1) is a *novel* virus

- Unusual combination of genetic material from pigs, birds & humans which have re-assorted
- human-to-human transmission occurs through respiratory droplets generated from sneeze or cough
- Affects all age groups
- Vaccines for human seasonal flu can not protect humans against the novel virus

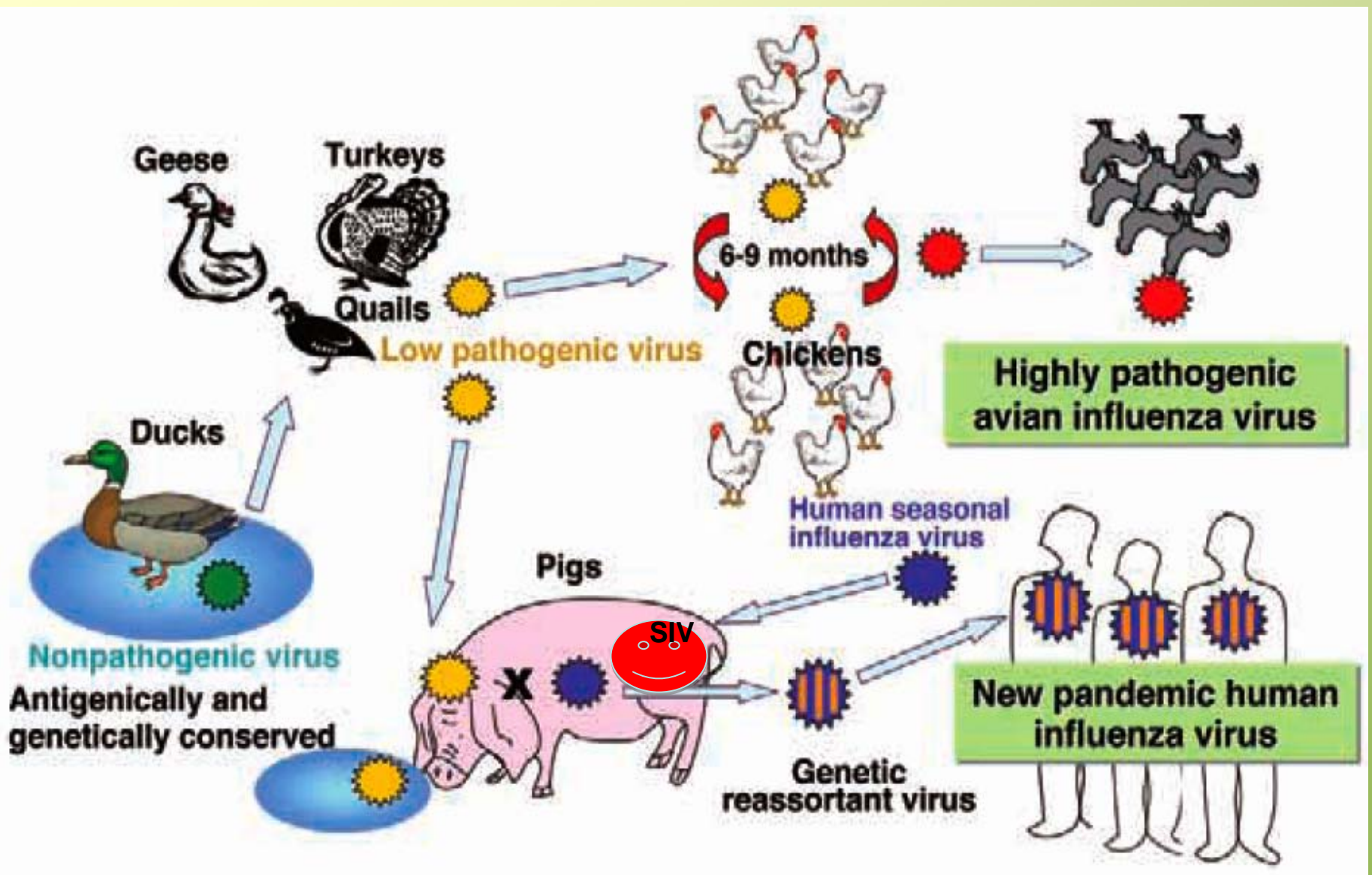


Swine Influenza Viruses

- **RNA viruses**
- **Pigs can be infected by avian influenza and human influenza viruses as well as swine influenza viruses.**
- **reassort and new viruses that are a mix of swine, human and/or avian influenza viruses can EMERGE**



Genetic Reassortment



Signs & Symptoms of Influenza A (H1N1)

Like Seasonal Influenza;

- Fever
- Fatigue
- Lack of appetite
- Coughing
- Runny Nose
- Sore throat
- Nausea / Vomiting
- Diarrhea



Foreign tourists wearing protective masks stand in the main Zocalo plaza in downtown Mexico City, Monday. (AP Photo/Enric Marti)

Swine H1N1 vs. Human H1N1

- ***swine* H1N1 flu virus NOT the same as human H1N1 virus**
- **antigenically very different from human H1N1 viruses**
- **vaccines for human seasonal flu can not protect humans from *swine* H1N1**



Transmission: Food-Borne?

- **NO**
- **Influenza A (H1N1) viruses are not transmitted through food**
- **Safe to eat properly handled and cooked pork and pork products**
- **Cook pork at an internal temperature of 70°C (160°F)**

Diagnosis and Laboratory Confirmation

- Clinically diagnosed
- Respiratory Specimen
 - first 4 to 5 days of illness
 - can shed for 10 days or longer
- Specimens sent to US CDC
 - **ONLY** laboratory that can isolate and identify swine influenza type A virus



Treatment

- **Influenza A (H1N1) is sensitive to:**
 - Oseltamivir
 - Zanamivir
- **Self medication is discouraged, may induce drug resistance**
- **Chemoprophylaxis**
 - Oseltamivir

Vaccine

- **No Influenza A (H1N1) vaccine yet**
- **Process of production is underway, but may take 5 – 6 months**
- **Seasonal influenza vaccine provides protection against the seasonal human influenza strains only**

Influenza A (H1N1) is a Public Health Emergency of International Concern (PHEIC)

- Serious Public Health Impact
- Unusual or Unexpected
- International disease spread
- Interference with international travel or trade

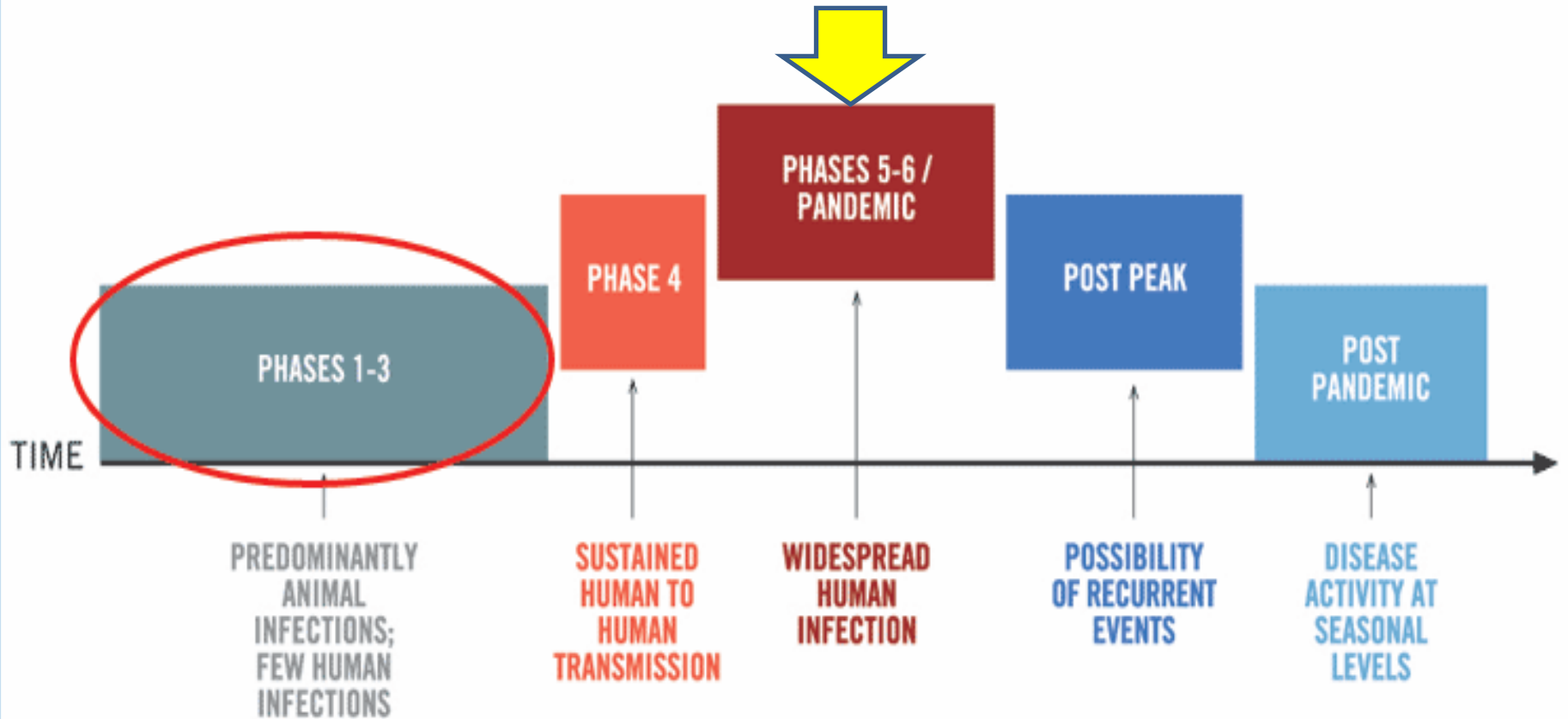
***WHO Recommends intensifying and enhancing national surveillance systems for Influenza-like Illnesses and atypical pneumonia*

WHO PANDEMIC PHASES

PHASE 1	<i>No animal influenza virus circulating among animals has been reported to cause infection in humans.</i>
PHASE 2	<i>An animal influenza virus circulating in domesticated or wild animals is known to have caused infection in humans and is therefore considered a specific potential pandemic threat.</i>
PHASE 3	<i>An animal or human-animal influenza reassortant virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks.</i>
PHASE 4	<i>Human-to-human transmission (H2H) of an animal or human-animal influenza reassortant virus able to sustain community-level outbreaks has been verified.</i>
PHASE 5	<i>The same identified virus has caused sustained community level outbreaks in two or more countries in one WHO region.</i>
PHASE 6	<i>In addition to the criteria defined in Phase 5, the same virus has caused sustained community level outbreaks in at least one other country in another WHO region.</i>
POST-PEAK PERIOD	<i>Levels of pandemic influenza in most countries with adequate surveillance have dropped below peak levels.</i>
POSSIBLE NEW WAVE	<i>Level of pandemic influenza activity in most countries with adequate surveillance rising again.</i>
POST-PANDEMIC PERIOD	<i>Levels of influenza activity have returned to the levels seen for seasonal influenza in most countries with adequate surveillance.</i>

Pandemic Alert Phase 5

PANDEMIC INFLUENZA PHASES



WHO PANDEMIC PHASES AND DESCRIPTION

ESTIMATED PROBABILITY OF PANDEMIC	DESCRIPTION	MAIN ACTIONS IN AFFECTED COUNTRIES	MAIN ACTIONS IN NOT-YET-AFFECTED COUNTRIES
PHASE 1	<p><i>No animal influenza virus circulating among animals has been reported to cause infection in humans.</i></p>		
PHASE 2	<p><i>An animal influenza virus circulating in domesticated or wild animals is known to have caused infection in humans and is therefore considered a specific potential pandemic threat.</i></p>		
PHASE 3	<p><i>An animal or human-animal influenza reassortant virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks.</i></p>		<p><i>Producing, implementing, exercising, and harmonizing national pandemic influenza preparedness and response plans with national emergency preparedness and response plans.</i></p>

WHO PANDEMIC PHASES AND DESCRIPTION

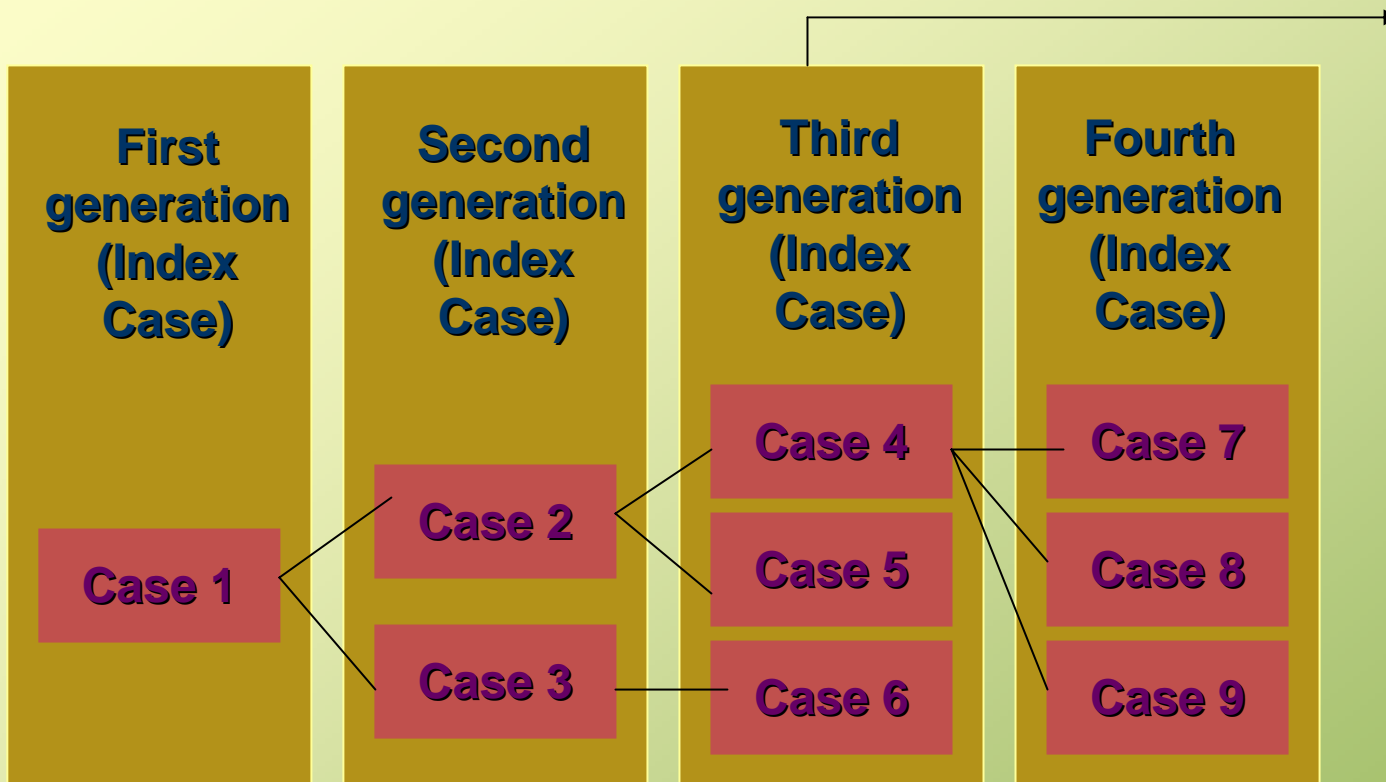
	ESTIMATED PROBABILITY OF PANDEMIC	DESCRIPTION	MAIN ACTIONS IN AFFECTED COUNTRIES	MAIN ACTIONS IN NOT-YET-AFFECTED COUNTRIES
PHASE 4	<i>Medium to high</i>	<i>Human-to-human transmission of an animal or human-animal influenza reassortant virus able to sustain community-level outbreaks has been verified.</i>	<i>Rapid containment.</i>	<i>Readiness for pandemic response.</i>
PHASE 5	<i>High to certain</i>	<i>The same identified virus has caused sustained community level outbreaks in at least two countries in one WHO region.</i>	<i>Pandemic response: Each country to implement actions as called for in their national plans.</i>	<i>Readiness for imminent response.</i>
PHASE 6	<i>Pandemic in progress</i>	<i>In addition to the criteria defined in Phase 5, the same virus has caused sustained community level outbreaks in at least one other country in another WHO region.</i>		

Public Health Advisory

- **Cover nose and mouth with a tissue when coughing or sneezing.**
- **Wash hands regularly with soap and water, especially after you cough or sneeze. Alcohol-based hand cleaners are also effective.**
- **Avoid close contact with sick people.**
- **If sick, self-monitor and stay home from work or school and limit contact with others.**
- **Consult your doctor immediately should signs and symptoms of flu persist.**



Transmission Generations



What are the implications of the third generation transmission?

- Transmission in ongoing
- Transmission could be fast (superspreading)
- * Need to identify the factors that cause “superspreading”
- * Need to implement aggressive infection-control measures

Ex. Usually the health care workers, patients, visitors & patient’s family members

Ex. Family members of health workers

Other contacts in the community