



PUBLIC HEALTH AGENCY of CANADA  
AGENCE DE SANTÉ PUBLIQUE *du* CANADA



Public Health  
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# Precautionary Measures in Areas of Scientific Uncertainty: Pandemic Influenza

- **Context**

- Influenza pandemics have occurred without warning
- International surveillance of infectious diseases has improved, especially since SARS (NB new International Health Regulations)
- Pandemics lead to social and economic disruption, illness and as loss of life
- Knowledge & public expectations are greater than at the time of the last pandemic
- Vaccines are the most important intervention for reducing morbidity and mortality and were available for the 1957 and 1968 pandemics, but too late to have an impact
- Previously, anti-virals were not an option



# Pandemic Influenza

- Risk Assessment
  - Possible warning signs
    - H5N1 now endemic in bird populations in Asia
    - Avian outbreaks continue to occur despite aggressive control measures, including the culling of more than 140 million poultry
    - Migratory birds dying with highly pathogenic H5N1 ( but domestic excrete large quantities of highly pathogenic virus without showing signs of illness)
    - Unprecedented level of transmission to humans
    - ? changes in the epidemiology of human and animal disease
    - ? alterations in the genetic composition of H5N1 viruses
  - Increased risk of a pandemic
  - The risk will continue
  - The evolution of the risk is unpredictable
  - The early warning system is weak
  - Interventions to reduce risk to humans and associated mortality and morbidity are possible but untested

**? STRENGTH OF EVIDENCE**

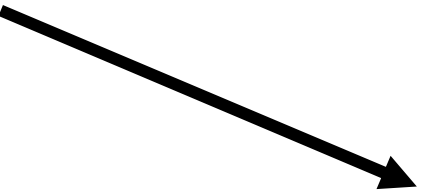
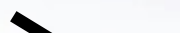
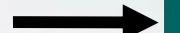
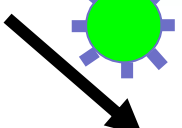
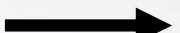
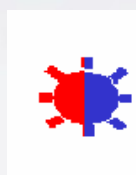
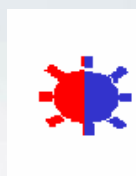
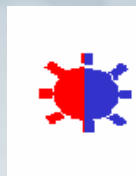
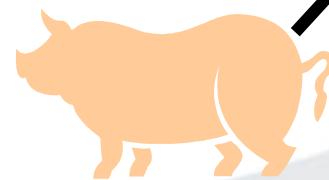
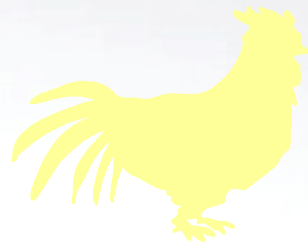


# How do Flu Pandemics Occur?

**Migratory water birds**



**Domestic birds**



**Pigs can be infected  
by human AND avian viruses**



# Pandemic Influenza

- **Options**

- **Reduce Opportunities for Human Infection**
  - Collaboration between animal and human health sectors
  - Risk communication
  - Modelling of Virus Emergence
- **Strengthen the early warning system**
  - Improve detection of cases
  - Investigate human cases related to animal outbreaks
  - Epidemiologic investigation
  - Strengthen risk assessment
- **Contain or Delay Spread At Source**
  - International anti-viral stockpile and delivery mechanisms
- **Reduce Morbidity, Mortality & Social Disruption**
  - Monitor evolution of pandemic
  - Non-pharmaceutical interventions
  - Use anti-virals for priority groups
  - Augment vaccine supplies and delivery
  - Risk communication



# Pandemic Influenza

- **Option choice takes into account:**
  - Social factors, ethical values, experience, observation and modelling
  - Stakeholders
  - Inequitable distribution of risks, capacity to respond, inequality of access



# Pandemic Influenza

- **Option choice now:**
  - No action
  - Research
  - Monitoring
  - Consultation, communication and engagement
  - Behavioural change
- **Option choice at time of a *possible* pandemic:**
  - **Pandemic alert level**
  - Behaviour change
  - Reduction in exposure
  - Technical mitigation



# Pandemic Influenza

- **Action Now:**

- Research - YES
- Monitoring - YES
- Consultation, communication and engagement  
- YES
- Behaviour change  
- YES

- **Action at time of a *possible* Pandemic**

- **Pandemic alert level declaration**  
- YES (Fundamental decision point)
- Promotion of behavioural change  
- YES
- Reduction in exposure  
- Possibly
- Technical mitigation  
- YES



# Pandemic Influenza

- **Evaluation**
  - Dependent on surveillance, investigative and risk assessment infrastructure
  - Necessary for changes to utilization of anti-virals (NB resistance), vaccines and other measures



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