

# Avian Influenza and its Global Implications



## What is Avian Influenza?

- **Virus that mainly affects domestic & wild birds**
- **AI virus related to influenza viruses that affect humans and other mammals**
- **AI viruses can mutate rapidly and exchange genetic material with other flu viruses (human & pig)**
  - continual evolution and development of new types
  - allows virus to evade animal & human immune systems
- **H5N1 AI virus very lethal to animals and humans**
  - 26 countries affected by H5N1 since December 2003
  - estimated 170 million birds killed
  - 190 lab-confirmed human cases with 92 deaths in 7 countries

## How is “AI” spread?

- **Animal & human populations in close proximity**
  - farm animals and pets in/under/next to houses
  - live animal markets (many species from many countries)
- **Poor agricultural practices**
  - inadequate infection control on farms
  - poultry excrement used in agriculture (e.g. fed to pigs)
- **Poor food hygiene**
  - food preparation practices
  - consumption of raw/undercooked meat
- **Frequent travel/trade involving humans and birds**
  - movement of people/animals among farms
  - legal and illegal animal trade
  - wild bird migration

# Spread of H5N1

**BIRDS:** New cases  Previous cases  No of new cases in country  1-25  26-100  101-250  >250

**HUMANS:** Countries with cases/deaths (total)

**Jan-Jun 2004 Human total: Cases 35 (35) Deaths 24 (24)**

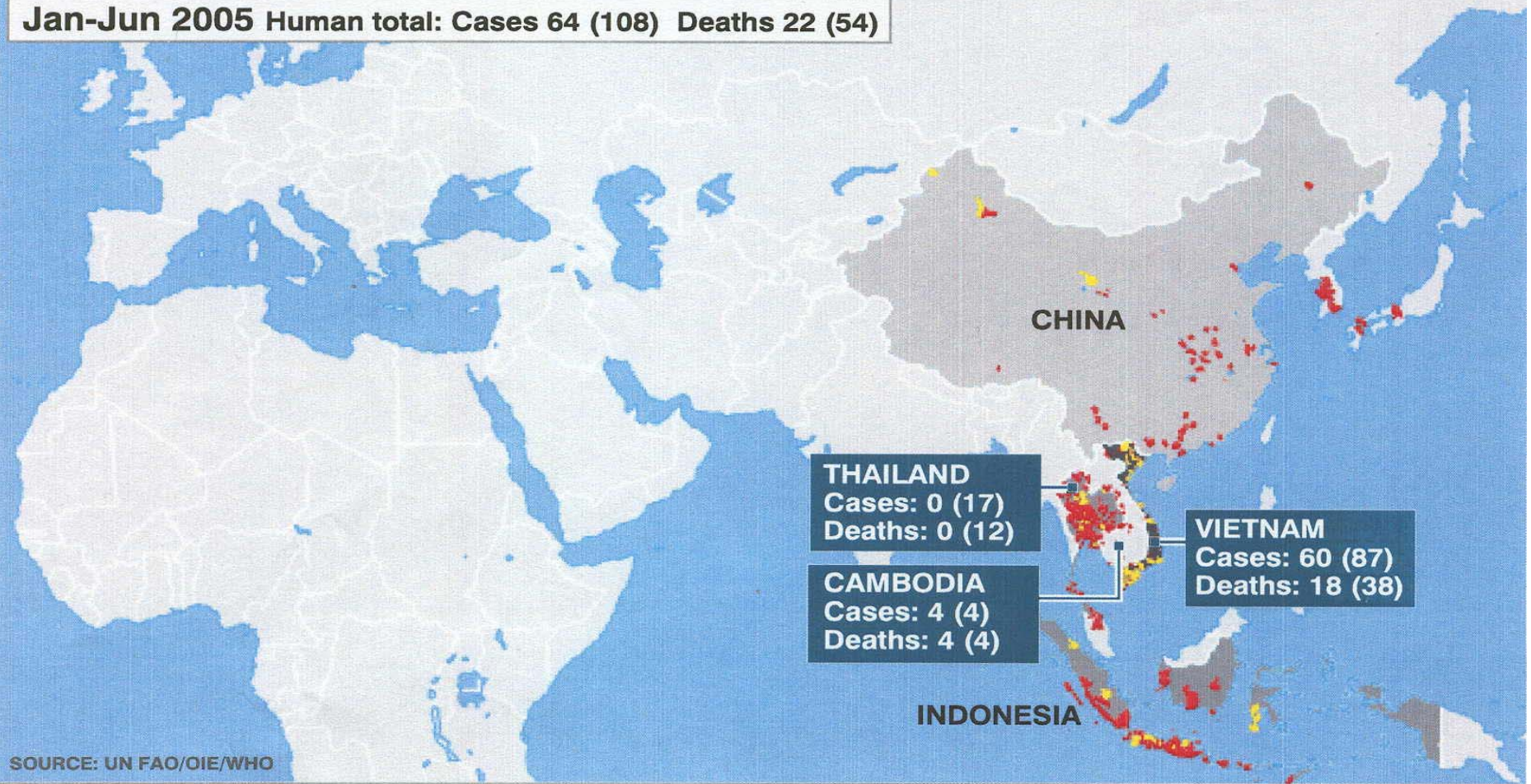


# Spread of H5N1

**BIRDS:** New cases  Previous cases  No of new cases in country  1-25  26-100  101-250  >250

**HUMANS:** Countries with cases/deaths (total)

**Jan-Jun 2005** Human total: Cases 64 (108) Deaths 22 (54)

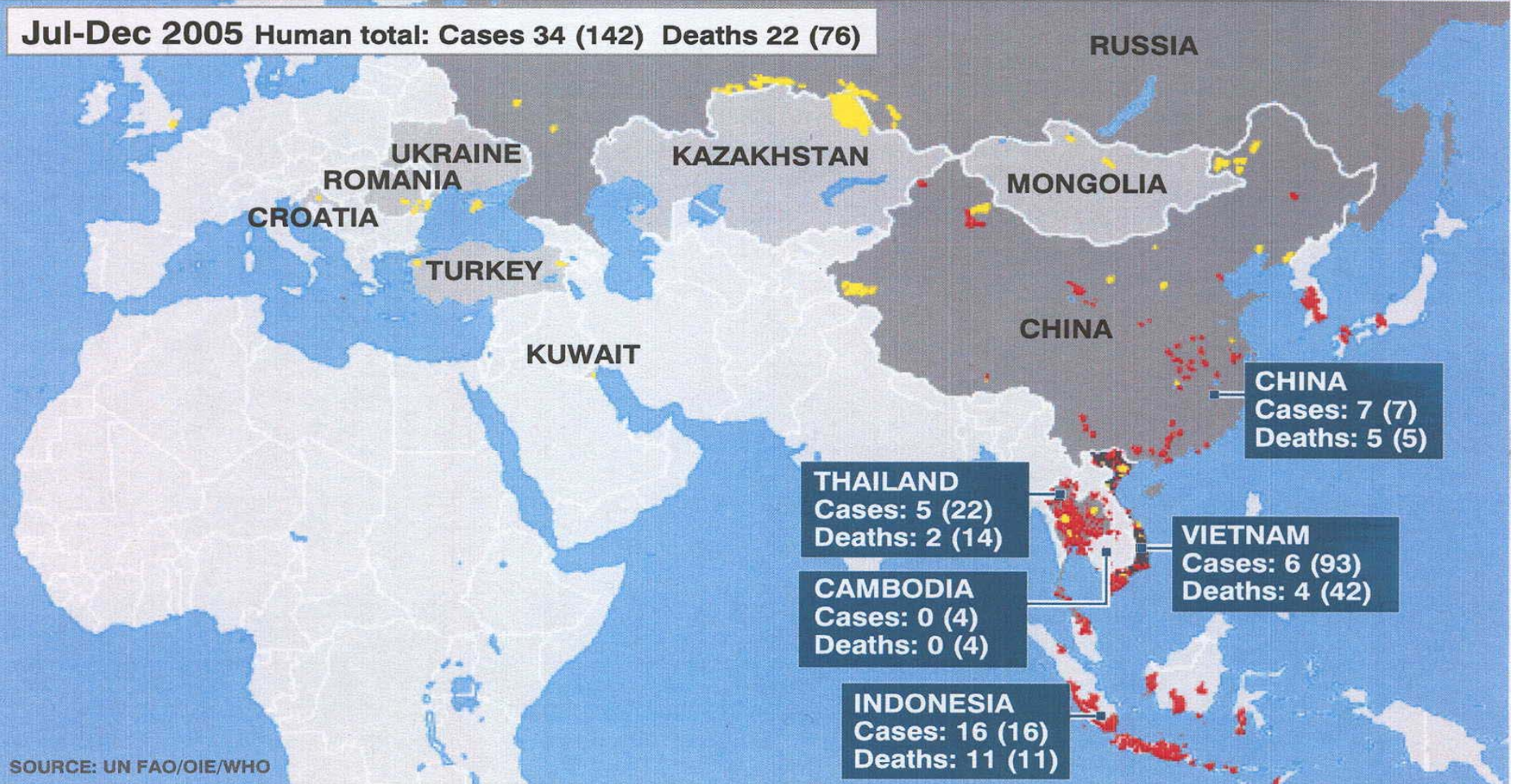


# Spread of H5N1

**BIRDS:** New cases  Previous cases  No of new cases in country  1-25  26-100  101-250  >250

**HUMANS:** Countries with cases/deaths (total)

**Jul-Dec 2005 Human total: Cases 34 (142) Deaths 22 (76)**



SOURCE: UN FAO/OIE/WHO



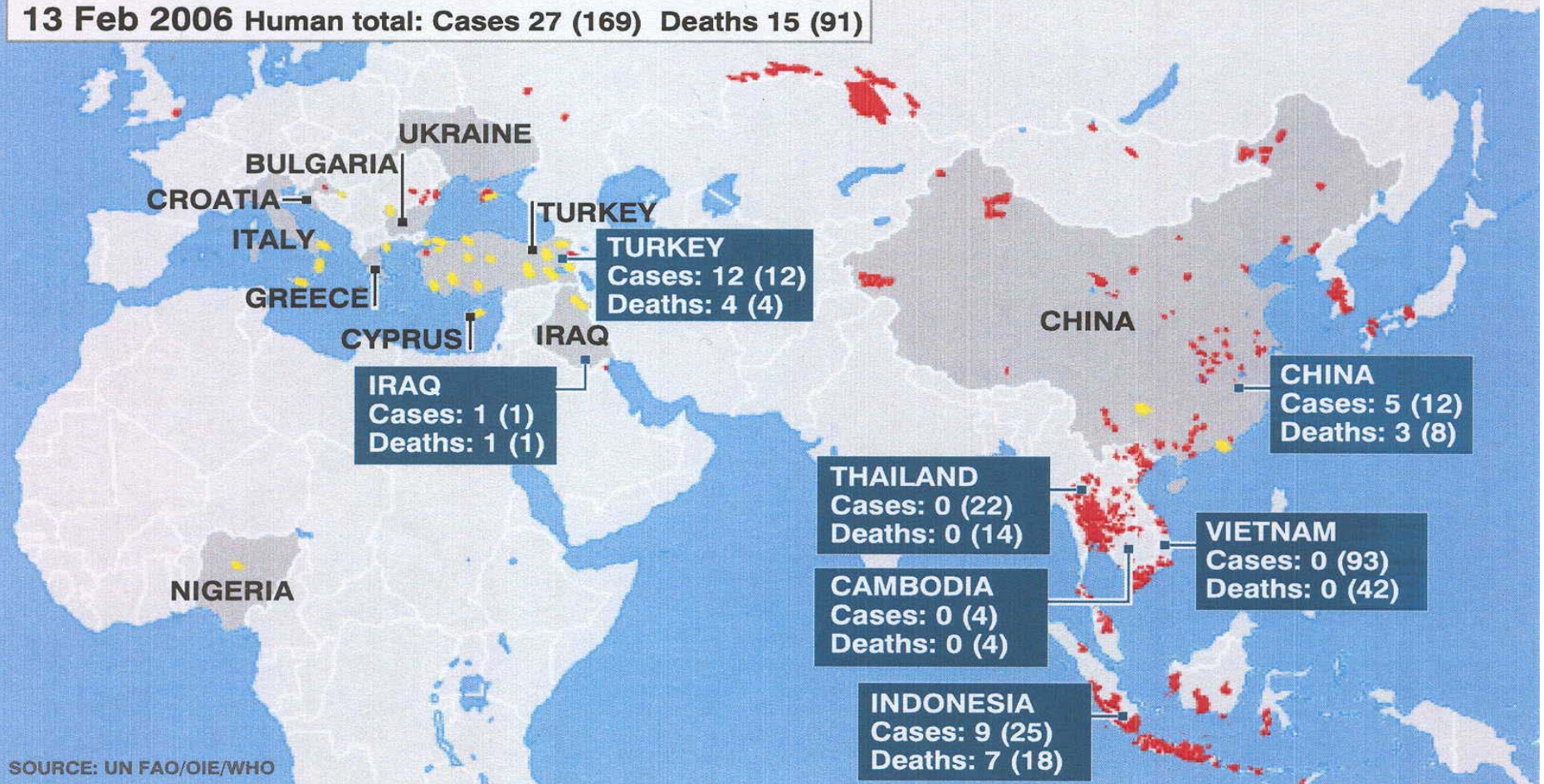
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# Spread of H5N1

**BIRDS:** New cases  Previous cases  No of new cases in country  1-25  26-100  101-250  >250

**HUMANS:** Countries with cases/deaths (total)

**13 Feb 2006 Human total: Cases 27 (169) Deaths 15 (91)**



SOURCE: UN FAO/OIE/WHO

## How could AI cause a pandemic?

### Requirements for pandemic flu:

1. Novel virus

H5N1:

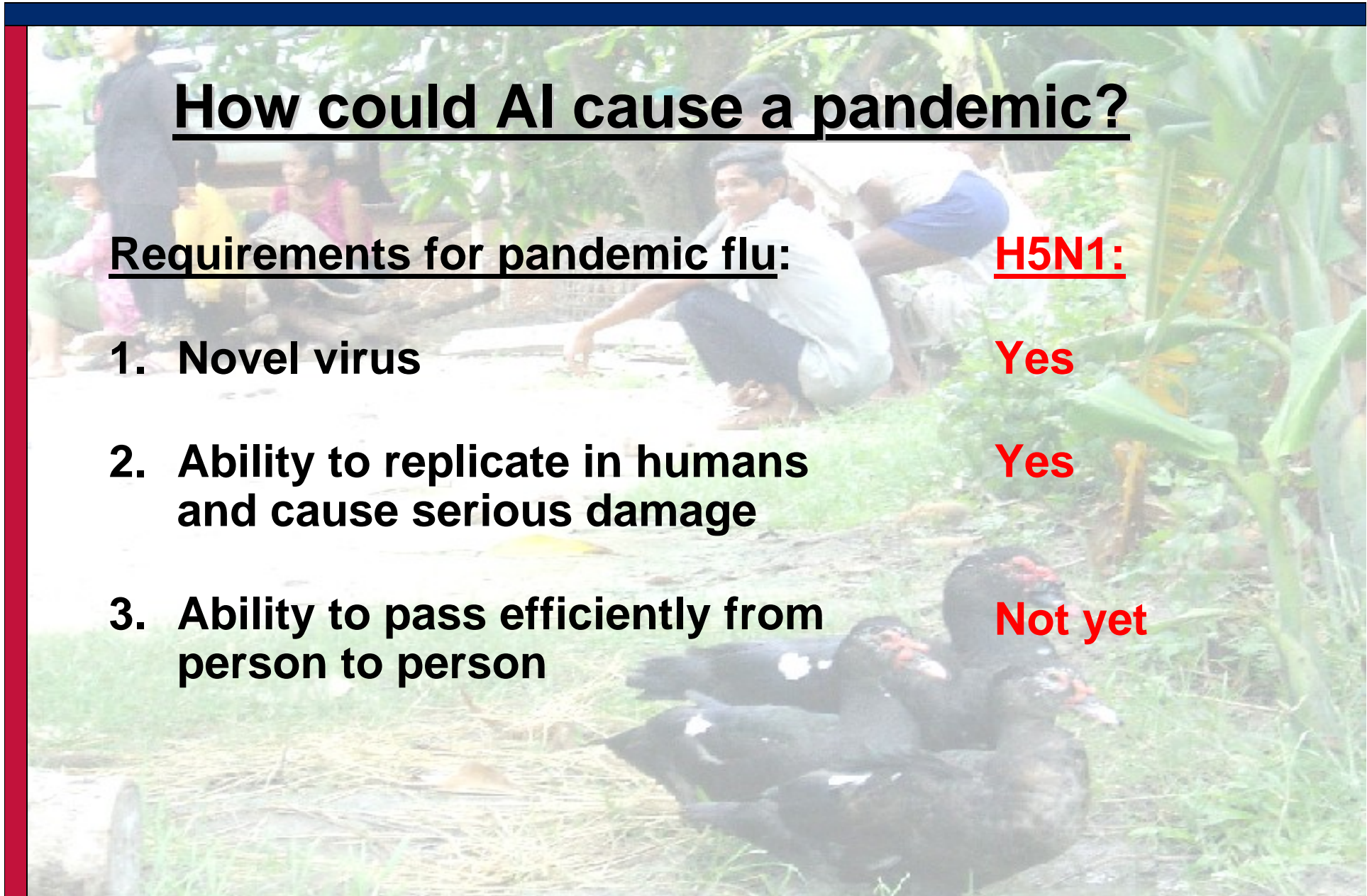
Yes

2. Ability to replicate in humans and cause serious damage

Yes

3. Ability to pass efficiently from person to person

Not yet

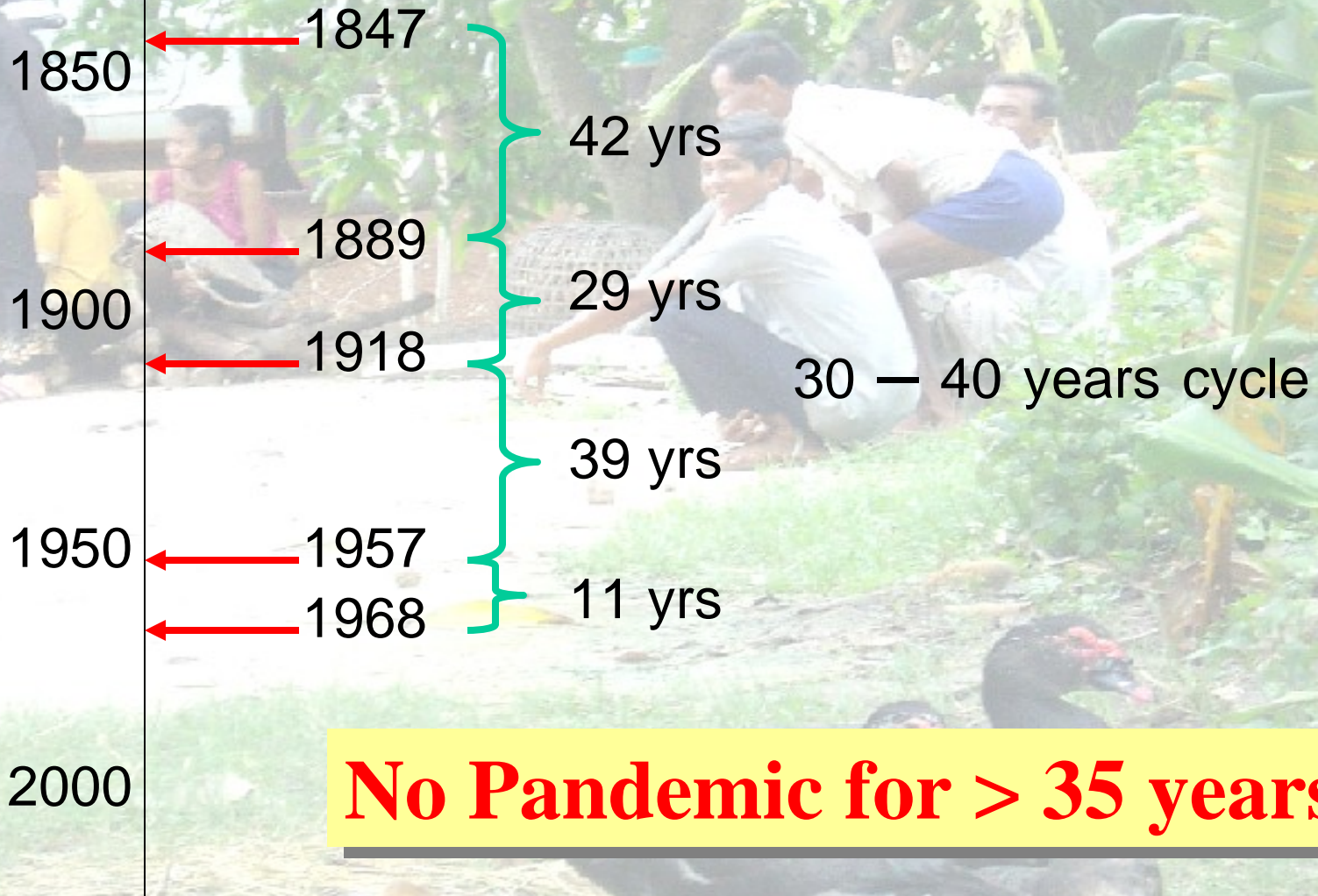






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# Past Influenza Pandemics



## Strategic Approach

- **Comprehensive approach involving animal and human health**
- **Build on existing platforms and investments**
- **Coordinate and leverage with other bilateral donors, multilaterals (WHO, FAO, OIE) and private sector**
- **Focus on activities that could contribute immediately to the containment of H5N1**

## Key Constraints to containment

- Poultry farming is largely a “backyard” enterprise
- High “kill-offs” of poultry is common
- Poor public awareness
- Culling is a major disincentive to reporting
- Migratory birds and unregulated “bird trade” are major channels for spreading the virus into new areas
- Inadequate preparedness plans
- Lack of timely or reliable information

## Goals of AI Control

- **Limit animal infections**
  - Improve husbandry and marketing practices, increase awareness
  - Minimize contact between wild and domestic birds
  - Culling sick/exposed animals
  - Animal vaccination
- **Limit human infections**
  - Rapid response to reported infections
  - Isolating human cases
  - Use of protective gear
  - Public awareness campaigns
- **Prepare for possible outbreaks**
  - Enhanced planning, cross-ministerial and donor coordination
  - Stockpiling medicines, protective gear, animal vaccines, etc.



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# Theoretical Spread of H5N1



## Key Activities

### **Surveillance and Diagnosis**

- Strengthen surveillance and laboratory diagnostic capacity
- “Early-warning” networks
- Incentives to encourage public cooperation

### **Response**

- Rapid response teams for animal and human outbreaks
- Containment measures including culling & disposal, animal vaccination
- Leverage private sector resources

### **Preparedness**

- Support pandemic planning

### **Research**

- Human vaccines, clinical interventions and diagnostics
- Disease transmission routes

### **Stockpiling**

- Establish international “stockpiles” for containment

### **Communications**

- Targeting high risk populations, general public, to promote low-risk behavior
- Public diplomacy, outreach to policymakers
- Press/media training and media management to minimize inaccuracies



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- **Political awareness and commitment:**
    - transparency
    - accountability
    - preparedness
  - **Mobilization of resources:**
    - financial and human
    - national and international “stockpiles” of key medical commodities, including antivirals and PPEs
  - **Coordinated Actions:**
    - early surveillance (animal and human)
    - rapid response
    - mobilization of public

## Key Take-Home Messages

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- **Favorable conditions exist which allow AI to emerge, evolve, spread**
  - **Despite current low mortality of AI, it has already had real economic impact**
  - **Expanded Country action needed:**
    - **Coordination within government and with other partners**
    - **Preparedness planning**
    - **Rapid surveillance and response capacity**
  - **“Transformational Moment”!**