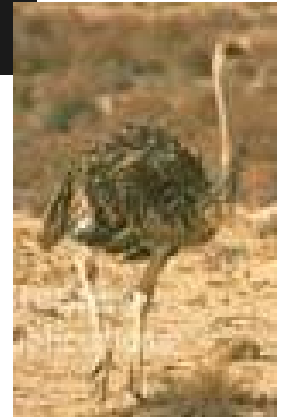
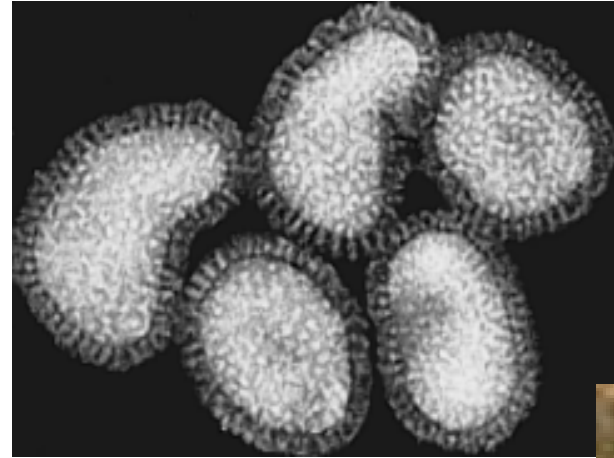


# What is Avian Influenza?

- **An infectious disease in chickens, ducks and other birds caused by different subtypes of the influenza A virus**
  - Ranges from mild infection to acute, fatal disease
  - Two types depending on severity of illness:
    - **Highly Pathogenic Avian Influenza (HPAI)**
      - With mortality in poultry as high as 100%
    - **Low Pathogenic Avian Influenza (LPAI)**
      - Clinical signs much less evident or even absent
      - Mortality much lower



## How to identify possible bird flu

- **Unexplained high mortality over 3 consecutive days**
- **Loss of appetite**
- **Drastic drop in egg production**
- **Ruffled feathers**
- **Facial swelling and bluish-violet colored combs and wattles**
- **Presence of severe respiratory signs including sneezing, cough and nasal discharge**
- **Diarrhea**
- **Hemorrhages in internal organs**
- **Swollen legs**



## How bird flu is transmitted to other birds



- **Direct contact with discharges from infected birds- feces and respiratory secretions**
- **Contaminated feed, water, cages, equipment, vehicles, and clothing**
- **Clinically normal water fowl, migratory birds, and sea birds may introduce the virus into flocks**
- **Broken contaminated eggs may infect chicks in the incubator**

*Incubation may range from a few hours to 3 days in individual birds and up to 14 days to spread throughout a flock*

# How bird flu spreads within a country

- Domestic birds can get the infection when they roam freely and share water supply that that might be contaminated by infected droppings
- Contaminated equipment, vehicles, feeds, cages, or clothing, especially shoes can carry the virus from farm to farm
- Wet markets -live chickens and other birds in crowded and often unsanitary conditions
- Movement of infected birds -trading or smuggling



# **Economic and public health implications**

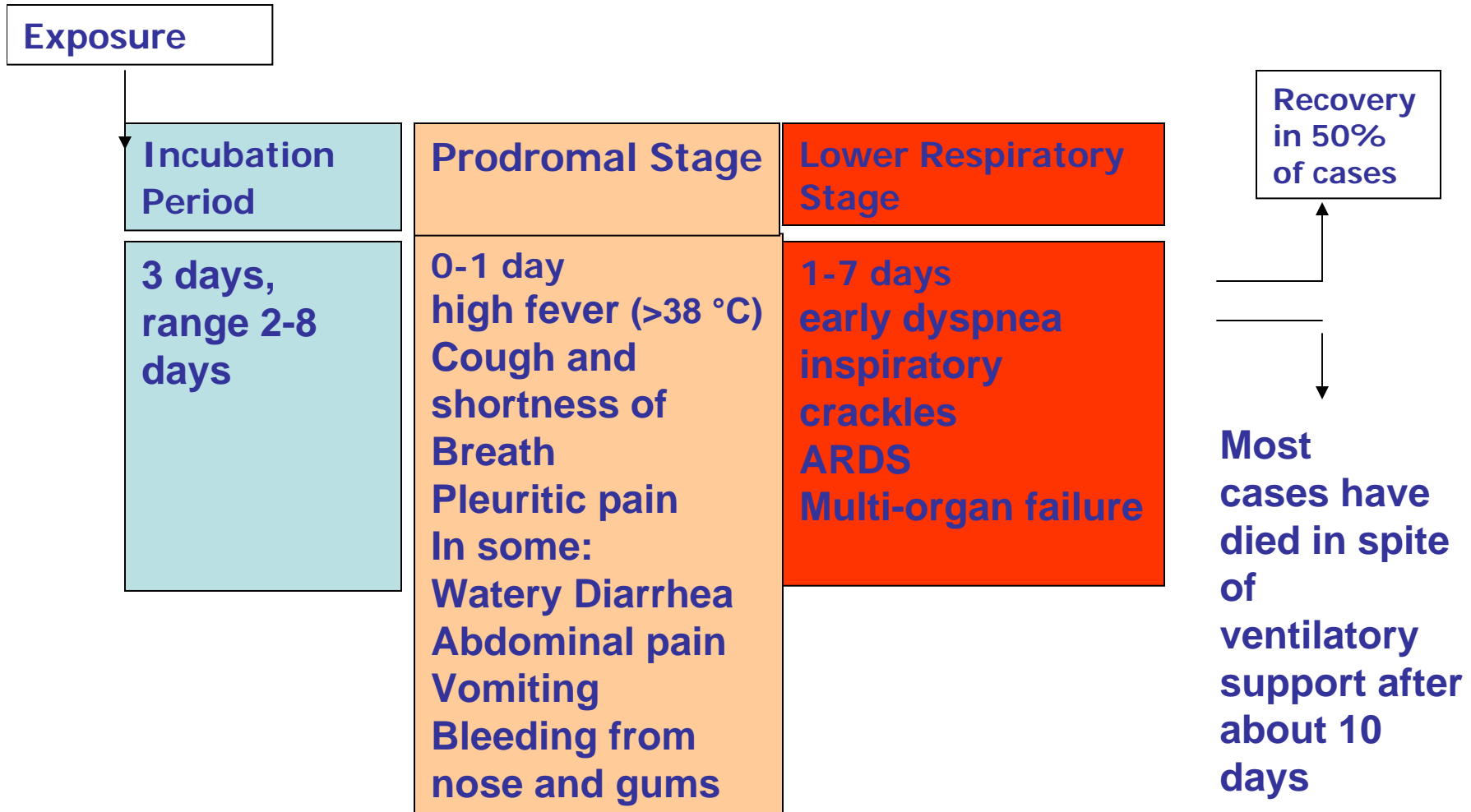
- H5N1 causes severe epidemics and mass death of chickens**
- The poultry industry and food security feared to be greatly affected**
- High mortality to humans**
- Pandemic Potential**

# Transmission to humans

- **Close contact with live infected birds through infected aerosols, discharges and surfaces**
- **Birds excrete the virus in their feces, which dries and becomes pulverized, and is then inhaled**
- **Flapping of wings hastens the transmission**



# Clinical Stages of AI in humans



# Individuals at risk

*In areas where H5N1 has been reported or is suspected*

- ❑ Poultry handlers/workers
- ❑ People living near poultry farms
- ❑ Sellers/people involved in live chicken sale
- ❑ Aviary workers
- ❑ Ornithologists
- ❑ Cullers involved in destruction of poultry

# Eating chicken is safe

- **Avian flu is not a food-borne virus**
- **Would have to dry out the chicken meat and sniff the carcass to be at any risk**
- **Virus is easily inactivated by heat, one does not get bird flu from thoroughly cooked chicken**
- **Very low risk of importing the virus in meat or meat products is on domestic flock, rather than infecting people**

# Diagnosis

- **A laboratory confirmation of the bird flu infection and epidemiologic link with unusual death or epidemics of chickens will support the diagnosis of bird flu.**
  - **Virus isolation**
  - **RT-PCR (Polymerase Chain Reaction)**

# Usefulness of routine influenza vaccines

**Confer no protection against infection with the H5N1 avian virus. However, the seasonal vaccine may be useful to prevent reassortment of human and avian viruses.**

**Selected groups for vaccination:**

- cullers involved in destruction of poultry**
- people living and working on poultry farms**
- health care workers involved in the daily care of H5N1 human cases**
- health care workers in emergency care facilities in areas where there is confirmed occurrence of influenza H5N1 in birds.**

# Antiviral Agents

**Oseltamivir** -75 mg BID x 5 days in adults

- **Adjusted twice-daily doses**
  - 30 mg -  $\leq$ 15 kg**
  - 45 mg - > 15 to 23 kg**
  - 60 mg > 23 to 40 kg**
- **higher doses (150 mg twice daily in adults) and treatment for 7 to 10 days for severe infections**

# **Personal Protective Equipment**

## **Who should use PPE?**

- **Cullers and animal husbandry/veterinary staff and all those who are handling infected or suspected poultry and poultry products.**
- **All doctors, nurses and health care workers who provide direct patient care to avian influenza cases**
- **All support staff including medical aides, X-ray technicians, cleaners, transport staff, laundry staff**
- **All laboratory staff who handle patient specimens from suspect cases**
- **Family members who care for avian influenza patients (no visits)**
- **The patient(s) should wear a mask (N95 preferable) when other people are in the isolation area.**
- **Contacts and international travelers during home isolation/quarantine must wear a mask (N95 preferable).**

# Prevention

- **Hand hygiene**
- **Cleaning and disinfection**
- **Avoiding contact with wild birds**
- **Safe food practices**
- **Practice of proper hand washing and cleaning and disinfection procedures in poultries**

# Influenza Pandemics: Why are we concerned now?

- **3 pre-requisites to start an influenza pandemic:**
  1. **Emergence of a new virus to which all are susceptible;**
  2. **Virus is able to replicate and cause disease in human;**
  3. **New virus is transmitted efficiently from human-to-human**
- **H5N1 virus, is the potential candidate, but 3. *not* fulfilled yet**
  - **Geographical extent of the problem**
  - **Reservoirs of infection expanding (range of wild birds and ducks) and virus changing**
  - **Number of human infections increasing (c/f last year)**

# Influenza Pandemics in 20<sup>th</sup> Century



Credit: US National Museum of Health and Medicine

## 1918: "Spanish Flu"

**20-40 million deaths,  
20-50 y/o**

**A(H1N1)**

**Avian source**



## 1957: "Asian Flu"

**1-4 million  
deaths, infants  
and children**

**A(H2N2)**



## 1968: "Hong Kong Flu"

**1-4 million  
deaths**

**A(H3N2)**

**Recombination of human  
and avian influenza viruses**

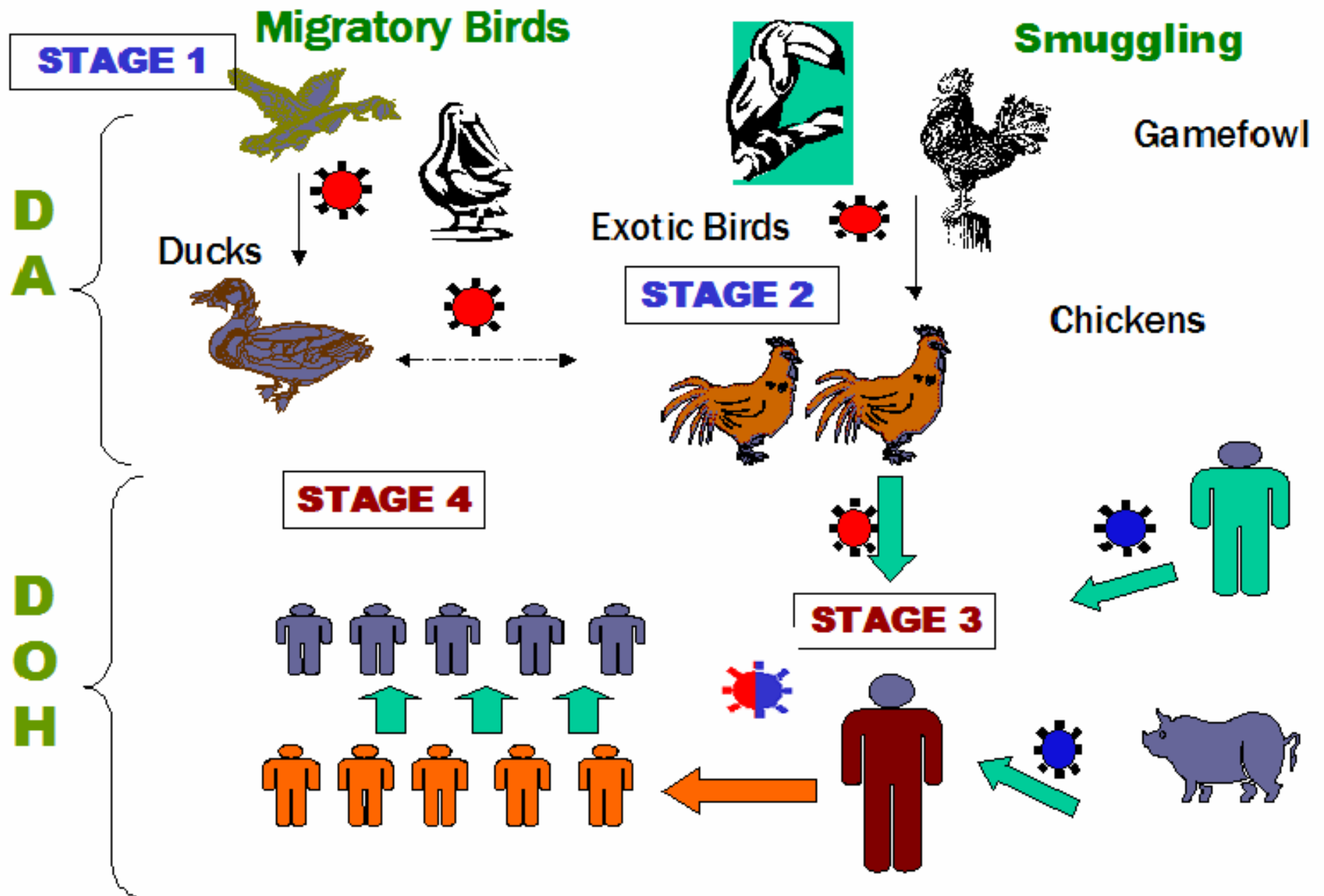
# Phases of Pandemic Influenza Preparedness and Response - 1

PANDEMIC PHASES (WHO)	DESCRIPTION	PHILIPPINES
<b>Interpandemic Phase</b>		
Phase 1- No new influenza virus subtypes detected in humans, but may be present in animals and the risk of human infection or disease is low	New influenza virus subtype in animals, no poultry outbreaks, no human cases	Stage 1 - Avian influenza-free Philippines
Phase 2 - New influenza virus subtypes detected in animals and substantial risk of human infection or disease	New influenza virus subtype in animals, there are poultry outbreaks, no human cases	Stage 2 - Avian influenza in domestic fowl in the Philippines
<b>Pandemic Alert Period</b>		
Phase 3 – Human infections with a new sub-type, but no human-to-human spread, or at most, rare instances of spread to a close contact	<ul style="list-style-type: none"> <li>• <math>\geq 1</math> unlinked human cases with clear history of exposure to an animal source/non-human source</li> <li style="padding-left: 20px;">Independent clusters of human cases from a common source/ spread from case to close household or unprotected health-care contacts, no sustained human-to-human transmission</li> <li>• Cases with source of exposure which cannot be determined, no clusters or outbreaks of human cases</li> </ul>	Stage 3 - Confirmation of avian influenza from poultry to humans in the Philippines

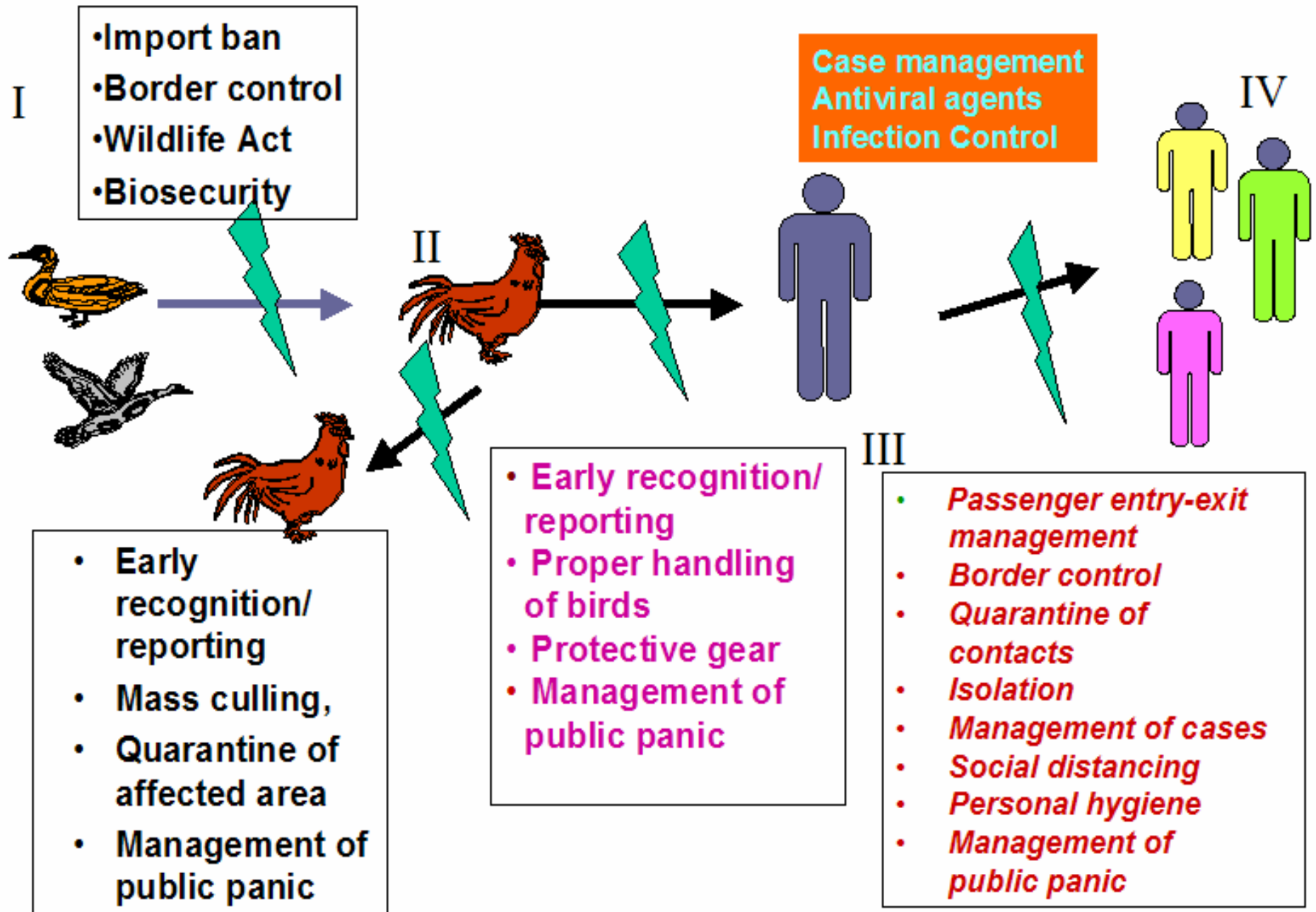
## Phases of Pandemic Influenza Preparedness and Response - 2

PANDEMIC PHASES (WHO)	DESCRIPTION	PHILIPPINES
Pandemic Alert Period		
Phase 4 – Small clusters with limited human-to-human transmission but spread is highly localized	<p>≥1 clusters involving a small number of human cases, e.g. a cluster of &lt;25cases lasting &lt;2 weeks</p> <p>Small number of human cases in one of several geographically linked areas without a clear history of a non-human source of exposure</p>	Stage 4 - Avian Influenza with human-to-human transmission of pandemic influenza causing outbreaks in the country.
Phase 5 – Larger clusters but human-to-human spread is still localized	<ul style="list-style-type: none"> <li>•Ongoing cluster-related transmission, but total number of cases is not rapidly increasing, e.g. cluster of 25-50 cases and lasting for 2 to 4 weeks</li> <li>• Ongoing transmission, but cases appear to be localized (remote village, university, military base, island)</li> </ul>	Stage 4 - Avian Influenza with human-to-human transmission of pandemic influenza causing outbreaks in the country.
Phase 6 – Pandemic phase: increased and sustained transmission in general population	Sustained transmission, increasing number of cases	Stage 4 - Avian Influenza with human-to-human transmission of pandemic influenza causing outbreaks in the country.
Post-pandemic phase Return to interpandemic period		Post-pandemic phase Return to inter-pandemic period

# Pandemic Influenza Preparedness Matrix



# Strategic Approaches for Avian & Pandemic Influenza



# Elements of the Preparedness Plan

1. Management structure, planning and policy formulation
2. Surveillance system for HPAI and pandemic influenza
3. Antiviral agents and pandemic influenza vaccine
4. Readiness of health facilities, service, manpower and supplies
5. Maintaining non-health essential services
6. Public health interventions
7. Information, education and communication
8. Networking

# Stage 1: Keeping the Philippines Bird Flu Free

- **Ban of all poultry and poultry products from AI-infected countries**
- **Border control**
- **Ban on sale, keeping in captivity of wild birds**
- **Biosecurity measures**
- **Standardized footbath**
- **Confiscation and destruction of unlicensed cargo**
- **Surveillance of Poultry in Critical Areas**
- **Influenza vaccination for all poultry workers, handlers**



# STAGE 2: Avian Influenza in Domestic Fowl in the Philippines

## Control measures in birds

- ❑ Rapid destruction (“culling” or “stamping out”) of all infected or exposed birds, proper disposal of carcasses, and quarantine and rigorous disinfection of farms
- ❑ Restrictions on the movement of live poultry, both within and between countries

# What to do if there are dead or sick birds?

## PROTECT YOURSELF

- Protection of exposed residents
  - Hand gloves or any plastic material
  - Face mask and eye goggles or any transparent eye shield plastic material to cover clothing
- Proper handwashing
- Slowly remove clothing and take a bath immediately after handling birds
- Identify and quarantine exposed individuals for 10 days
- Inform the local agricultural and local health officer.

# Cullers and transporters should be provided with appropriate PPE

- Coveralls plus an impermeable apron or surgical gowns with long cuffed sleeves plus an impermeable apron
- Heavy duty rubber gloves that may be disinfected
- N95 respirator masks or standard well-fitted masks
- Goggles
- Rubber or polyurethane boots or disposable protective foot covers



## **Protection of human beings involved in mass slaughter of potentially infected animals**

- **Wash hands frequently with soap and water. Cullers and transporters should disinfect their hands after the operation.**
- **Environmental clean-up**
- **All persons exposed to infected chickens or to farms under suspicion should be under close monitoring by local health authorities and provided medical care as described earlier, if needed**

# **STAGE 3- Avian Influenza in Humans**

## **Prevention of cases and deaths**

- Protection of exposed individuals**
- Isolation and management of cases**
- Judicious use of antiviral agents**
- Infection control**
- Quarantine of contacts**

# Prevention of spread of H5N1

## Community response

**Protection of caregiver : face mask ,goggles or eye glasses, hand washing, self-monitoring for signs and symptoms**

**Patient: face mask, at least 1 meter distance from other people or a separate area for the patient while awaiting transport**

**Report immediately to local health officer for assessment**

**Notify immediately Provincial Health Office and the Regional Epidemiology and Surveillance Unit**

# Prevention of spread of H5N1

**Transfer immediately to the Referral Hospital  
after initial assessment**

**Use of PPE by transporting team and disinfect  
vehicle**

**Monitor exposed persons**

# Exposed persons

## Exposure:

**Contact (within 1 meter) with live or dead domestic fowl or wild birds or with bird flu suspect or confirmed cases during the 10 days before the onset of symptoms**

## Quarantine

**Stay at home for 10 days**

**Monitor self for fever, cough or difficulty of breathing or any sign and symptoms of illness.**

**Refer sick persons to the Referral Hospital for SARS and other severe emerging infections.**

# Referral of Avian Influenza Cases

**A. Satellite Referral Hospitals –  
Regional Hospitals/ Medical Centers of 16  
Regions**

**B. Sub-national Referral Centers**  
**San Lazaro Hospital**  
**Lung Center of the Philippines**  
**Vicente Sotto Memorial Medical Center**  
**Davao Medical Center**

**C. National Referral Hospital**  
**Research Institute for Tropical Medicine**

# STAGE 4: Human-to-human transmission of influenza (pandemic influenza)

## Challenges

- **High morbidity and mortality**
- **Increased demand for health services**
- **Maintaining essential services – disaster response team, security, peace and order, transportation, communication and utilities**
- **Disruption of business activity**
- **Public anxiety – epidemic of fear**

**WHO announcement of pandemic influenza from other countries, clusters or increased number of sick passengers/ arrivals from other countries**

- **SARS-Influenza Alert System for Airports and Seaports**
- **Detection of symptomatic cases in airports and seaports- thermal screening, health declaration**
- **Quarantine of arrivals for 10 days from affected countries in communities**
- **Isolation of cases**

**Of limited value because of the contagiousness of influenza even during the incubation period.**

# Reducing morbidity and mortality

## Pandemic influenza vaccine

developed and available after at least 6 months of the pandemic, will be in short supply

# Use of antiviral agents

## For pandemic influenza

- for treatment of patients in areas with initial outbreaks of pandemic influenza, to contain the infection/prevent spread

# Coping with increased demand for health services and goods

## Primary care

- manpower augmentation
- antipyretics, analgesics, liniments and antibiotics

## Secondary care

- **Shortage of beds, equipment and supplies**
- **Only serious and urgent cases will be admitted**
- **Back-up / buddy system**
- **Supplies of relevant drugs (e.g. antibiotics) and equipment (e.g. Ventilator)**

# Maintaining essential services

*In an explosive spread, efforts and resources will be shifted to maintenance of essential services*

## Persons providing

- Emergency and disaster response
  - Maintenance of peace and order
  - Transportation, including air traffic controllers
- Arrange ahead places of duties and schedule to cover the required duties during the pandemic
  - Back up

# Public information and communication

- **Pre-pandemic prepared IEC materials**
- **Communication links at both national and local level -telephone lines, internet**
- **Public advisories, IEC materials, press briefing, hotlines,**
- **Designated spokesperson**
- **Speakers' Bureau**
- **Regular information to doctors at all levels -health updates**
- **Linkages with the media at the national and local level**

# Slowing the spread of infection

Personal hygiene – cough etiquette, handwashing

## Social Distancing

- Reduction of unnecessary travel
- Staying at home when sick
- Isolation at home (separate room)
- Closure of schools
- Suspension of public events
- Closure or limitation of people in public places or establishments

# Preventing spread of infection through public health interventions

- **Offices and establishments shall provide hand-washing facilities with adequate water.**
- **Public vehicles - air-conditioning systems shut off, windows opened, curtains removed**
- **Infection control measures in malls, military barracks, schools, and offices.**
- **Use of masks in public places is reasonable**
- **People who have had contact with influenza cases shall stay in their own homes.**
- **Students and school staff and office workers who have fever and respiratory illness shall not be allowed to report to schools or offices, respectively.**

# Hand washing

Hand washing should be done:

- After removing gloves
- Before and after patient contact or contact with potentially infected material
- After contact with blood and body fluids
- After taking samples
- After taking blood pressure or vital signs from patient
- After using bath room
- After blowing/wiping nose
- Before eating and preparing food.
- When leaving the isolation unit.

# Proper Handwashing Procedure



1. Wet hands and wrist. Apply soap.



2. Right palm over left, left over right.



3. Palm to palm, fingers interlaced.

4. Back fingers to opposing fingers interlocked.



5. Rotational rubbing of right thumb clasped in left palm and vice versa



6. Rotational rubbing backwards and forwards with tops of fingers and thumb of right hand in left and vice versa.

**MAKE IT A HABIT TO WASH YOUR  
HANDS WITH SOAP AND WATER.**



# Cough Manners

- Cover your nose and mouth with tissue or handkerchief every time you sneeze, cough or blow your nose. If you don't have tissue, cough into your sleeve.
- Wash your hands with soap and water.
  - \_ Before touching your eyes, nose or mouth.
  - \_ Before shaking hands with other people.If water is not available, use an alcohol-based hand sanitizer.
- Don't be offended if someone offers you tissue. Thank the person for the kind act.
- Don't spit on the floor or on the road. Spit on a trash bin or on a small plastic bag.
- Put used tissues or plastic bags in the trash bin. Wash used handkerchiefs separately from clothing.
- Stay at home when you are sick. Maintain a safe distance of 1 meter from other people when you are sick.
- Don't share eating utensils, drinking glasses, towels or other personal items.