OIE tools and global overview on Avian Influenza
Global management of avian influenza

- **OIE World Animal Health Information** *(WAHIS/WAHID)*
  - notifications and follow-up of epidemiological events

- **Global Early Warning System for Animal Disease including zoonoses** *(GLEWS)*
  - OIE/FAO/WHO system: alert and response mechanisms for health threats and emerging risks at the human-animal-ecosystems interface

- **OIE/FAO network of expertise on animal influenza** *(OFFLU)*
  - OIE/FAO network: support and coordination to prevent, detect and control influenzas in animals

- **Crisis Management Centre - Animal Health** *(CMC-AH)*
  - OIE/FAO support to countries with animal disease crises
  - initially established in response to the global spread of H5N1
OIE tools to manage avian influenza

- **Terrestrial Animal Health Code**
  - Chapter 10.4: *Infection with avian influenza viruses*  
  - Implementation of *compartementalisation* strategy for avian influenza

- **Manual of Diagnostic Tests and Vaccines for Terrestrial Animals 2014**
  - Chapter 2.3.4: *Avian influenza*

- **Vaccine Banks**
  - OIE World Fund: worldwide experience in the management of vaccine banks and the delivery of vaccines for Avian Influenza, FMD, Rabies (vaccination of dogs) and PPR

- **Web portal on avian influenza**
Highly pathogenic avian influenza
Highly pathogenic avian influenza: H5N1

- Cambodia: 07/02/2014
- China: 12/09/2014
- Egypt: 17/02/2006
- Indonesia: 10/07/2006, 30/03/2011
- Korea (Dem. People's Rep.): 21/03/2014
- Libya: 04/03/2014
- Nepal: 13/02/2014
- Nigeria: 24/12/2014, 02/01/2015
- Russia: 01/09/2014
- Bangladesh: 29/11/2014
- Cameroon: 04/02/2015
- Israel: 14/01/2015
- Palestinian Auton. Territories: 17/01/2015
- United States of America: 16/01/2015
- Vietnam: 07/10/2013, 29/11/2014
- Bulgaria: 22/01/2015
- Myanmar: 12/02/2015
- Nepal: 13/02/2014
- Russia: 01/09/2014
- China: 27/12/2013, 12/09/2014, 04/02/2015
- Myanmar: 12/02/2015
- Vietnam: 07/10/2013, 29/11/2014
H5N1 in humans since 2003:
- 784 human cases worldwide
- 429 deaths
- fatality rate: 55%
Highly pathogenic avian influenza: H5N8

• **Background**
  – first detected in China in November 2013 in LBM surveillance
  – 42 outbreaks in poultry farms in Republic of Korea, China and Japan, from January to October 2014
  – highly pathogenic virus → systemic infection with severe clinical signs and mortality in gallinaceous poultry
  – detected in several wild bird species
  – no human case reported (risk of human infection extremely low)
Highly pathogenic avian influenza: H5N8

• Epidemiology
  – domestic species affected: chickens, turkeys, ducks, geese
  – severe clinical signs and associated mortality in domestic gallinaceans
  – wild bird species affected (species also found in Europe and Africa): common teal, Baikal teal, wild pochard, mallard ducks, tundra swan, great egret, bean goose, green-winged teal, spot-billed duck, white-fronted goose, whooper swan
  – some wild birds found infected were apparently healthy
  – in the Republic of Korea: isolates found in wild birds were similar to the ones found in poultry farms
  – viruses isolated in Europe are related to the H5N8 viruses in Asia

Key-role of wild birds suspected
Highly pathogenic avian influenza: H5N8

- Germany: 04/11/2014
- China: 12/09/2014
- Italy: 15/12/2014
- Japan: 04/11/2014, 03/11/2014
- Netherlands: 14/11/2014
- Russia: 25/09/2014
- United Kingdom: 14/11/2014
- United States of America: 10/12/2014
- Chinese Taipei: 08/01/2015
- Hungary: 23/02/2015
- China: 12/09/2014
- Netherlands: 14/11/2014
- Germany: 04/11/2014
Low pathogenic avian influenza: H7N9

• **Background**
  – 31 March 2013: report of the first 3 human cases of H7N9 in China
  – first time the H7N9 subtype was ever detected in humans
  – origin: reassortment of 4 different AI viruses
  – > 600 human cases worldwide – fatality rate > 30%
  – later detected in domestic birds via active surveillance
  – low pathogenic virus → no clinical signs in poultry
Low pathogenic avian influenza: H7N9

- **H7N9 in birds**
  - experimental studies:
    - no clinical signs in 6 weeks old chickens → IVPI = 0
    - chickens and quail shed the most
    - shedding from ducks is limited
    - shedding is mainly oropharyngeal
  
  - epidemiological data:
    - susceptible species: quail, geese, pigeon, Muscovy & Pekin duck

IVPI: IntraVenous Pathogenicity Index
Low pathogenic avian influenza: H7N9

- **H7N9 in birds: surveillance in China**
  - Large scale assessment by MoA + MoH: 196 samples from birds or environment + 327 virological findings reported in articles (including 1 wild bird)
  - Most virological findings in LBM (only a few farms)
  - Primary virus detection: PCR + isolation of virus
  - Secondary tool: serosurveillance using specified antigens

![Species distribution chart]

- [33%] Chicken
- [36%] Duck
- [24%] Pigeon
- [4%] Environment
- [3%] Unspecified
Low pathogenic avian influenza: H7N9

- **H7N9 in humans**
  - genetic analysis shows virus is well adapted to human respiratory receptors (unlike H5N1)
  - causes severe pneumonia, respiratory distress and death
  - no sustained human to human transmission
  - 80% of first detections of the virus in previously uninfected cities were due to human cases
  - 80% of human cases had recent exposure to poultry or live poultry markets
Thank you for your attention.
Compartmentalisation

• **History of the concept**
  – to face the spread of H5N1 avian influenza in 2004

• **Objectives**
  – prevention and control of the disease
  – exportation of animal products from countries that could not eradicate diseases from the national territory in the short term

• **Guidelines for implementation**
  – Terrestrial Animal Health Code: [Chapter 4.3: Zoning and compartmentalisation](#) - [Chapter 4.4: Application of compartmentalisation](#)
  – [Checklist on the Practical Application of Compartmentalisation](#)
  – diseases/species: examples of possible implementation
    • poultry: avian influenza, Newcastle disease
    • pigs: CSF, ASF
    • horses: equine influenza
    • sheeps and goats: scrapie, peste des petits ruminants