



Project: Technical assistance to improve implementation of food safety standards and disease crisis preparedness

**Panel: Poultry disease emergencies,
risks and prevention (1)**

Lecturer: Mustafa Tufan

Date: 25 April 2023
Place: Nicosia, Cyprus

*Project funded by the European Union within the scope of the Aid Programme for the Turkish Cypriot community,
implemented by the NSF Euro Consultants Consortium*



Disclaimer: This presentation has been produced with the financial support of the European Union. Its contents are the sole responsibility of NSF Euro Consultants Consortium – Contractor, and do not necessarily reflect the views of the European Union.

Content



- Legal framework
- Poultry diseases
 - Highly pathogenic avian influenza



Diseases of **POULTRY**





Regulation (EU) 2018/1882

- Commission Delegated Regulation (EU) 2018/1882 as regards on **the application of certain disease prevention and control rules to categories of listed diseases** and establishing a list of species and groups of species posing a considerable risk for the spread of those listed diseases
- Supplementing Articles 9 (1) (a, b, c, d, e) of Regulation (EU) 2016/49, AHL.



Regulation (EU) 2018/1882;

for the purposes of this Regulation, the following definitions apply:

- (1) '**category A disease**': means a listed disease that does not normally occur in the Union and for which immediate eradication measures must be taken as soon as it is detected, as referred to in Article 9(1)(a) of Regulation (EU) 2016/429;
- (2) '**category B disease**': means a listed disease which must be controlled in all Member States with the goal of eradicating it throughout the Union, as referred to in Article 9(1)(b) of Regulation (EU) 2016/429;



(3) '**category C disease**': means a listed disease which is of relevance to some Member States and for which measures are needed to prevent it from spreading to parts of the Union that are officially disease-free or that have eradication programmes for the listed disease concerned, as referred to in Article 9(1)(c) of Regulation (EU) 2016/429;

(4) '**category D disease**': means a listed disease for which measures are needed to prevent it from spreading on account of its entry into the Union or movements between Member States, as referred to in Article 9(1)(d) of Regulation (EU) 2016/429;

(5) '**category E disease**': means a listed disease for which there is a need for surveillance within the Union, as referred to in Article 9(1)(e) of Regulation (EU) 2016/429.

Legal framework



The categories of listed diseases for the listed species and groups of listed species referred to in the table-Regulation (EU) 2018/1882

Name of listed disease	Category of listed disease	Listed species
		Species and group of specie
Highly pathogenic avian influenza	A+D+E	Aves
Infection with Newcastle disease virus	A+D+E	Aves



Regulation (EU) 2020/689

- Commission Delegated Regulation (EU) 2020/689 as regards **rules for surveillance, eradication programmes, and disease-free status** for certain listed and emerging diseases
- Supplementing Annex IV, Chapter 1 of Regulation (EU) 2016/49, AHL.



Regulation (EU) 2020/687

- Commission Delegated Regulation (EU) 2020/687 as regards rules for **the prevention and control of certain listed diseases**
- Supplementing Articles 53 to 69 of Regulation (EU) 2016/49, AHL.

Poultry diseases



Most important poultry diseases

Group A diseases

- ✓ Highly pathogenic avian influenza (HPAI)
- ✓ Newcastle disease (ND)

Kanatlı Hastalıkları Patolojisi



Legal framework - Group A diseases



PROHIBITIONS IN THE RESTRICTED ZONE

(as referred to in Article 27 of the Regulation 2020/687)

Prohibitions of activities concerning animals and HPAI ND products

Movements of kept animals of listed species from establishments in the restricted zone	X	X
Movements of kept animals of listed species to establishments in the restricted zone	X	X
Restocking of game animals of listed species	X	X
Fairs, markets, shows and other gatherings of kept animals of listed species including collection and dispersion of those species	X	X

Legal framework - Group A diseases



Prohibitions of activities concerning animals and HPAI ND products

Movements of hatching eggs from establishments in the restricted zone	X	X
Movements of fresh meat excluding offal from kept and wild animals of listed species from slaughterhouses or game handling establishments in the restricted zone	X	X
Movements of offal from kept and wild animals of listed species from slaughterhouses or game handling establishments in the restricted zone	X	X
Movements of meat products obtained from fresh meat of listed species from establishments in the restricted zone	X	X

Legal framework - Group A diseases



Prohibitions of activities concerning animals and products

	HPAI	ND
Movement of eggs for human consumption from establishments in the restricted zone	X	X
Movement of manure, including litter and used bedding from kept animals of listed species from establishments in the restricted zone	X	X
Movement of hides, skins, wool, bristles and feathers from kept animals of listed species from establishments in the restricted zone	X	X

Legal framework - Group A diseases



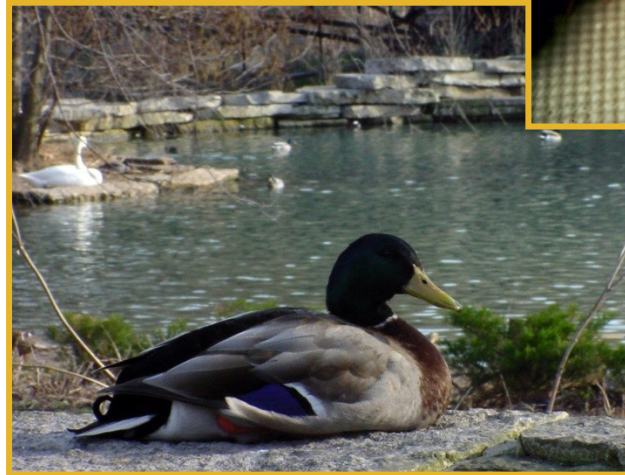
Radius of a circle centred on the establishment and monitoring
(as referred to in Articles 8, 17, 27, 32, 48, 57, 59 and 21 of Regulation (EU) 2020/687)

Category A diseases	Protection Zone	Surveillance Zones	Monitoring period
Highly pathogenic avian influenza (HPAI)	3km	10km	21 days
Newcastle disease (ND)	3km	10km	21 days



Species Affected

- Wild birds
 - Waterfowl
 - Shorebirds
- Cage birds
 - Passerines
- Poultry
- Mammals
 - Pigs, horses, mink, cats, dogs, ferrets, stone martens, palm civets, and others





Transmission in Poultry

- In an infected flock, virus can spread in multiple ways
 - Fecal-oral
 - Aerosol
 - Fomites
 - Mechanical vectors
- Virus introduction
 - Migratory birds
 - Infected poultry, pet birds





Transmission in Wild Birds

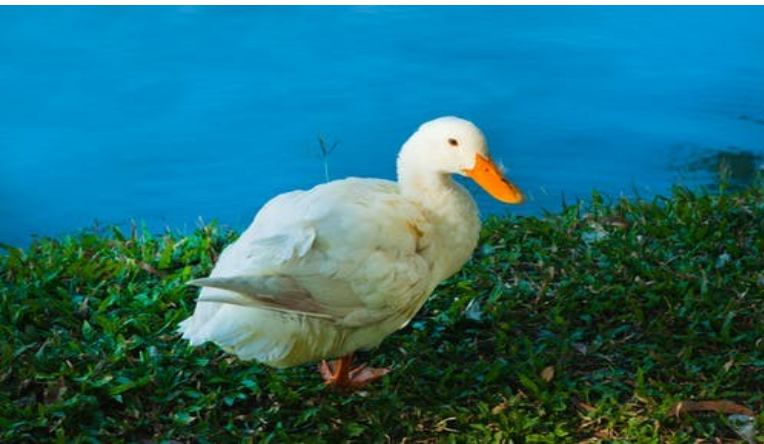
- virus shed in feces, saliva, nasal secretions
- Fecal-oral
 - Predominant mode of transmission
- Other possible modes
 - Fecal-cloacal
 - Respiratory





Virus Survival

- Virus persistence in aquatic environments
 - Weeks to months
 - Preferred conditions
 - Low temperatures, brackish water
 - May survive indefinitely when frozen
- Virus persistence in feces
 - Weeks to months



Transmission in Mammals

- Close contact with dead or sick birds
- Indirect exposure
 - Contact with feces
 - Swimming in contaminated water
- Ingestion
- Other routes (experimental)
 - Respiratory, oral, intraocular
 - Transplacental





Human Transmission

- Previously considered non-pathogenic for humans
- 1997, Hong Kong
 - 18 humans infected, 6 died
 - H5N1 virus linked to outbreak in live bird market and area farms
- 2003, the Netherlands
 - 83 confirmed cases in humans, 1 death
 - H7N7 strain





Economic impact

- Direct costs
 - Economic losses to farmers and producers
 - Costs of eradication
- Indirect costs
 - Trade restriction
 - Farm income lost
 - Tourism collapsed
 - Consumer fears
- Economically devastating
- Economic importance due to loss of production
 - Severe weight loss
 - Loss of fertility
 - Death
 - Expenses for depopulation and indemnities



Notification

- ✓ Suspicion disease

Public health risk

- ✓ Zoonotic disease (HPAI/ND)

Diagnoses

- ✓ Clinical diagnoses
- ✓ Laboratory diagnoses

Treatment

- ✓ No treatment



Vaccination

- ✓ Vaccination is normally prohibited
- ✓ Emergency vaccination can be applied when specific criteria are met
 - ✓ Protective vaccination
 - ✓ Suppressive vaccination
- ✓ Animals may or may not be killed after vaccination
 - ✓ Affects time to be recognized as disease-free again

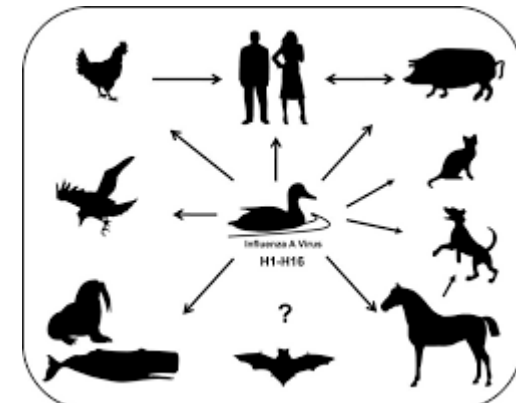
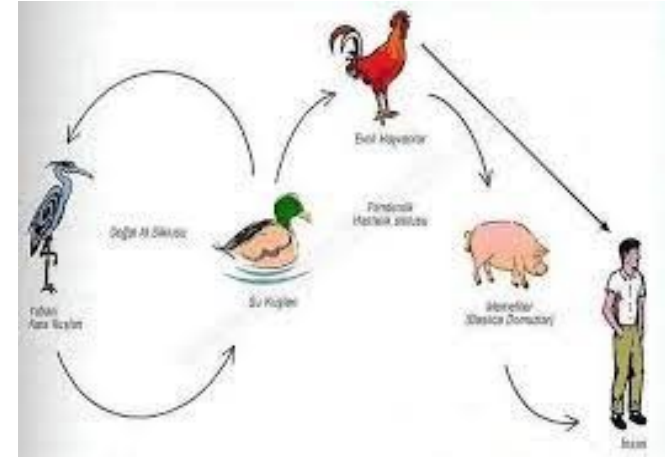


Poultry diseases - Group A diseases



Transmission and spread

- ✓ respiratory or oral routes
- ✓ contaminated such as;
 - animal transport vehicles,
 - animal products
 - hay, feed, water or biologics,
 - clothing, footwear, or equipment
 - all excretions and secretions



Risk consideration



- Animal movements during risk period
- Farms owned/worked on by workers from infected place
- Contiguous herds with close contact
- Any market, dealer or abattoir connected to infected place during risk period
- Farms visited by vets/livestock techs or dealers after infected place during risk period
- Contiguous farms where nose-to-nose contact is less likely but stock are in adjacent fields



Diagnosis

- Clinically indistinguishable from virulent the disease
- Virus isolation
 - Oropharyngeal, tracheal, and/or cloacal swabs
 - Feces
 - Organ samples
- Virology and serology necessary for definitive diagnosis
 - AGID, ELISA, RT-PCR





Who should I contact,
if I suspect avian
influenza?

In Animals - Contact your
veterinarian immediately.

In Humans - Contact your
physician.

Inform him or her that you
have had contact with birds
with avian influenza.



How can I protect my animals from avian influenza?

- ✓ Maintain strict **control over access** to the establishment by vehicles, people and equipment
- ✓ Ensure the **sanitation** of property, buildings equipment, clothing and food wear
- ✓ Ensure appropriate disposal of manure, litter and dead animals
- ✓ **Report** any illnesses and deaths to the Veterinary Services
- ✓ **Train** the staff on biosecurity measures for preventing HPAI virus.



What is most important for the contagious poultry diseases?

What is important for you?

Disease notification



Poultry diseases-HPAI



Highly pathogenic
avian influenza

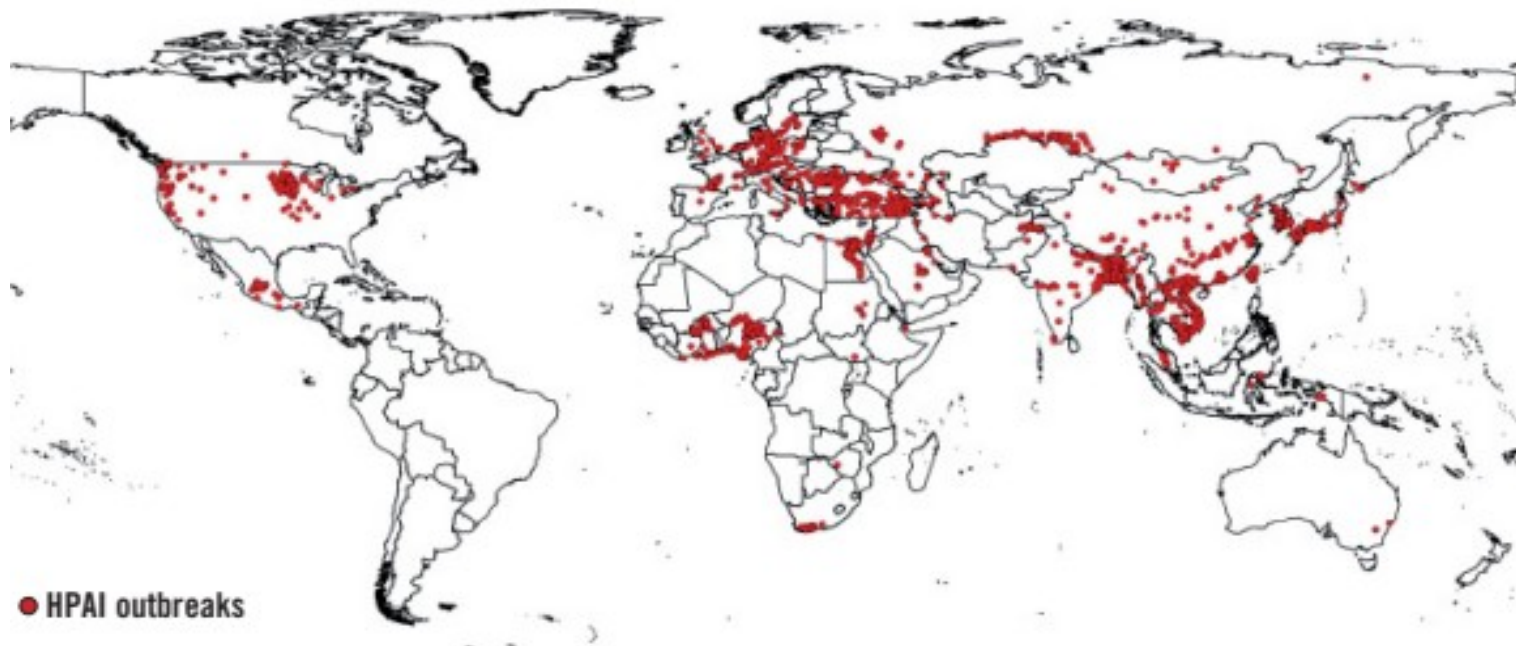


Poultry diseases-HPAI



Geographic distribution

- Infection with influenza A viruses of high pathogenicity (HPAI) is a disease of global interest due to the continued increase in the number of affected countries and to the circulating subtypes.
- From 2005 to 2015, 73 countries/territories notified the presence of HPAI.



Geographic Distribution

- LPAI occurs worldwide
 - Wild birds and poultry
- HPAI
 - Eradicated from domestic poultry in most developed nations
 - Epidemic ongoing in parts of Asia, the Pacific, Middle East, and Africa

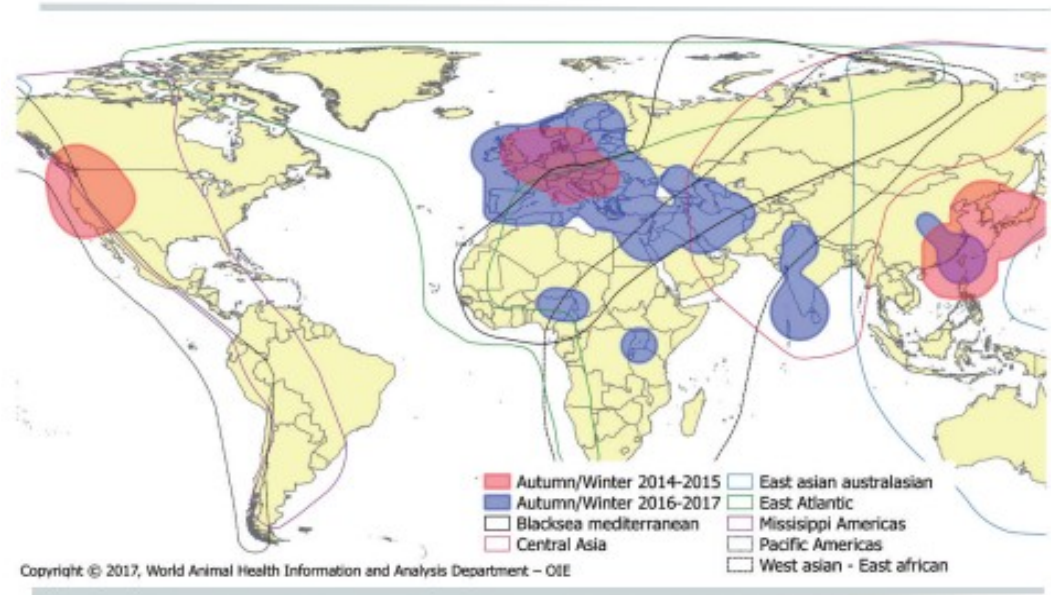


Figure 2. 95% Kernel estimation of H5N8 spread in P2 (red areas) and P4 (blue areas)

Poultry diseases-HPAI

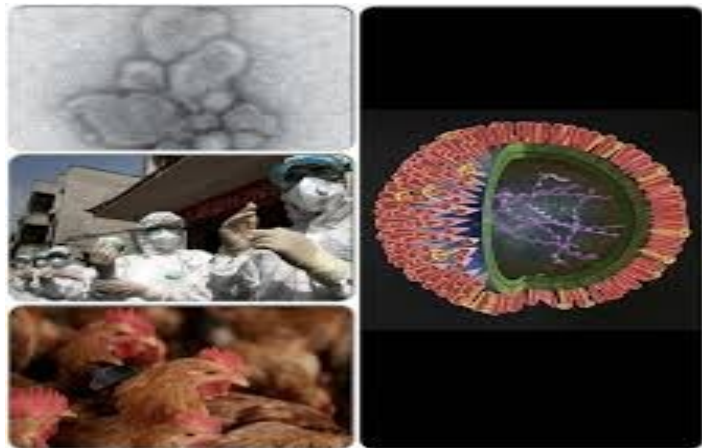


What is HPAI?

Zoonotic disease!



Which microorganism is the causative agent of HPAI?



Virus!

Can I get avian influenza?

YES



- Humans can be infected with the avian influenza virus,
- Most cases have involved very close direct contact with sick poultry.
- Some cases of person-to-person transmission have been reported, but are very rare.
- Death can occur in rare cases.



Morbidity and Mortality: **Humans**

- Asian lineage H5N1
 - High case fatality rate (60%)
 - Prevalence unknown
- H7, H9 viruses
 - Human disease reported
 - Resembles human influenza
- Antibodies to other H subtypes found in people who work with birds

Morbidity and Mortality: **Birds**

- Domesticated poultry
 - HPAI morbidity and mortality rates approach 90-100%
- Wild birds
 - Typically asymptomatic
 - Some H5N1 viruses may



Disease in Poultry

- Highly virulent
- Clinical signs
 - Sudden death
 - Systemic disease
 - Drop in egg production
 - Neurological signs
 - Depression, anorexia, ruffled feathers
 - Combs swollen, cyanotic
 - Conjunctivitis and respiratory signs
- Most birds in an affected flock die





Disease in **Wild Birds**

- Disease often subclinical
 - Some strains cause illness
- Clinical signs
 - Minimal in ducks and geese
 - Swans may be found dead
- Experimental infections
 - Gulls, passerines, psittacines



Disease in **Mammals**

- Felids
 - Fatal infections
 - Respiratory distress
- Other mammals
 - Dogs
 - Palm civets
 - Neurological, respiratory, CNS, and liver disease





Communicability: Birds

- Avian influenza viruses readily transmitted between birds
- Viral shedding
 - Begins 1-2 days after infection
 - Last up to 36 days (chickens) or 72 days (turkeys)
- Birds-to-mammal transmission uncommon
- Cats
 - Shed virus by third day post-infection (experimental)
 - Naturally infected cats excrete virus sporadically and for < 2 weeks
 - Shed from intestinal and respiratory tracts
- Horizontal transmission not observed in cats or other mammals

Poultry diseases-HPAI



Video/ More
information



https://www.youtube.com/watch?v=kVujFlpwdRA&ab_channel=PennStateExtension

https://www.youtube.com/watch?v=NwK1R71xUBI&ab_channel=MedicalCentric

TR:

https://www.youtube.com/watch?v=eToNN42ClCc&ab_channel=HarikalarDiyar%C4%B1

https://www.youtube.com/watch?v=uyKD9VpN7hI&ab_channel=PeekabooKidz



FOR THE CONTROL OF HPAI

DO NOT FORGET!



Dear Farmer
in the fight against the disease
first and most important line of defence
ARE YOU



Project e-mail: foodsafetyprojectTCc@gmail.com

THANK YOU FOR YOUR ATTENTION



École Nationale des Services Vétérinaires
France Vétérinaire International

*Project funded by the European Union within the scope of the Aid Programme for the Turkish Cypriot community,
implemented by the NSF Euro Consultants Consortium*

