

# **Respiratory System Infections in Chickens (Epidemiology)**

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# Infections caused by bacteria

- Infectious Coryza
- Mycoplasma infections
- Fowl Cholera
- Ornithobacterium Rhinotracheale Infection (ORT)
- *E. coli* (APEC) infection

# Infections caused by viruses

- Paramyxovirus infections
  - Newcastle disease (Paramyxovirus type 1)
  - Paramyxovirus type 2 infections
  - Avian metapneumovirus infection (AmPV)
- Avian influenza
- Infectious bronchitis
- Infectious laryngotracheitis
- Adenovirus infections

# Infections caused by fungi

- Aspergillosis (*A.fumigatus*, *A.niger*, *A.flavus*)

# Pathogenesis

## **Upper respiratory tract;**

- constantly in contact with microorganisms
- Natural and acquired defense mechanisms play an active role in the destruction of microorganisms
- These mechanisms limit or inhibit the replication of the microorganism
- Limits the colonization of microorganisms in tissues

# Pathogenesis

- Significant loss of cilia cells occurs in some viral infections
- Disruption of the normal structure of cilia cells provides advantage for bacterial colonization
- Similar effect between bacteria is also produced by Mycoplasma agents
- A high level of ammonia in the flock causes decreased activation of cilia cells.

# Respiratory Tract Infections

- Interaction between microorganisms
- Immunosuppression
- environmental factors
- vaccine reactions

# Interaction between microorganisms

**Mycoplasma + *E. coli***

**Mycoplasma + Adenovirus**

**Mycoplasma + Reovirus**

**Mycoplasma + Haemophilus paragallinarum**

**IBV+ *E. coli***

**NDV + *E.coli***

**NDV (vaccine) + Mycoplasma + *E.coli***

**AmPV + *E.coli***

## **Immunosuppression:**

- IBD in chickens
- Hemorrhagic enteritis virus (HEV) in turkeys

## **Environmental factors:**

- Atmospheric ammonia
- Dust

## **Vaccine reactions:**

- Temperature of flock
- Environmental conditions
- Application failure
- Vaccination route
- Wrong choice of vaccine

# Respiratory System Infections

- **Clinical signs and Necropsy**
  - range from mild upper respiratory tract symptoms to severe symptoms
  - Mortality can reach from 1% to 20-30%, very high in vNDV and HPAI
  - Although necropsy findings are specific in some diseases, the involvement of bacterial agents can change the situation

# Diagnose

- Microbiological and Molecular Analysis
  - Bacteriological
  - Viral
  - Mycology

# Adverse Effect

- Increase in death rate
- Additional treatment costs
- High discard rate
- Fall in egg production
- Deterioration in egg shell quality
- A decrease in hatching efficiency is observed.

# Protection and Control

- Correct diagnosis
- Control of immunosuppression
- Appropriate environmental conditions
- Appropriate disease control
  - An appropriate vaccination program
  - Biosecurity