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MANAGEMENT OF RESPIRATORY DISEASES IN CHICKENS

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ABSTRACT

Respiratory diseases in chickens significantly impact poultry health and productivity, resulting in high mortality and considerable economic losses. These conditions are triggered by a variety of infectious agents, including viruses, bacteria, and fungi, as well as by environmental stressors. This article discusses the most prevalent respiratory diseases in poultry—such as Infectious Bronchitis, Newcastle Disease, Avian Influenza, Mycoplasmosis, and Infectious Coryza—highlighting their causes, clinical signs, diagnostic methods, and control measures. Emphasis is placed on integrated disease management approaches, including vaccination, biosecurity, environmental regulation, and nutritional support, aiming to mitigate disease spread and improve flock resilience and productivity in poultry farms.

KEYWORDS: Biosecurity, Disease management, Poultry health, Respiratory diseases, Vaccination

INTRODUCTION

Respiratory diseases in chickens are a major concern in poultry farming due to their high morbidity and mortality rates, resulting in substantial economic losses. These diseases are caused by a range of pathogens, including viruses, bacteria, and fungi, as well as environmental stressors such as poor ventilation and overcrowding. Effective disease management requires a combination of preventive strategies, early detection, timely treatment, and robust biosecurity practices. This article presents an overview of the most common respiratory diseases affecting chickens, outlining their etiology, clinical manifestations, diagnostic techniques, treatment protocols, and prevention strategies, supported by scientific literature.

COMMON RESPIRATORY DISEASES IN CHICKENS

1. Infectious Bronchitis (IB)

Cause: Infectious Bronchitis is caused by the Infectious Bronchitis Virus (IBV), a coronavirus that primarily targets the respiratory tract but can also affect the kidneys and reproductive system (Jackwood and de Wit, 2020).

Clinical Signs:

- Sneezing, coughing, nasal discharge
- Watery eyes, swollen sinuses
- Reduced egg production, poor eggshell quality in layers
- High mortality in young chicks (Cavanagh & Gelb, 2008)

Diagnosis:

- PCR (Polymerase Chain Reaction)
- Serological tests such as ELISA
- Virus isolation

Treatment & Prevention:

- No specific antiviral treatment; supportive care includes antibiotics to prevent secondary bacterial infections
- Vaccination with live and inactivated vaccines
- Implementation of strict biosecurity protocols (Jackwood & de Wit, 2020)

2. Newcastle Disease (ND)

Cause: Newcastle Disease is caused by the Newcastle Disease Virus (NDV), an avian paramyxovirus (APMV-1), known for its high contagion and outbreak potential (Miller & Koch, 2020).

Clinical Signs:

- Respiratory distress: gasping, coughing
- Neurological symptoms: neck twisting, paralysis
- Greenish diarrhea
- Sudden mortality in severe cases (Alexander, 2000)

Diagnosis:

- Hemagglutination inhibition (HI) test
- RT-PCR for viral RNA
- Postmortem: hemorrhages in trachea and intestines

Treatment & Prevention:

- No cure; affected birds are culled
- Vaccination using LaSota strain and inactivated vaccines
- Quarantine and restriction of bird movement (Miller & Koch, 2020)

3. Avian Influenza (AI)

Cause: Avian Influenza is caused by the Influenza A virus, with strains classified as either highly pathogenic (HPAI) or low pathogenic (LPAI) (Swayne, 2020).

Clinical Signs:

- Facial swelling, comb cyanosis
- Severe respiratory difficulty
- Sudden death in HPAI cases
- Decline in egg production

Diagnosis:

- Virus isolation
- RT-PCR
- Serological tests (AGID, ELISA)

Treatment & Prevention:

- No treatment; affected flocks are culled
- Vigilant biosecurity and national surveillance
- Vaccination in endemic regions (Swayne, 2020)

4. Mycoplasmosis (Chronic Respiratory Disease - CRD)

Cause: Caused by *Mycoplasma gallisepticum* (MG), a common respiratory pathogen in poultry (Ley, 2008).

Clinical Signs:

- Chronic coughing, nasal discharge
- Swollen sinuses
- Decreased growth and egg production

Diagnosis:

- ELISA serological tests
- PCR diagnostics
- Culture and organism isolation

Treatment & Prevention:

- Antibiotic therapy (tylosin, tetracyclines, enrofloxacin)
- Vaccination (live and inactivated)
- All-in/all-out management systems to prevent spread (Ley, 2008)

5. Infectious Coryza

Cause: Caused by *Avibacterium paragallinarum* (formerly *Haemophilus paragallinarum*) (Blackall, 2020).

Clinical Signs:

- Facial swelling, foul-smelling nasal discharge
- Conjunctivitis
- Poor feed intake

Diagnosis:

- Bacterial culture from nasal exudate
- PCR assays

Treatment & Prevention:

- Antibiotics such as erythromycin and sulfonamides
- Vaccination with inactivated bacterins
- Improved ventilation and hygiene (Blackall, 2020)

GENERAL MANAGEMENT STRATEGIES FOR RESPIRATORY DISEASES

1. Biosecurity Measures

- **Farm Isolation**: Limit visitor access and isolate new flocks
- **Sanitation**: Regular disinfection of housing, tools, and clothing
- **Pest Control**: Rodents and wild birds should be excluded to prevent disease transmission (FAO, 2021)

2. Vaccination Programs

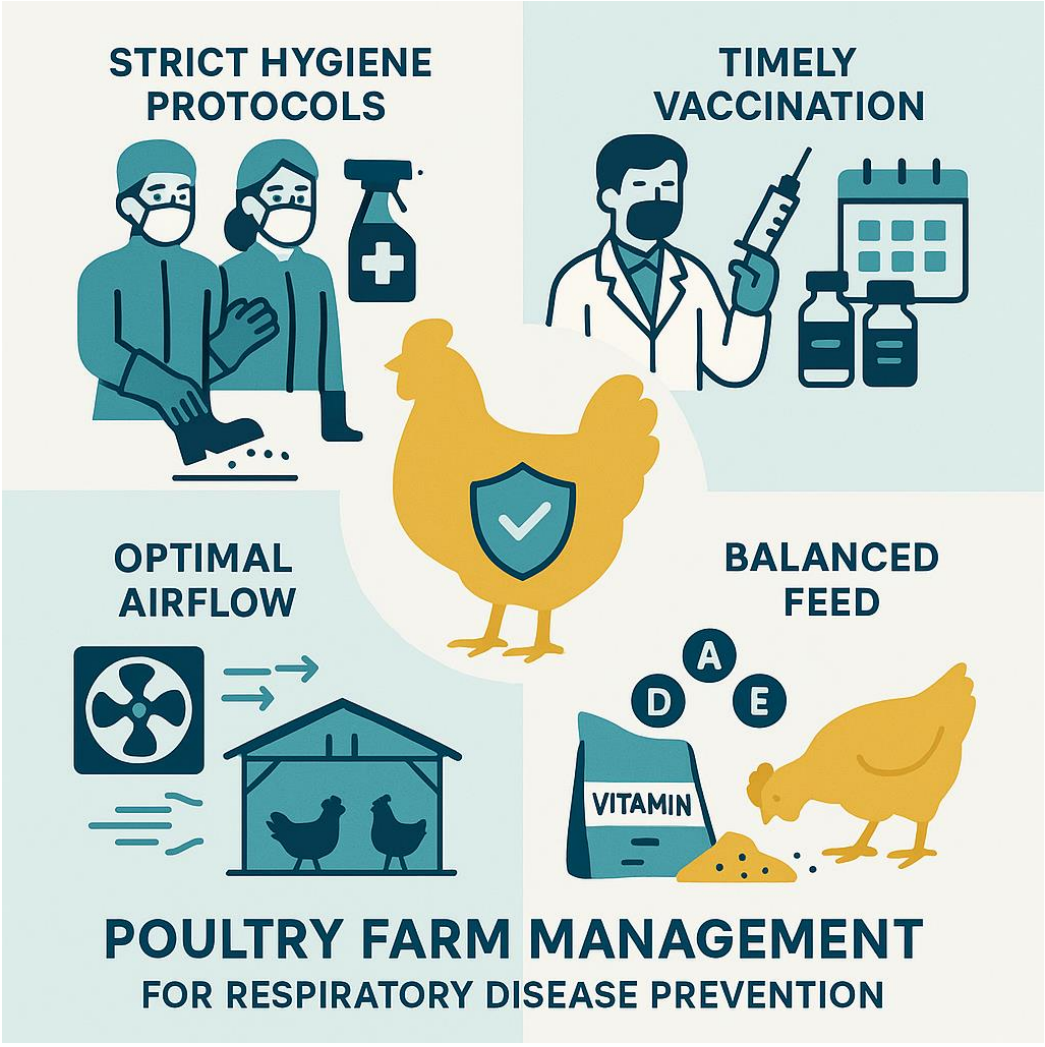
- **Live Vaccines**: Offer fast-acting immunity for diseases like IB and ND
- **Inactivated Vaccines**: Preferred for layers and breeders for long-term protection (OIE, 2022)

3. Environmental Management

- **Ventilation**: Adequate airflow reduces ammonia and respiratory stress
- **Litter Quality**: Dry, clean bedding reduces bacterial and fungal proliferation (Dunlop et al., 2016)

4. Nutritional Support

- **Vitamin Supplementation**: Vitamins A, C, and E enhance immunity
- **Probiotics**: Improve gut health and resistance to infections (Dhama et al., 2018)



CONCLUSION

Respiratory diseases remain a critical challenge in poultry production, significantly affecting health, welfare, and farm economics. Effective management relies on comprehensive strategies, including routine vaccination, strict biosecurity, improved housing conditions, and nutritional supplementation. Prompt identification and control measures are essential to prevent the rapid spread of infections. Continuous research and innovation in vaccines, diagnostic tools, and antibiotic alternatives are vital to sustaining poultry health and productivity.

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