Veterinary Letters
ISSN 2581-2416
DOI: https://dx.doi.org/10.29244/avl.9.3.85-86
https://journal.ipb.ac.id/index.php/arshivetlett

Prevalence of diseases in broiler chickens in Serang Regency, Banten Province, Indonesia

Akbar Satria Bahari[1], Vony Armelia[2,*], Magfira[2]

[1] Department of Animal Husbandry, Faculty of Animal Husbandry, Jenderal Soedirman University, Purwokerto, Central Java, Indonesia

[2] Department of Animal Science, Faculty of Agriculture, Sultan Ageng Tirtayasa University, Serang Regency, Serang, Banten, Indonesia

ABSTRACT: Livestock farming plays a crucial role in providing food, raw materials, and essential services through animal breeding and management. This study aimed to provide an overview of the diseases affecting broiler chickens based on a case study from a commercial poultry company in Serang Regency, Banten Province, Indonesia. Data were collected from production cycles between 2021 and 2023, and disease identification was performed using a pathological diagnostic approach. The findings, presented descriptively in tabular form, indicated that broilers were affected by omphalitis, Newcastle disease, infectious bursal disease, chronic respiratory disease (CRD), colibacillosis, and aspergillosis. Colibacillosis was the most prevalent disease, with an incidence rate of 76%. These results highlight the importance of continuous disease monitoring and management to reduce mortality, maintain productivity, and ensure sustainability in the broiler industry.

Keywords:
broiler chickens, disease incidence, commercial poultry company, Serang Regency, Banten Indonesia

■ INTRODUCTION

A primary challenge in broiler farming is disease outbreaks, particularly in tropical regions, where warm and humid conditions enable the proliferation of bacteria, viruses, fungi, parasites, and protozoa (Shahjada *et al*. 2017). These diseases cause increased mortality, reduced productivity, and economic losses, with various clinical manifestations (Nasyuha & Hafizah 2020). Environmental stressors, such as excessive humidity and high stocking density, worsen conditions by elevating ammonia levels, thereby affecting poultry health. Health management strategies are essential for mitigating disease risk, sustaining productivity, and ensuring industry viability. This study aimed to identify major diseases in broiler chickens, including omphalitis, Newcastle disease, infectious bursal disease, CRD, colibacillosis, and aspergillosis, and provide insights into disease prevalence.

■ MATERIALS AND METHODS

This study was conducted at a commercial poultry company in Serang, Banten Province, Indonesia, covering production cycles between 2021 and 2023. The broiler farm used a closed-house system to maintain controlled conditions for the reared birds. Disease identification used a pathological diagnostic approach to determine the disease types and prevalence in broilers. This study employed descriptive research, with data presented in tables for comparison.

■ RESULTS AND DISCUSSION

The study findings showed that broiler chickens were affected by diseases, including omphalitis, enteritis, Newcastle disease (ND), IBD, CRD, colibacillosis, and Aspergillosis (Table 1).

Table 1 Types of diseases identified in broiler chickens during the 2021–2023 production period

Diseases	Prevalences (number of period)	Incidence (%)
Omphalitis	12	71
Newcastle Disease	1	6
Bursal Disease	2	12
Chronic Respiratory Disease	9	53
Colibacillosis	13	76
Aspergillosis	2	12

Omphalitis in Broilers: Omphalitis, or yolk sac infection, is a bacterial disease affecting young chicks' umbilical region (Jalob *et al*. 2025). The condition accounted for 71% of cases during 2021-2023, causing 1-2% mortality in week one. The affected chicks showed umbilical swelling, weakness, and reduced appetite. Necropsy revealed yolk sac inflammation, swelling, and discoloration. These results highlight the importance of hatchery sanitation in reducing the incidence of omphalitis.

Received: 02-06-2025 | **Revised:** 11-07-2025 | **Accepted:** 17-07-2025

Newcastle Disease (ND) in Broilers: Newcastle disease occurs in chickens older than three weeks, with morbidity reaching 100% and mortality of 40-50%. The clinical signs include anorexia, respiratory distress, diarrhea, limb paralysis, and sudden mass mortality. Pathological changes included mucosal sinusitis, hemorrhages in the respiratory and gastrointestinal tracts, bursal atrophy, and inflammation of hematopoietic organs. Serological testing in 2023 showed that most antibody titers were below the protective threshold (<4 $\log_2$), indicating failed post-vaccination immunity. This finding highlights the persistent challenge of ND control despite vaccination programs.

Infectious Bursal Disease (IBD) in Broilers: Infectious bursal disease is a lymphotropic viral infection that targets B lymphocytes essential for antibody production (Uddin *et al*. 2012). The disease was identified in 12% of birds aged 21–28 d. Clinical signs included depression, tremors, ruffled feathers, and watery white diarrhea. Pathological examinations revealed lesions, including inflammation and enlargement or atrophy of the bursa of Fabricius, kidney swelling, proventriculus–ventriculus junction inflammation, and hemorrhage in the thigh and breast muscles. These findings confirm IBD's immunosuppressive nature of IBD, which predisposes the flock to secondary infections.

Chronic Respiratory Disease (CRD) in Broilers: CRD, caused by *Mycoplasma gallisepticum*, was recorded in 53% of the production cycles between 2021 and 2023. Clinically, the affected birds exhibited abnormal respiratory sounds (rales), reduced growth, and decreased activity. Pathological examination revealed inflammation of the respiratory tract, including sinusitis, tracheitis, bronchitis, and airsacculitis. The relatively high prevalence of CRD in this study underscores its significance as a chronic and production-limiting disease, particularly under intensive-farming conditions.

Colibacillosis in Broilers: Broiler chickens under three weeks of age are highly susceptible to colibacillosis caused by *Escherichia coli* (Santoso *et al*. 2020). Colibacillosis was the most prevalent disease, accounting for 76% of cases during the 2021–2023 production period. Pathological findings included fibrinous exudates forming layers around the pericardium, liver (perihepatitis), and peritoneum. The high prevalence and mortality of colibacillosis highlight its role as a major constraint on broiler productivity and the need for stringent biosecurity and antimicrobial stewardship.

Aspergillosis in Broilers: Aspergillosis, caused by *Aspergillus fumigatus*, is a fungal infection whose spores spread through the air and contaminate feed and litter, increasing the risk of infection (Kaler *et al*. 2024). Aspergillosis accounted for 12% of cases identified between 2021 and 2023. Infected birds present with respiratory distress, reduced appetite, and impaired growth. Pathological examination revealed inflammatory reactions in the respiratory tract, including granulomatous lesions or caseous nodules with yellow to white coloration. These findings emphasize the importance of proper litter and feed management in reducing fungal contamination.

Table 2 Percentage of mortality and disease findings in broiler chickens

Period	Mortality (%)	Diseases					
		Omp.	ND	IBD	CRD	Col	Asp.
2021-1	2.42	✓					
2021-2	3.97	✓			✓	✓	✓
2021-3	3.67	✓			✓	✓	
2021-4	8.15	✓			✓	✓	
2021-5	2.94	✓				✓	✓
2022-1	3.00					✓	
2022-2	3.83			✓	✓	✓	
2022-3	2.62						
2022-4	2.75	✓			✓	✓	
2022-5	4.68	✓			✓	✓	
2022-6	4.82	✓			✓	✓	
2023-1	3.53	✓			✓	✓	
2023-2	2.75	✓				✓	
2023-3	5.01	✓				✓	
2023-4	2.05						
2023-5	8.32	✓	✓	✓	✓	✓	
2023-6	2.22						

Note: Omp=Omphalitis, ND=Newcastle Disease, IBD=Infectious Bursal Disease, CDR=Chronic Respiratory Disease, Col=Colibacillosis, Asp=Aspergillosis

■ CONCLUSION

In this study, broiler chickens were affected by omphalitis, Newcastle disease, infectious bursal disease, chronic respiratory disease (CRD), colibacillosis, and aspergillosis, with colibacillosis being the most prevalent (76%).

■ AUTHOR INFORMATION

Author for Correspondence

*VA: vony.armelia@untirta.ac.id

Department of Animal Science, Faculty of Agriculture, Sultan Ageng Tirtayasa University, Jl. Tirtayasa, Sindangsari, Pabuaran, Serang, Banten 42163, Banten, INDONESIA.

■ REFERENCES

Jalob ZK, Farhan WH, Ibrahiem ZY, Jumaa BN. 2015. Bacteriological and pathological study of omphalitis in broiler chicks. Kufa Journal for Veterinary Medical Science. 6(2):17-26.

Kaler IGBUA, Suarjana IGK, Berata IK, Suardana IBK, Suratma NA. 2024. Aspergillosis in broiler chicken in Tunjuk Village, Tabanan District, Tabanan Regency, Bali. Veterinary Science and Medicine Journal. 6(4):376–385.

Nasyuha AH, Hafizah. 2020. Implementasi teorema bayes dalam diagnosa penyakit ayam broiler. Jurnal Media Informatika Budidarma. 4(4):1062–1068.

Santoso SWH, Ardana IBK, Gelgel KTP. 2020. Prevalensi Colibacillosis pada broiler yang diberi pakan tanpa *antibiotic growth promoters*. Indonesia Medicus Veterinus. 9(2):197–205.

Shahjada Z, Hussain K, Islam MdM, Majumder S, Hasan I, Rahman M, Saha S. 2017. Bacteria causing omphalitis in newly hatched chicks from broiler and layer flocks and their antibiotic profiles. International Journal of Natural and Social Sciences. 4(2):73–81.

Uddin MM, Islam MS, Basu J, Khan Md ZI. 2012. Distribution and quantification of lymphocytes in the major lymphoid organs of naturally gumboro infected broilers. International Journal of Morphology. 30(4):1585–1589.