

Research Article

Understanding Attitude, Practice and Knowledge of Infectious Bronchitis Disease Among Poultry Farmers in Federal Capital Territory - Nigeria

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Abstract

This study, involving 120 poultry farmers (82.00% male, 18.00% female) raising layers (63.00%), broilers (35.00%), and flocks (2.00%) with sizes from 200 to 100,000 birds, investigated the interplay between knowledge, attitudes, and practices (KAP) and the occurrence of Infectious Bronchitis (IB) in poultry. A critical observation was that vaccine administration, a key preventive measure, was often entrusted to farm attendants (45.00%) who may lack adequate understanding of biological material handling, potentially leading to vaccine failure and disease spread. While 45.00% of respondents limited their IB vaccination knowledge to laying birds, 55.00% understood its relevance to all bird types. Despite 95.00% acknowledging the economic impact of IB, 48.30% did not vaccinate against IB after 3-in-1 administration, and 23.30% had no vaccination history. Although all farmers kept medication records, only 25.00% consistently screened for maternal derived antibodies, a practice crucial for effective vaccination scheduling. Furthermore, a notable portion of farmers (15.00% strongly disagreed, 5.00% disagreed) lacked knowledge regarding the importance of priming birds before 3-in-1 vaccination. The findings show a critical need for increased awareness among poultry farmers, particularly concerning comprehensive vaccination protocols for all bird types, accurate disease recognition beyond clinical signs, and the significance of practices like maternal derived antibody screening to effectively mitigate IB and its economic consequences.

Keywords

Vaccination, Infectious Bronchitis, Maternal Derived Antibodies, Poultry, FCT, Nigeria

1. Introduction

Infectious Bronchitis (IB) is globally recognized as one of the most economically significant poultry diseases, causing acute, highly contagious viral infections primarily in chick-

ens. Its clinical manifestations extend beyond respiratory distress, which includes tracheal rales, coughing, and sneezing, to encompass declines in egg production and quality,

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kidney damage, enteritis, and pectoral myopathy [11].

The profound economic importance of IB is evident in its detrimental effects on the weight gain, feed efficiency, and overall quality and quantity of eggs and meat produced [4]. In Nigeria, the rapidly expanding poultry industry faces significant constraints from several viral diseases [13], including Newcastle disease, infectious bursal disease, and avian infectious bronchitis. These diseases not only reduce animal productivity but also cause a decline in output, increase production costs, and lead to a reduction in profit [9]. A study by Mohamadou et al. (2010) [11] estimated that livestock diseases impose an annual financial burden of approximately ₦29.2 billion on Nigeria's agricultural economy, highlighting their substantial impact.

The growing number of Avian Infectious Bronchitis disease (IB) outbreaks [1, 2] necessitated this study. Given the significant economic threat posed by Infectious Bronchitis to the burgeoning Nigerian poultry industry, particularly in regions like the Federal Capital Territory (FCT), Abuja, understanding the human element in disease control is paramount. This research article aims to investigate the knowledge, attitudes, and practices (KAP) of poultry farmers in FCT, Abuja, regarding Infectious Bronchitis. By assessing

current farmer awareness, vaccination strategies, and management approaches, this study seeks to identify gaps in knowledge and practice that may contribute to disease prevalence and economic losses. The findings will provide crucial insights for developing targeted educational programs and interventions to enhance disease recognition, improve vaccination protocols, and strengthen biosecurity measures, ultimately contributing to the sustainable growth and profitability of the poultry sector in Nigeria.

2. Materials and Methods

2.1. Study Area

The Federal Capital Territory (FCT) in Abuja is where the study was conducted. The position lies between longitude 7.580 East and latitude 9.060 North. Abuja has a land area of 8,000 square kilometers and is located in the center of Nigeria. It shares borders with the states of Kogi on the south-west, Nasarawa on the east and south-east, Kaduna on the north, and Niger on the west (See Figure 1).

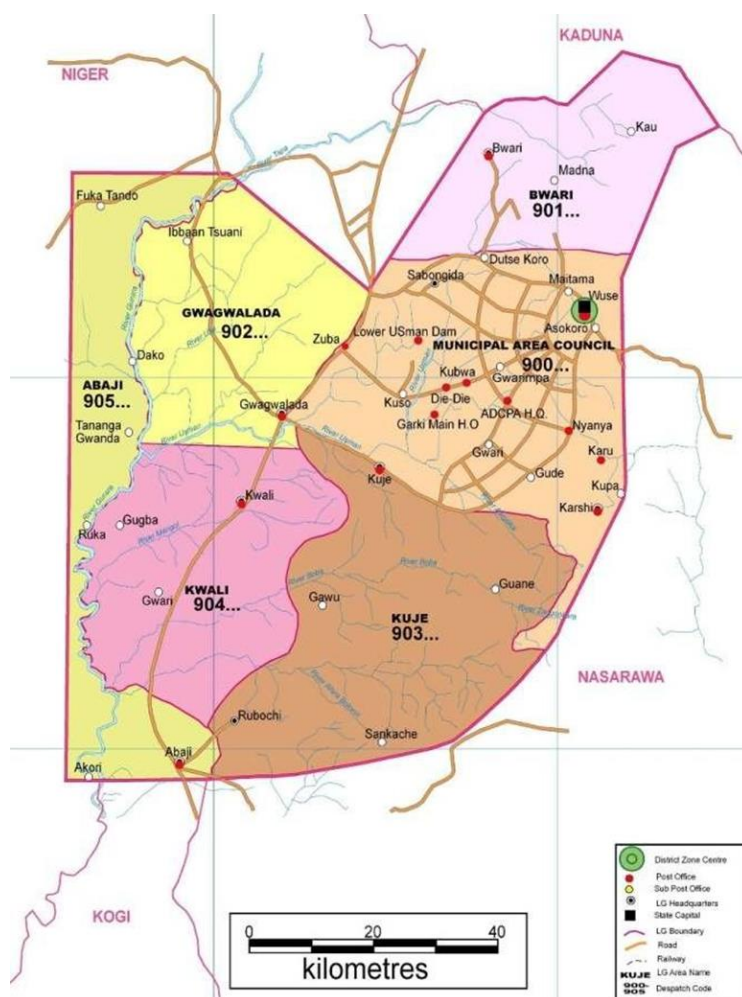


Figure 1. Map showing the study location.

2.2. Questionnaire

A structured questionnaire was developed and pre-tested to assess the knowledge, attitudes, and practices (KAP) of poultry farmers regarding Infectious Bronchitis (IB). The questionnaire, which was administered to 120 farmers, was composed of closed-ended, multiple-choice questions designed to collect data on various aspects of IB. The questionnaire also captured information on farmers' vaccination practices, their attitudes towards IB prevention, and their awareness of the disease's economic impact. The questionnaires were administered both at the farmers' locations and to walk-in farmers at the Animal Care Lab in Abuja.

3. Results

3.1. Respondent's Background Information

A total number of 120 respondents; Out of the 120 respondents, 82.00% are males while 18.00% are females, the birds type raised by the respondents were 63.00% Layers, 35.00% broilers and 2.00% mixed birds farming (Broilers and Layers) Flock size ranges from 200 to 100,000 birds.

3.2. Farm Operation History with Infectious Bronchitis

The findings reveal several key practices and experiences among the poultry farmers surveyed. When it came to vaccine administration, 45% of the respondents entrusted this task to farm attendants, while veterinarians and farm owners were responsible for 40% and 15% of the cases, respectively. A vast majority of farmers (88.33%) acquired their vaccines from a veterinary pharmaceutical outfit, with the remaining 11.67% having them supplied directly to the farm by a veterinarian.

All surveyed farmers (100%) maintained a medication schedule for their birds, though only 73.33% included Infectious Bronchitis (IB) on their schedule. While 25% of respondents consistently screened their birds for maternal derived antibodies, 55% never performed this screening, and 20% did so only sometimes. Furthermore, 48.33% of respondents reported not vaccinating their birds against IB after a 3-in-1 administration, and 23.33% had no history of vaccination at all.

Regarding disease prevalence, 28.33% of the farms had previously experienced an IB outbreak, while 71.67% had not, as shown in Table 1.

Table 1. Frequency of Farm history/operations with regards to Infectious bronchitis in Abuja.

Variables	Category	Responses	
		Frequency (120)	Percentage (%)
Maternal derived antibody screening for Infectious Bronchitis	Yes	30	25.00
	No	66	55.00
	Sometime	24	20.00
Administration of Vaccine	Livestock/Farm owner	18	15.00
	Veterinary Doctor	48	40.00
	Farm attendant	54	45.00
Vaccine Purchase source	Veterinary Pharmaceutical Shop	106	88.33
	Supplied by Veterinarian	14	11.67
Do you have a medication schedule?	Yes	120	100
	No	0	0
Infectious bronchitis vaccination on vaccination schedule	Yes	88	73.33
	No	32	26.67
	A month ago	24	20.00
When last were your birds administered with Infectious Bronchitis Vaccine?	Within a week	10	8.33
	Not at all	28	23.33
	None after 3 in 1	58	48.33

Variables	Category	Responses	
		Frequency (120)	Percentage (%)
Experienced drop in production and respiratory distress after IBV Vaccination	Yes	36	30.00
	No	84	70.00
Which hatchery are your Birds from?	Branded hatchery	120	100
	Unbranded hatchery	0	0
Do you keep records of treatment history on your Birds?	Yes	120	100
	No	0	0
Experienced infectious bronchitis outbreak before?	Yes	34	28.33
	No	86	71.67

3.3. Knowledge, Attitude and Practices of Respondents

Of the 120 respondents, 83.33% reported having heard of IB, while 16.67% had not. The majority of respondents (95.00%) agreed that IB could lead to economic loss, while 5.00% stated otherwise. Furthermore, 91.67% of the respondents considered it necessary to vaccinate birds against IB, whereas 8.33% did not.

Regarding vaccination knowledge, 45.83% of respondents had knowledge about vaccination only for laying birds, and 54.17% of respondents' knowledge extended to all bird types. All respondents (100.00%) affirmed that biosecurity is essential for the control and prevention of IB.

The survey also assessed the perceived effects of IB on product quality. A total of 86.67% of respondents agreed that IB could affect the quality of meat and eggs, with 13.33% stating it could not.

When asked about the susceptibility of different bird types to IB, 23.33% of respondents strongly agreed that all kinds of poultry birds are affected. With respect to specific vaccination practices, 5.00% of the respondents strongly agreed that IB vaccination should only be performed on laying birds, and another 5.00% strongly agreed that routine vaccination is unnecessary after the 3-in-1 administration.

On the topic of priming birds before 3-in-1 vaccination, 21.67% of respondents strongly agreed that it is necessary, 30.00% agreed, 5.00% disagreed, and 15.00% strongly disagreed, as shown in Table 2 and Table 3.

Table 2. Frequency of Poultry Farmers Knowledge and practices in relation to Avian Infectious Bronchitis disease in FCT.

Variables	Category	Responses	
		Frequency (120)	Percentage (%)
Heard about Infectious Bronchitis Disease in poultry before?	Yes	100	83.33
	No	20	16.67
Can Infectious bronchitis cause economic loss to your farm	Yes	114	95.00
	No	6	5.00
Necessary to vaccinate birds against infectious bronchitis?	Yes	110	91.67
	No	10	8.33
IBV vaccination is only necessary in laying birds?	Yes	55	45.83
	No	65	54.17
Good biosecurity measures help to reduce the spread of Infectious bronchitis?	Yes	120	100
	No	0	0

Variables	Category	Responses	
		Frequency (120)	Percentage (%)
Infectious bronchitis viral disease can affect the quality of broiler meat and egg quality.	Yes	104	86.67
	No	16	13.33

Table 3. Frequency of poultry farmer's Knowledge and practices in relation to Infectious Bronchitis in FCT.

Variables	Category	Responses Frequency (120)	Percentage (%)
Infectious bronchitis is a disease of all kind of poultry birds?	Strongly disagree	14	11.67
	Disagree	18	15.00
	Neutral	30	25.00
	Agree	30	25.00
	strongly agree	28	23.33
IB vaccination should only be carried out in laying birds	Strongly disagree	30	25.00
	Disagree	44	36.67
	Neutral	10	8.33
	Agree	30	25.00
	strongly agree	6	5.00
No need for routine Infectious bronchitis vaccination after 3 in 1	Strongly disagree	28	23.33
	Disagree	22	18.33
	Neutral	34	28.33
	Agree	30	25.00
	strongly agree	6	5.00
Drop in production in laying birds is due to Newcastle disease and Egg drop syndrome only	Strongly disagree	24	20.00
	Disagree	40	33.33
	Neutral	26	21.67
	Agree	28	23.33
	strongly agree	2	1.67
Infectious bronchitis bronchitis can cause respiratory disease in poultry birds	Strongly disagree	16	13.33
	Disagree	12	10.00
	Neutral	26	21.67
	Agree	36	30.00
	strongly agree	30	25.00
Prime birds before 3 in 1 vaccination	Strongly disagree	18	15.00
	Disagree	6	5.00
	Neutral	34	28.33
	Agree	36	30.00
	strongly agree	26	21.67

4. Discussion

A key finding of this study is the significant discrepancy between farmers' perceived incidence of Infectious Bronchitis (28.33%) and the high seroprevalence rates (consistently >80%) reported across Nigeria. This suggests that IB is likely endemic and widely under-recognized based on clinical signs alone, posing a silent but significant threat to the poultry industry. This finding aligns with established serological data from various regions, which show widespread exposure even in unvaccinated free-range birds: 90.7% in FCT [1], 82.95% in Plateau State [10], 84% in Sokoto State [12], and 82.7% in Southwestern Nigeria [8]. This under-recognition of IB is compounded by several critical gaps in farmer knowledge, attitudes, and practices (KAP). Effective disease management hinges on farmers possessing accurate information and consistently implementing appropriate measures, which can significantly mitigate the spread and impact of IB among poultry birds.

Vaccination is a cornerstone of IB prevention and control [6]. However, our survey revealed that a substantial proportion of respondents (45.00%) delegate vaccine administration to farm handlers. This practice raises concerns, as these handlers may possess limited understanding of proper biological material handling, potentially leading to vaccine failure and subsequent disease outbreaks. Such inadequate administration can compromise the efficacy of vaccination programs, allowing the virus to circulate and spread.

The study also shows a notable gap in farmers' knowledge regarding the scope of IB vaccination. While 45.83% of respondents believed IB vaccination was exclusively necessary for laying birds, 54.17% correctly understood its relevance to all poultry types. This uncertainty is highlighted by our findings on susceptibility, where a combined 48.33% of farmers agreed or strongly agreed that all poultry are susceptible, while a combined 26.67% disagreed and 25.00% were neutral. Similarly, a combined 61.667% of farmers disagreed or strongly disagreed that vaccination should be limited to laying birds, suggesting a more informed group, but a substantial 30% still held or were neutral on this opposing view.

The survey indicated a knowledge gap regarding crucial preventive measures, with only 25.00% consistently screening for maternal derived antibodies in new chicks. This points to a clear need for greater farmer orientation on these vital protocols.

A vast majority of respondents (95.00%) recognized the potential for economic losses due to IB. This perception aligns with established veterinary understanding, as IB is an acute, highly contagious viral infection known to cause adverse effects on egg quality, egg production, and significant growth depression [7]. The disease's major economic impact stems from poor weight gain and compromised feed conversion ratios. Critically, losses resulting from diminished production performance are often a greater financial concern than those directly attributable to mortality [5]. However, a significant

minority of farmers (23.33%) were unaware of other potential causes for production drops beyond Newcastle disease and Egg Drop Syndrome [3], suggesting that IB's economic impact may still be underestimated.

5. Limitations of the Study

This study, while providing valuable insights, is subject to certain limitations. The reliance on a survey-based approach means that findings are based on self-reported data, which may be influenced by recall bias or a desire to present practices in a favorable light. Furthermore, the study's scope was limited to Federal Capital Territory, and while our findings align with broader national seroprevalence data, the results may not be generalizable to all poultry farming systems across Nigeria. Future research could benefit from a longitudinal design and the inclusion of serological testing to directly correlate farmer practices with flock health outcomes.

6. Conclusion

In conclusion, this study effectively illuminates the complex interactions between various farmer practices and their profound impact on the spread and control of Infectious Bronchitis. The identified gaps in knowledge, particularly concerning comprehensive vaccination protocols, disease recognition, and the importance of practices like maternal derived antibody screening, provide a clear roadmap for future educational and intervention strategies aimed at supporting the resilience and profitability of the Nigerian poultry industry.

Abbreviations

IB	Infectious Bronchitis
KAP	Knowledge, Attitudes, and Practices
FCT	Federal Capital Territory
ND	Newcastle Disease
IBD	Infectious Bursal Disease
IBV	Infectious Bronchitis Virus

Conflicts of Interest

The authors declare no conflicts of interest.

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