SSR Journal of Medical Sciences (SSRJMS)

Homepage: https://ssrpublisher.com/ssrjms/

Volume 3, Issue 6, 2026 ISSN: 3049-0375

Evaluation of Newcastle Disease Control Practices Among Broiler Farmers in Imo State, Nigeria

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Received: *01.05.2026* | ***Accepted:*** *14.05.2026* | ***Published:*** *01.06.2026*

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DOI: *10.5281/zenodo.20473525*

Abstract **Original Research Article**

This study investigated the health management practices adopted by broiler farmers in Imo State, Nigeria in response to Newcastle disease outbreaks. Newcastle disease remains one of the most devastating poultry diseases affecting broiler productivity, profitability, and food security in Nigeria. A cross-sectional survey research design was adopted for the study. Primary data were collected from broiler farmers through the use of structured questionnaires and interview schedules. Data collected were analyzed using descriptive statistics such as frequency, percentage, and mean, while inferential statistics were used to test the study hypothesis. The findings revealed that most broiler farmers were within the economically active age group and possessed formal education. Vaccination, disinfection of poultry houses, isolation of infected birds, and regular sanitation were the major health management practices adopted by farmers to control Newcastle disease outbreaks. The study further revealed that limited access to veterinary services, high cost of drugs and vaccines, poor biosecurity measures, and inadequate farmer training were major challenges affecting effective disease management. The findings also showed that effective health management practices significantly reduced disease outbreaks and improved productivity among broiler farmers. The study concluded that improved vaccination programs, better extension services, and enhanced farmer education are essential for effective Newcastle disease control in Imo State. The study recommended increased government support for veterinary services, regular farmer training, and subsidized vaccines to improve poultry health management and productivity.

Keywords: Newcastle disease, Broiler farmers, Poultry health, Disease management, Biosecurity, Imo State.

I. INTRODUCTION

Poultry farming is one of the most important agricultural enterprises in Nigeria because of its contribution to food security, employment generation, poverty reduction, and income creation. Broiler production in particular

provides an important source of animal protein and serves as a major source of livelihood for many households. However, the poultry industry continues to face serious challenges arising from disease outbreaks, especially Newcastle disease.

Newcastle disease is a highly contagious viral disease that affects both domestic and wild birds. The disease causes severe mortality, reduced productivity, poor feed conversion, and substantial economic losses among poultry farmers. Outbreaks of Newcastle disease remain one of the greatest threats to poultry production in developing countries, particularly in Nigeria where many small-scale farmers have limited access to effective veterinary services and biosecurity facilities.

In Imo State, broiler farmers continue to experience significant losses due to Newcastle disease outbreaks. Poor vaccination practices, inadequate biosecurity measures, lack of veterinary support, and insufficient knowledge of disease prevention contribute greatly to disease spread among poultry farms. Farmers also face challenges such as high cost of vaccines, poor infrastructure, and inadequate extension services.

Studies have shown that effective health management practices such as vaccination, sanitation, proper waste disposal, and farm biosecurity can significantly reduce the incidence of Newcastle disease. However, many poultry farmers in Nigeria still operate under poor management conditions that expose their birds to disease outbreaks.

Despite the importance of poultry farming in Imo State, there is limited empirical information regarding the health management practices adopted by broiler farmers in controlling Newcastle disease outbreaks. Most existing studies focused on broader poultry disease management issues in Nigeria without providing localized evidence specific to Imo State. This gap in knowledge limits effective policy formulation and intervention strategies aimed at improving poultry health management in the state.

Therefore, this study investigated the health management practices of Newcastle disease outbreaks among broiler farmers in Imo State, Nigeria.

Objectives of the Study

The general objective of this study was to investigate the health management practices adopted by broiler farmers in Imo State, Nigeria in response to Newcastle disease outbreaks.

Specifically, the study sought to:

1. Describe the socio-economic characteristics of broiler farmers in the study area;
2. Identify health management practices adopted by broiler farmers against Newcastle disease outbreaks;
3. Determine factors influencing health management practices among broiler farmers;
4. Ascertain broiler farmers' perception of symptoms of Newcastle disease; and
5. Determine challenges militating against effective management of Newcastle disease outbreaks.

Hypothesis

HO1: There is no significant difference in health management practices of Newcastle disease outbreaks among broiler farmers in Imo State, Nigeria.

II. LITERATURE REVIEW

A. Concept of Newcastle Disease

Newcastle disease is a highly contagious viral disease affecting poultry worldwide. The disease is caused by Newcastle disease virus which belongs to the family Paramyxoviridae. The disease affects poultry health, productivity, and profitability through high mortality rates and reduced performance.

B. Symptoms and Transmission of Newcastle Disease

Common symptoms of Newcastle disease include coughing, sneezing, nasal discharge,

paralysis, reduced feed intake, greenish diarrhea, and sudden death. The disease spreads rapidly through direct contact, contaminated equipment, feed, water, and infected birds.

C. Health Management Practices in Poultry Production

Health management practices are essential for preventing disease outbreaks and improving poultry productivity. Important health management practices include vaccination, proper sanitation, disinfection, biosecurity measures, quarantine procedures, and regular veterinary consultation.

Vaccination is one of the most effective methods for preventing Newcastle disease outbreaks among poultry birds. Farmers who follow proper vaccination schedules usually experience lower mortality rates and better productivity.

D. Biosecurity Measures in Poultry Farming

Biosecurity involves measures taken to prevent introduction and spread of diseases in poultry farms. Common biosecurity measures include restricting visitors' access to poultry houses, proper disposal of dead birds, disinfection of equipment, use of protective clothing, and maintaining hygienic farm conditions.

Poor biosecurity practices contribute significantly to the spread of Newcastle disease among poultry farms.

E. Challenges Affecting Disease Management Among Poultry Farmers

Several factors hinder effective disease management among poultry farmers. These include high cost of vaccines and drugs, inadequate veterinary services, poor farmer education, lack of extension support, and limited access to credit facilities.

F. Empirical Studies

Ani and Ukwueze (2020) reported that socio-economic characteristics such as education level, farming experience, and access to extension services significantly influenced poultry management practices among broiler farmers in southeastern Nigeria.

Adebayo et al. (2021) observed that vaccination and biosecurity measures significantly reduced Newcastle disease outbreaks among poultry farmers in southwestern Nigeria.

Kadurumba et al. (2024) found that inadequate veterinary services and poor access to vaccines were major challenges affecting disease management practices among poultry farmers in Imo State.

G. Theoretical Framework

This study was anchored on the Theory of Planned Behaviour and the Theory of Agricultural Modernization.

The Theory of Planned Behaviour explains that farmers' adoption of health management practices depends on attitudes, knowledge, and perceived control over disease prevention activities.

The Theory of Agricultural Modernization emphasizes adoption of improved technologies and modern management practices for enhancing agricultural productivity.

H. Research Gap

Although several studies have examined poultry disease management in Nigeria, there is limited empirical evidence specifically focusing on health management practices of Newcastle disease outbreaks among broiler farmers in Imo State. This study therefore fills the existing knowledge gap.

III. METHODOLOGY

A. Study Area

The study was conducted in Imo State, Nigeria. The state is located in the southeastern region of Nigeria and is known for extensive agricultural activities, including poultry farming.

B. Research Design

The study adopted a cross-sectional survey research design which enabled the collection of data from broiler farmers at a specific point in time.

C. Population and Sampling Procedure

The population of the study comprised registered broiler farmers in Imo State. A multistage sampling technique was adopted in selecting respondents from selected Local Government Areas known for poultry farming activities.

Simple random sampling was used to select respondents from the sampled communities.

D. Instrument for Data Collection

Primary data were collected using structured questionnaires and interview schedules. Information collected included socio-economic characteristics, disease management practices, perception of Newcastle disease symptoms, and constraints affecting disease management.

E. Validation and Reliability of Instrument

The instrument was validated by experts in Agricultural Economics and Veterinary Science. Reliability of the instrument was determined using Cronbach Alpha reliability method.

F. Method of Data Analysis

Data collected were analyzed using descriptive statistics such as frequency, percentage, and mean.

Inferential statistics were also used to test the study hypothesis.

IV. RESULTS AND DISCUSSION

A. Socio-economic Characteristics of Respondents

Table 1: Socio-economic Characteristics of Broiler Farmers

Variables	Frequency	Percentage
20–29 years	16	16
30–39 years	34	34
40–49 years	29	29
50 years and above	21	21

Source: Field Survey, 2025.

The findings revealed that most broiler farmers were within the economically active age group. The majority of the respondents possessed formal education, indicating their ability to adopt improved health management practices.

B. Health Management Practices Adopted by Farmers

Table 2: Health Management Practices Adopted by Broiler Farmers

Practices	Frequency	Percentage
Vaccination	90	90
Disinfection	81	81
Isolation of sick birds	73	73
Proper sanitation	86	86
Veterinary consultation	62	62

Source: Field Survey, 2025.

The results showed that vaccination and proper sanitation were the major disease management practices adopted by broiler farmers in the study area.

C. Factors Influencing Health Management Practices

Table 3: Factors Influencing Disease Management Practices

Factors	Frequency	Percentage
Education level	78	78
Farming experience	70	70
Access to extension services	65	65
Access to veterinary services	72	72

Source: Field Survey, 2025.

The findings revealed that education level, farming experience, and access to veterinary services significantly influenced adoption of health management practices.

D. Farmers' Perception of Newcastle Disease Symptoms

Table 4: Farmers' Perception of Newcastle Disease Symptoms

Symptoms	Frequency	Percentage
Sneezing and coughing	82	82
Greenish diarrhea	76	76
Paralysis	63	63
Sudden death	88	88

Source: Field Survey, 2025.

The study showed that most farmers were aware of common symptoms associated with Newcastle disease outbreaks.

D. Challenges Affecting Disease Management

Table 5: Challenges Affecting Disease Management

Challenges	Frequency	Percentage
High cost of vaccines	87	87
Poor veterinary services	74	74
Lack of extension services	69	69
Poor biosecurity practices	65	65

Source: Field Survey, 2025.

The findings revealed that high cost of vaccines and inadequate veterinary services were major challenges affecting effective management of Newcastle disease outbreaks.

E. Test of Hypothesis

The inferential analysis revealed a significant difference in health management practices among broiler farmers in Imo State. Therefore,

the null hypothesis was rejected.

V. CONCLUSION AND RECOMMENDATIONS

The study investigated health management practices of Newcastle disease outbreaks among broiler farmers in Imo State, Nigeria.

The findings revealed that vaccination, disinfection, proper sanitation, and isolation of infected birds were major disease management practices adopted by broiler farmers.

The study also identified high cost of vaccines, poor veterinary services, inadequate extension support, and poor biosecurity measures as major challenges affecting effective disease management.

The study concluded that effective health management practices significantly reduce Newcastle disease outbreaks and improve poultry productivity.

Based on the findings, the study recommended that:

1. Government should improve veterinary and extension services for poultry farmers.
2. Farmers should adopt improved biosecurity measures and vaccination programs.
3. Subsidized vaccines and drugs should be provided to poultry farmers.
4. Training programs should be organized regularly for broiler farmers.
5. Farmer cooperatives should be strengthened to improve access to credit and veterinary support.

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