

**ASSESSMENT OF LOCAL POULTRY HEALTH, BIOSECURITY RISKS, FARMERS'
MEDIA USE, ACCESS AND UNDERSTANDING TO AVIAN INFLUENZA
COMMUNICATION MATERIALS**

BY

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(DVM ABU 1997)

**DEPARTMENT OF VETERINARY SURGERY AND MEDICINE
AHMADU BELLO UNIVERSITY
ZARIA, NIGERIA**

MARCH, 2010

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(MSc.Vet. Med. 10830 -2007-2008)**

**A THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL
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**DEPARTMENT OF VETERINARY SURGERY AND MEDICINE,
AHMADU BELLO UNIVERSITY ,
ZARIA, NIGERIA**

MARCH, 2010

DECLARATION

I hereby declare the originality of this work carried out by me in the Department of Veterinary Surgery and Medicine, Ahmadu Bello University, Zaria under the supervision of Professors P. A. Abdu, A. J. Nok and Dr. T. M. Joannis. The works of other investigators referred to in this study are duly acknowledged. No part of this thesis has been previously submitted for a degree or diploma.

Assam, Assam

Date

CERTIFICATION

This thesis entitled “**ASSESSMENT OF LOCAL POULTRY HEALTH, BIOSECURITY RISKS, FARMERS’ MEDIA USE, ACCESS AND UNDERSTANDING TO AVIAN INFLUENZA COMMUNICATION MATERIALS**” by Assam Assam meets the regulations governing the award of the degree of Masters of Science of Ahmadu Bello University, Zaria and is approved for its contribution to scientific knowledge and literary presentation.

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DEDICATION

To my wife Manyi and children Awu, Onor-Obhasi and Nyenomma

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ABSTRACT

The study assessed local poultry health through testing for avian influenza virus, antibodies to avian influenza, Newcastle and Gumboro disease; internal and external parasites. It also assessed local poultry farmers' biosecurity risks by appraising farmers' knowledge, beliefs and practices on avian influenza; their media use, access and understanding of avian influenza communication materials. Seventy-two pooled cloacal and oro-pharyngeal swabs and 264 blood samples were collected from local poultry and 200 questionnaires administered to local poultry farmers. Swabs were analysed by reverse transcriptase polymerase chain reaction; sera by agar gel immunodiffusion and haemagglutination inhibition tests. Avian influenza antigen prevalence was 1.4%. Mean antibody titre and prevalence of Newcastle disease were $2.74 \pm 0.28 \log_2$ and 48.5 % respectively. About 68.7 % of chickens had antibody titre $<4 \log_2$ with 42.9 % having titre $\geq 7 \log_2$. Newcastle disease prevalence rates in ducks and turkeys were 47.8% and 66 % respectively. All local poultry were negative for avian influenza but 55.3 % had antibodies to Gumboro disease. Lice and mites were identified in all villages and endoparasites were prevalent in 72.7 % of sampled villages. Mean packed cell volume of chickens, ducks and turkeys were 29.09 ± 0.46 , 35 ± 1.68 , 36.75 ± 2.00 % respectively. Knowledge on transmission and prevention of avian influenza was high but low on disease recognition. Farmers believe avian influenza cannot be prevented and engage in risky behaviours but practice only biosecurity measures that will not incur cost. Radio and television were appropriate media for dissemination of agricultural information to farmers but were ineffective at educating farmers with Islamic education. Television was better at articulating avian influenza risk perception. Billboards and posters had high viewership and were easily understood by farmers. Distribution of avian Influenza educational materials among farmers was poor. Influenza A virus is circulating among local

ducks in Dan Gaiya village. Local poultry are exposed to continuous challenge from fowl pox, Newcastle and Gumboro diseases. Local poultry are highly susceptible to Newcastle disease which is likely to be mistaken for highly pathogenic avian influenza. Surveillance team should be sent to Dan Gaiya and Yar Kasuwa villages. Avian influenza control in local poultry should incorporate Newcastle and Gumboro diseases control. State radio and television should increase broadcast of avian influenza programs. Muslim youths should be engaged for avian influenza advocacy within the Muslim communities. For effective community participation on avian influenza control, a community dialogue system should be established.

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LIST OF ABBREVIATIONS

AGID	Agar Gel Immunodiffusion
AICP	Avian Influenza Control Project
AI	Avian Influenza
AIV	Avian Influenza Virus
cDNA	clone deoxyribonucleic acid
CZC	Country, Zone or Compartment
DIVA	Differentiate Infected from Vaccinated Animals
dNTP	deoxy Nucleotide Tri-Phosphate
EDTA	Ethylene Di amine Tetra Acetate
ELISA	Enzyme Link Immuno-Sorbent Assay
FCT	Federal Capital Territory
FP	Fowl Pox
g/dl	grams per decilitre
GTK	Gaskiya Tafi Kobo (Truth is Superior to Money)
HA	Haemagglutinin
HAU	Haemagglutinin unit
Hb	Haemoglobin concentration
HI	Haemagglutination Inhibition
HPAI	Highly Pathogenic Avian Influenza
IBD	Infectious Bursa Disease
IVPI	Intra venous Pathogenic Index
LBM	Live Bird Market
LGA	Local Government Area
LP	Local Poultry
LPAI	Low Pathogenic Avian Influenza
MgCl ₂	Magnesium chloride
NA	Neuraminidase
ND	Newcastle Disease

NVRI	National Veterinary Research Institute
p	prevalence value
PBS	Phosphate Buffered Saline
PCV	Packed Cell Volume
RBC	Red Blood Cell
RNA	Ribonucleic Acid
RT-PCR	Reverse Transcriptase-Polymerase Chain Reaction
S E	Standard Error
Spps	Species
SPSS	Statistical Package for Social Science
TINAPIRP	The Integrated National Avian and Pandemic Influenza Response Plan
TP	Total Protein
TV	Television
μl	micro litre
US\$	United States Dollars
X ²	Chi Square value
w/v	weight per volume
°C	Degree Celsius