OFFLU avian influenza virus characterisation meeting
29 – 30 March 2017
FAO Headquarters, Rome, Italy

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Nigeria: a regional hotspot of avian influenza !

Population:

- >190 million people,
- ≈160 million poultry

(intensive-40%, backyard & free range-60%)

Convergence in LBM

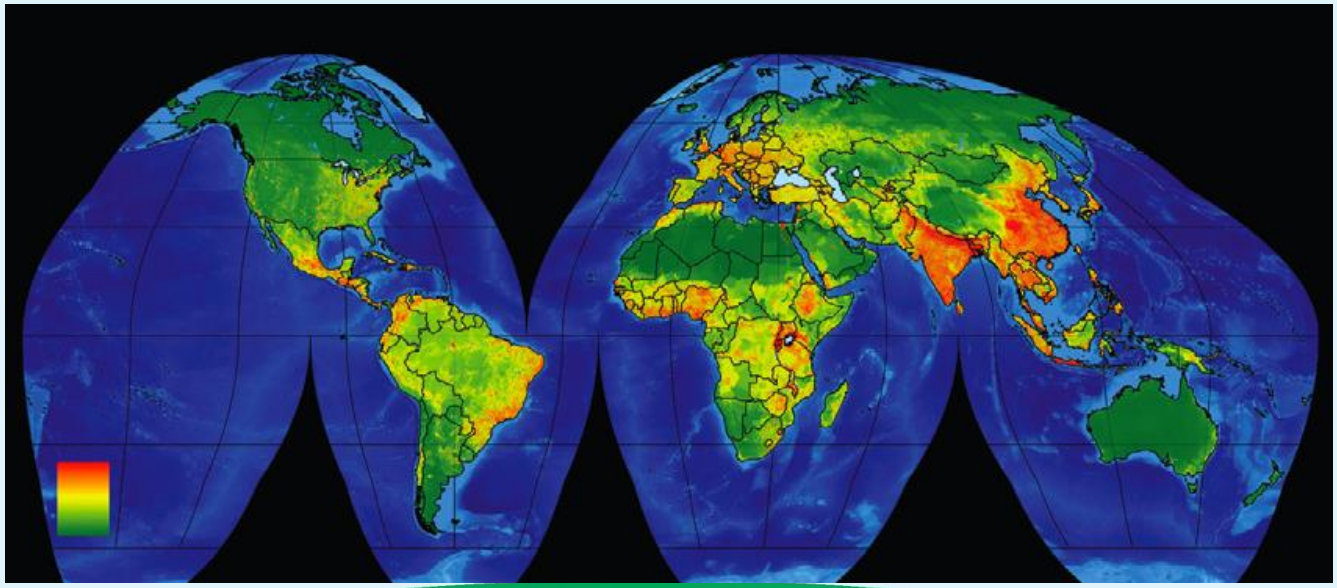
Livestock resources is worth N386.3 billion

(about 1 billion USD and Agriculture is the largest employer)

Drivers of emerging diseases

- Human population density
- Wildlife diversity
- Abundance of livestock
- Animal-human interface

(Morse *et al.*, 2012)



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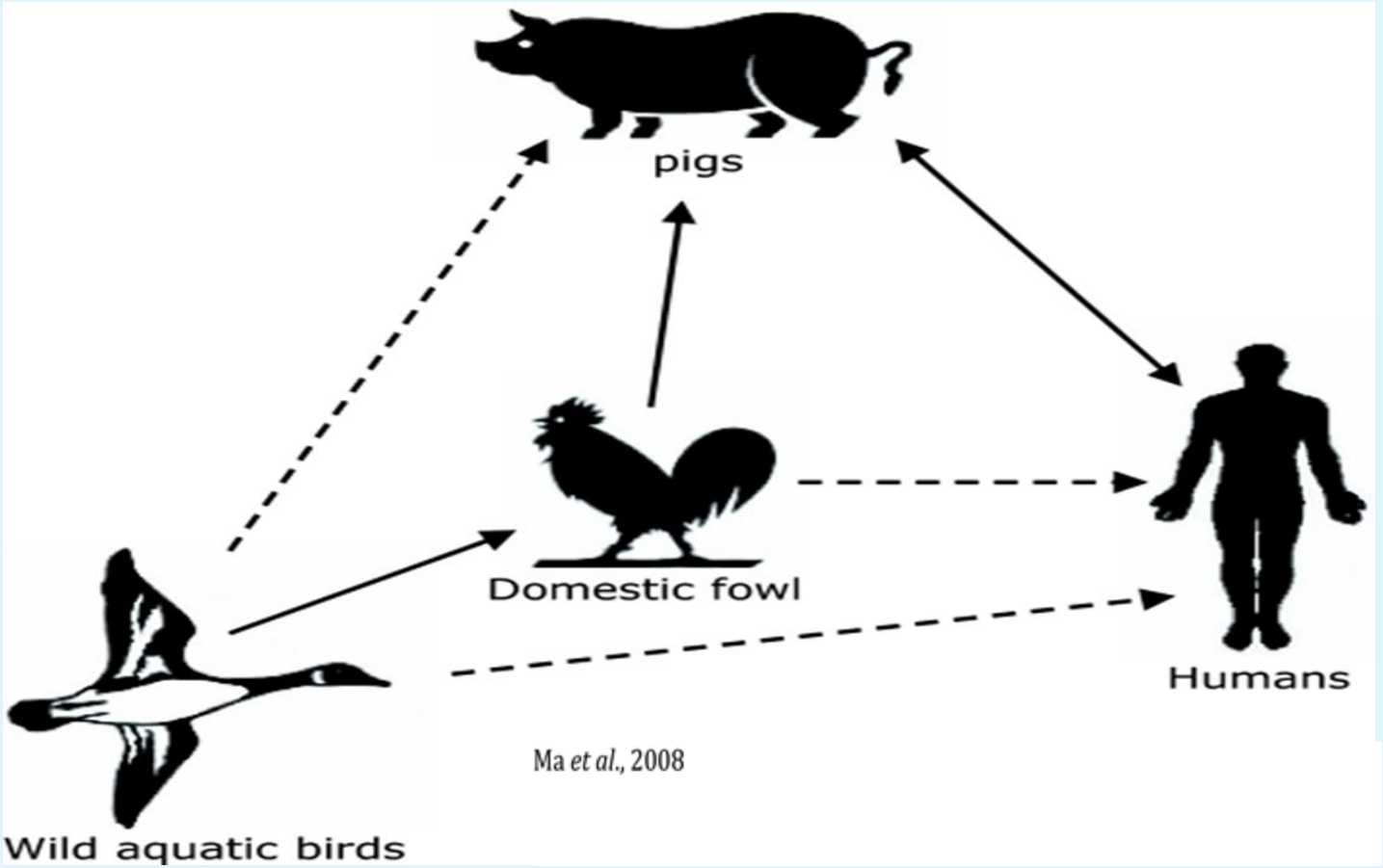
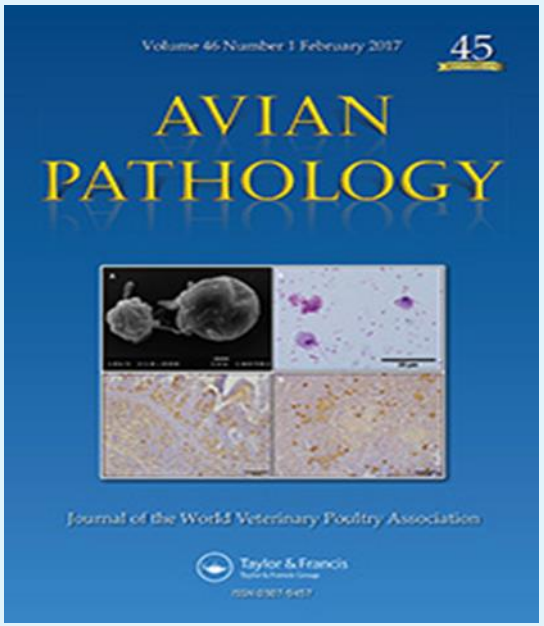
Cycles of inter species transmission of influenza virus



Advent of Avian influenza in Nigeria

- First outbreaks of HPAI H5N1 in Nigeria and Africa occurred in Jan 2006

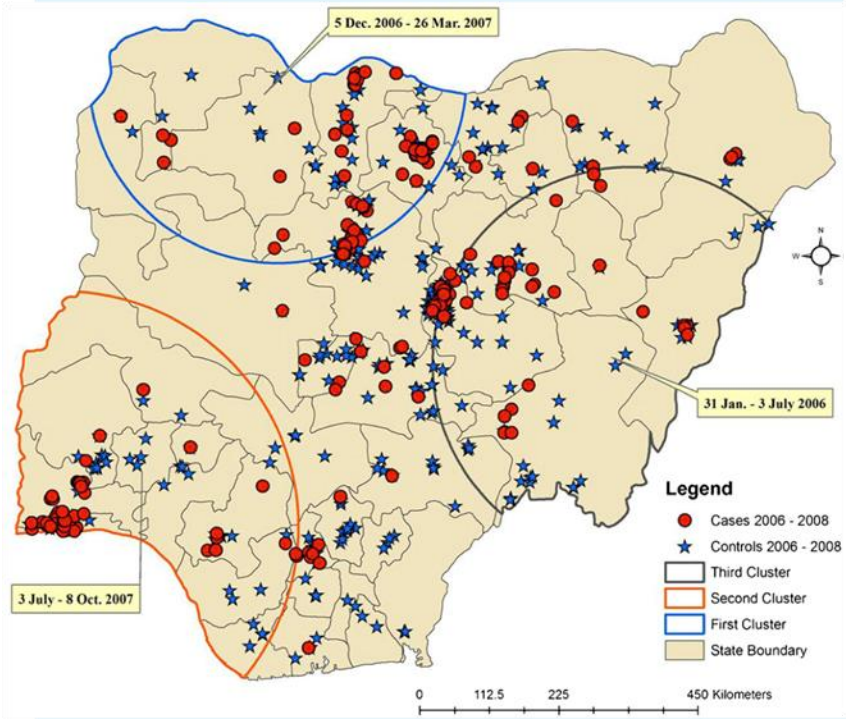


Field and laboratory findings of the first incursion of the Asian H5N1 highly pathogenic avian influenza virus in Africa

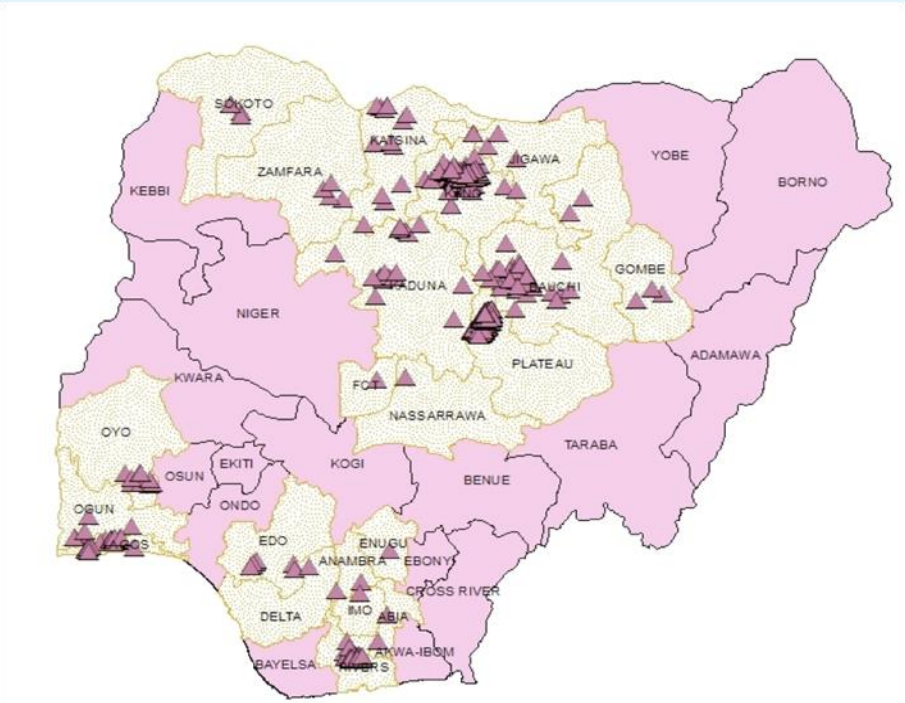
Paola De Benedictis , Tony Manuel Joannis , Lami Hannatu Lombin et al . Avian Pathology, Pages 115-117 | Received 14 Sep 2006, Published online: 02 May 2007

Spatial distribution of HPAI H5N1 cases in Nigeria

2006-2008 clades 2.2(1,2,3,4)



2015-2016 clade 2.3.2.1c

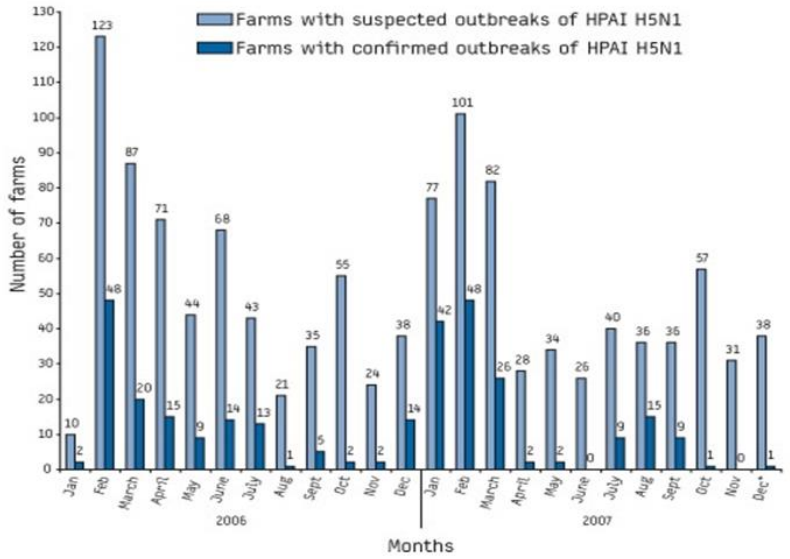


Temporal distribution of HPAI H5N1 cases in Nigeria

2006-2007 (Joannis et al., 2008)

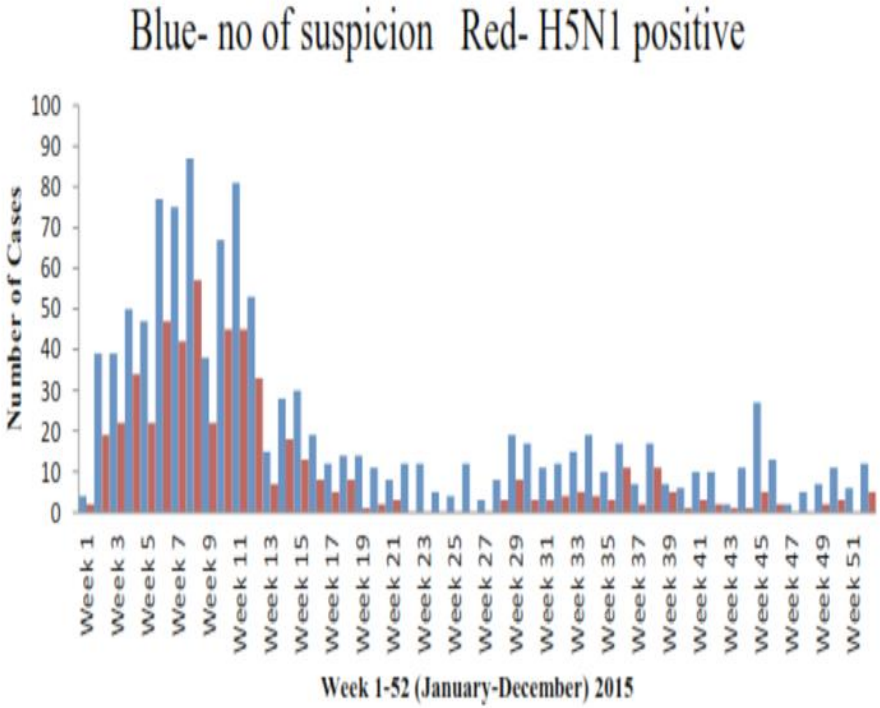
FIGURE 2

Suspected and confirmed outbreaks of HPAI H5N1 from routine diagnostic samples of avian species in Nigeria, 2006-2007 (n=1,205 reports and 299 confirmations)

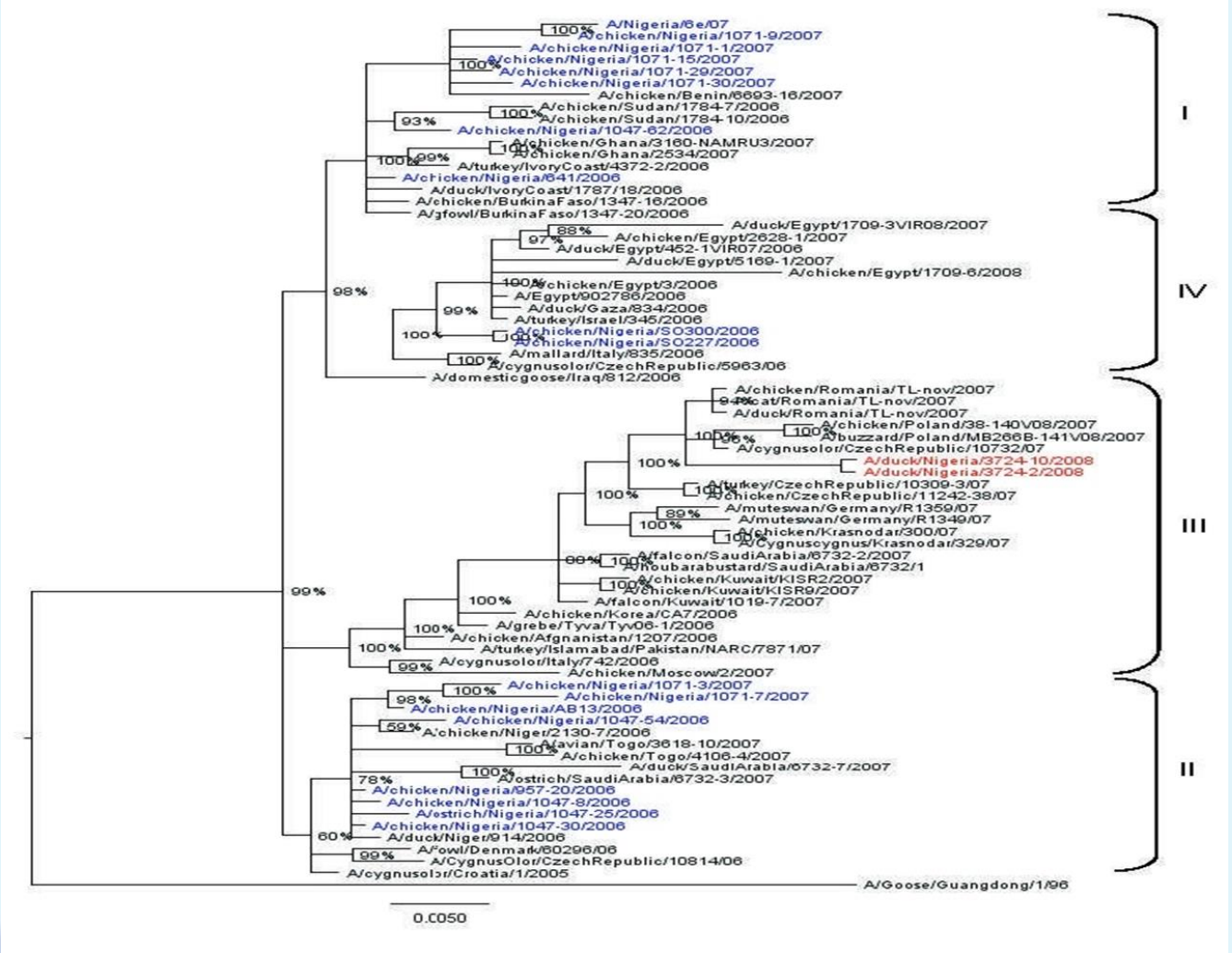


2007 Dec*: The only isolate in that month originated from Benin Republic.
HPAI: Highly pathogenic avian influenza.

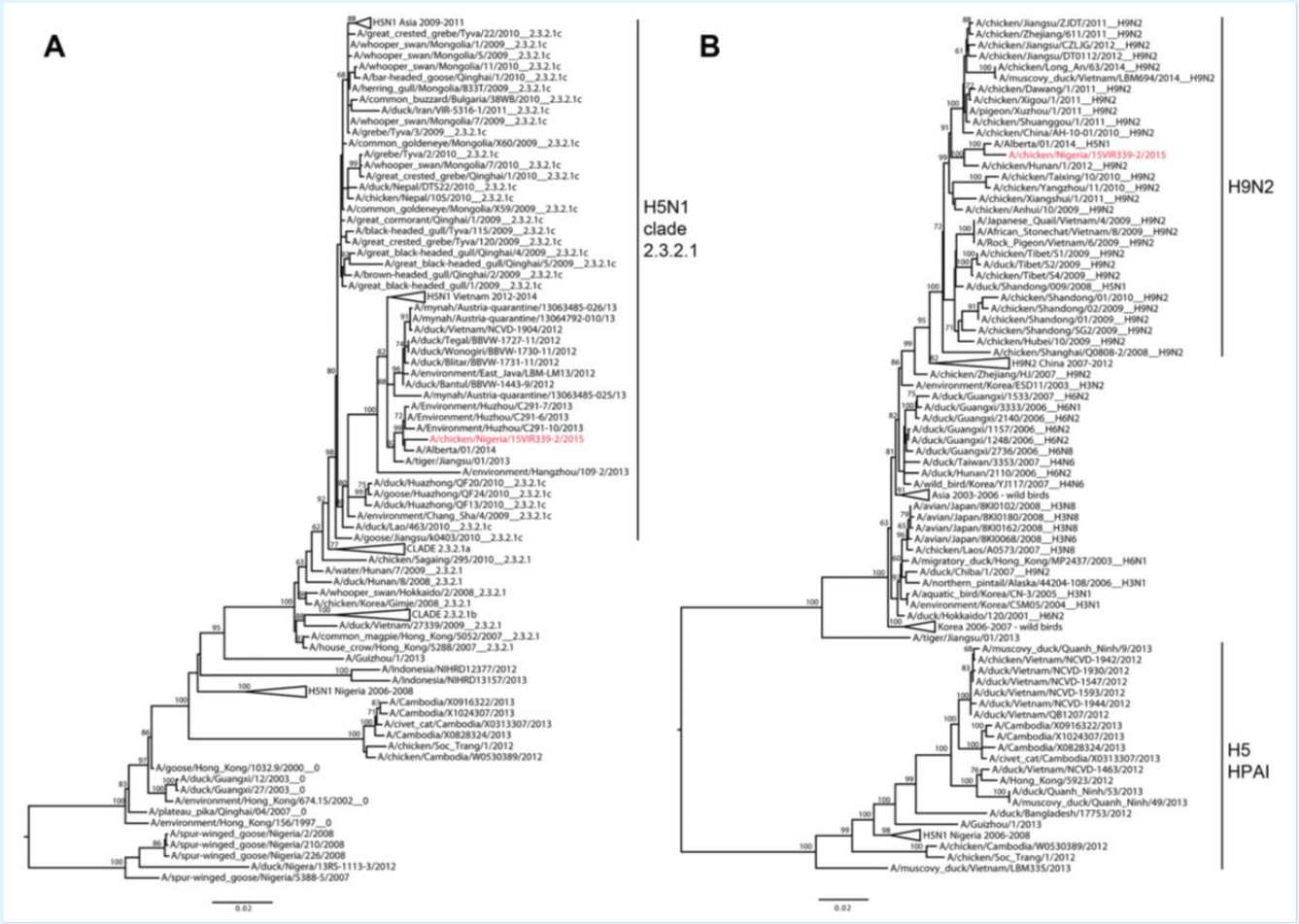
2015 (Akanbi et al.,2016)



Phylogenetic tree of H5N1 HA NG showing clade 2.2 distribution (Fusaro et al., 2009)



Phylogenetic tree of HPAI H5N1 2.3.2.1c (Monne et al., 2015)



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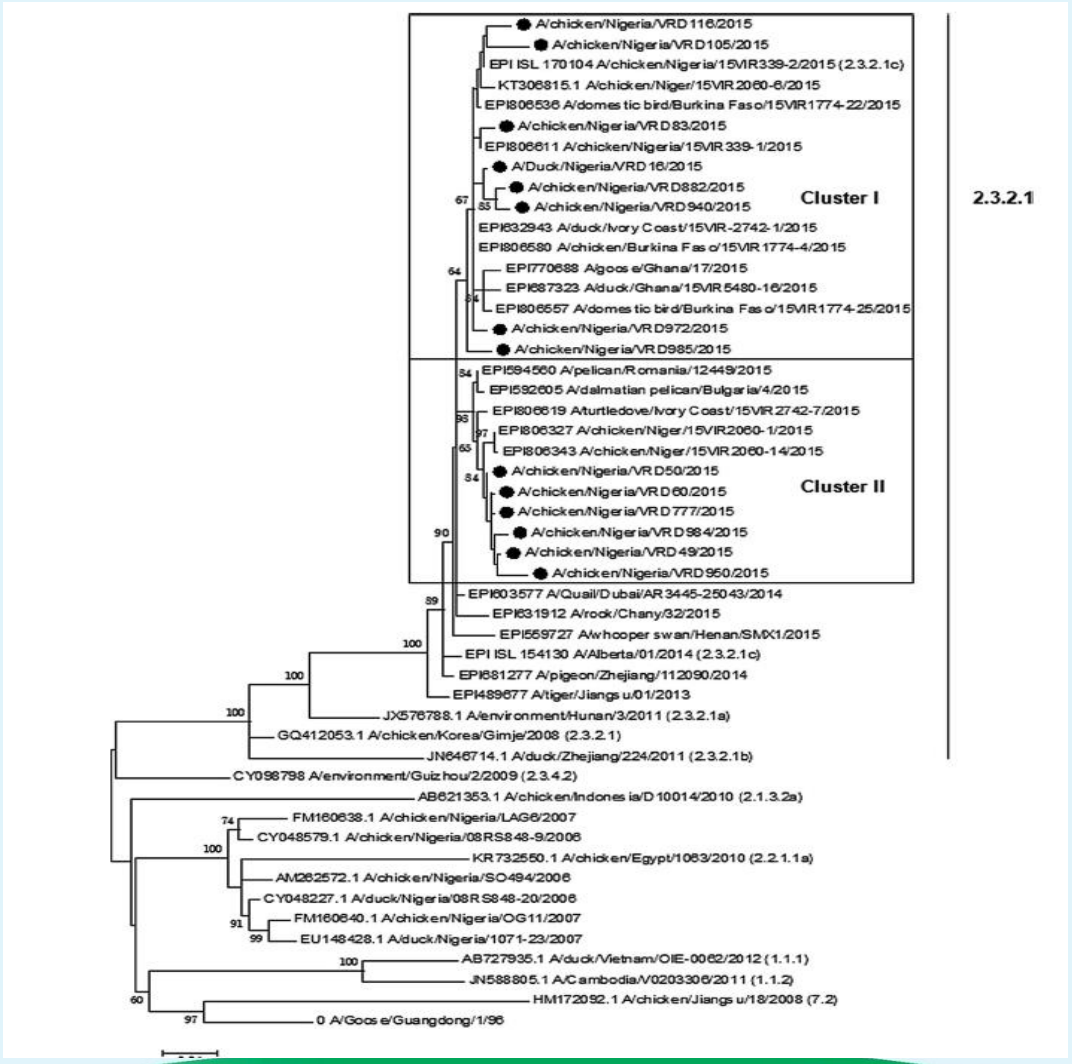
Phylogenetic tree of H5N1 HPAI 2.3.2.1c showing WA1 & WA2 (Shittu et al., 2016)



Regional hotspot and AIV H5 diversity in Nigeria

- Nigeria has extensive wetland within the expansive Hadejia-Nguru wetland zone (3000 km square)
- Lies on the route of migratory wild bird

- H5N1 HPAI in domestic poultry: 2006- (Joannis *et al*., 2008), 2015- (Monne et al., 2015)

- H5N2 HPAI detected in wild birds (Gaidet *et al*., 2008)

- H5N2 LPAI detected in wild birds (Snoeck *et al*., 2011)

- H5N2 LPAI isolated in domestic ducks (Coker *et al*., 2014)

- H5N8 HPAI detection in chickens and waterfowls in Nigeria Dec 2016 (OIE, 2006; FAO, 2016; ProMed, 2016)

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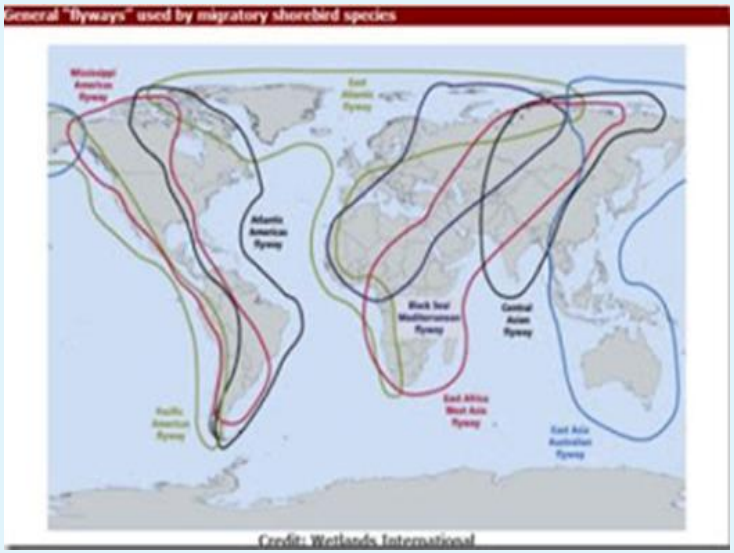
Risk of introduction, spread and persistence of AIV in Nigeria

- Migratory waterfowls and migratory routes:
- Wildlife and biodiversity hub within West and Central Africa bioclimatic region
- Extensive wetland and wild bird sanctuary
- Free range poultry, backyard and Live bird trade
- Movement of poultry and poultry products across the country
- (cultural & trade)



Current AIV Control policy in Nigeria

- Surveillance
- Early detection
- Depopulation,
- Compensation
- Biosecurity

- NO VACCINATION!

Status of vaccination as a control policy…

- No use of vaccine was permitted since 2006 and also in the contemporary 2015-2017 epidemic
- However there are limited, preliminary data and claims of unregulated vaccination in large commercial flocks
- The pros and cons of using vaccine in combination with biosecurity need to be investigated, reviewed and tailored to local conditions

- Baseline studies such as (OFFLU Avian Influenza Vaccine Efficacy project in Egypt) need to be carried out in Nigeria
- Ability and capacity for deployment of DIVA is a necessary prerequisite to avoid abuse
- Government also would need to engage stakeholders (scientists & Industrialists/farmers) to strengthen existing control policy or design new, complementary approach for AIV control in the country

Acknowledgments


THANK
YOU