Highly pathogenic avian influenza h5n1 persistence in Africa: household poultry perspective & public health implications

Abstract

Highly Pathogenic Avian Influenza is an emerging zoonotic infection with wide host range, including man, it has affected twelve countries in Africa but endemic in Egypt; Nigeria and others have had infections and re-infections. Due to its zoonotic and re-assortment potential HPAI H5N1 remains a major threat to human health. Household poultry (HHP) constitutes about 80% of poultry practice in Africa and is made up largely of indigenous breeds; mixed species are reared in same flock; biosecurity measures are poorly practiced, and it is in close proximity with human habitations; therefore HHP can facilitate H5N1 persistence and human infections. As at the end of 2015, Egypt had the highest number of confirmed human cases (346) across the globe with 116 deaths, and was traceable to HHP. Improved biosecurity measures and hygiene must be enforced at every level of poultry production, and poultry pens should be located far from residential houses.

Keywords: Africa, hpa, h5n1, persistence, hhp, public health

Introduction

The emergence of Highly Pathogenic Avian Influenza (HPAI) H5N1 from the Asian continent has led to its adaptation, evolution and the re-emergence of a re-assortant causal virus in Africa, first detected in Nigeria in 2006 and subsequently reported in other 11 African countries. The rapid spread of HPAI H5N1 infection has led to the elimination of poultry population with negative attendant consequences on the sales of poultry and poultry products and economics of production. Due to its zoonotic potential and ability for re-assortment HPAI H5N1 remains a major threat to human health in Africa; so far, Egypt has the highest number of confirmed human cases and reported case fatality across the globe. Analyses and comparative assessments of data of HPAI H5N1 outbreaks in poultry from 2006-2016 in Egypt, Nigeria and other African countries show a progressive increase in the number of outbreaks of H5N1 HPAI in poultry especially from 2006-2008 to the outbreaks of subsequent years (Table 1).

Household poultry

The predisposing factors to the perpetuation and persistence of HPAI H5N1 in Africa are inexhaustible; but among the important factors strongly believed to facilitate H5N1 persistence and spread is household poultry (HHP), otherwise referred to as backyard or traditional poultry; this constitute about 80% of poultry stocks made up largely of indigenous breeds and various species mixed in the same flock and reared especially by semi intensive or extensive husbandry methods.

HHP has become a common practice in most countries of Africa, especially Nigeria and Egypt, because it involves the rearing of multi-species of poultry (duck, turkey, pigeon, quail and chicken) and other livestock (pig, cane rat, rabbit, goat etc.), in close proximity with human habitations; and characterised by poor biosecurity measures; which has been proven to be an indispensable tool for the mitigation of the spread of infections. A recent study conducted shows that epidemiological dynamics of HPAI has changed, with the origins of majority of the outbreaks pointing towards household/backyard poultry and associated with human cases of H5N1 infections, this was further corroborated by OIE, that HPAI H5N1 outbreaks in Nigeria between 2014-2016 has a significant number of the outbreaks in HHP.

Public health implications

Due to the poultry husbandry method practiced in Africa and the nearness of its operations to residential houses, as at the end of 2015, Egypt had the highest number of confirmed human cases (346) across the globe with 116 deaths recorded, second to Indonesia, (Table 2). It is worrisome to observe that since the first HPAI H5N1 outbreak in Egypt in 2006, the cases, death and case fatality rate in poultry and humans continue to increase unabated.

Conclusion

This is a reflection and a pointer towards the endemic state of HPAI H5N1 in Africa, and all these portend a bleak and elusive hope of controlling and eradicating the deadly viral sub-type in the continent of Africa. Therefore radical approach must be taken, especially in the area of applied practical Biosecurity and hygiene, active and passive surveillance, proper orientation and enlightenment of stake holders in poultry business and poultry houses must be located far from residential houses.

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Conflict of interest

Author declares that there is no conflict of interest.

References

9. Total number of cases includes number of deaths; WHO reports only laboratory cases. WHO. 2015.
24. Cumulative number of confirmed human cases for avian influenza A(H5N1) reported to WHO. 2003–2015.

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