

H5 N2 Virus  
27 May 2015

This is a literature review I did on the H5N2 virus that is so severely affecting the center part of the country. It was sent to the Iowa Department of Agriculture and Land Stewardship.

The pigeon, *Columba Livia*, is not a threat as a vector for the H5N2 virus to poultry and other species. A paper published 2011, Transmission of Avian Influenza A Virus among species in an Artificial Barnyard<sup>1</sup>, they show that even injected with H5N2 pigeons don't shed the virus and 5 out of 6 of the pigeons tested negative for the virus and no antigens formed. In another study<sup>2</sup> pigeons were injected with H5N2 that were both immune suppressed with cyclophosphamide and untreated and neither group either developed illness or shed the virus. In another study highly pathogenic H5N2 was injected in pigeons and chickens<sup>3</sup>. The pigeons and chickens were inoculated with the virus and in a 21 day period the pigeons never developed any illness or antibodies to the virus. 9 of the 12 chickens in the study died.

The most disturbing thing about including pigeons is mammals aren't included. There are a number of studies showing the susceptibility of dogs and cats in developing illness and shedding the virus. One study<sup>4</sup> showed that dogs injected with H5N2 in a room with cats and chickens. The virus was passed to cats, chickens and other dogs in the room. Yet there is no restrictions in the State of Iowa on exhibiting, swaps auctions and get together of these species. Even though swine aren't as susceptible as other species are there is still the chance of swine carrying and shedding the virus. Mice are another long known carrier of virus like H5N2. The paper that Iowa State University recently published stated that a dead pigeon was found with the virus in Asia. The pigeon mentioned was diagnosed as dying from another illness and the virus was present in the bird. In no way is there a scientific connections with this and pigeons being a vector for the H5N2 virus spreading to poultry.

There was an article written by Gordon A. Chambers, DVM, Lethbridge, Alberta, Canada, Avian Influenza (Bird Flu) and Pigeons. I don't have a reference to it, but he states that there was a study in 1983-84 H5N2 virus that looked at birds collected from quarantine infected zones of the virus and none of the pigeons developed disease or antibodies to virus which he concludes that pigeons were not infected by the Avian Influenza and did not spread it.

In that study that Dr Chambers, DVM, talked about looked at the feet of 80 dead pigeons taken from quarantine areas. In that study they didn't find any virus on the pigeons. I couldn't find any studies that directly ruled out nor implicated pigeon's feet and feathers acting as a vector for the virus. Except for the flying breeds nearly no one free flies their show birds. Then with the short vitality time of the H5N2 in the environment I find it very unlikely that the virus would survive long enough on the feet and feathers of pigeons entered in a show. The standard view of most agencies for the main vector of the virus over long distances is from wild waterfowl and other birds. Then why not cancel all cat shows since cats will catch and eat wild birds and mice. Dog trainers take their hunting dogs to where wild fowl would frequent to train their dogs. There are no restrictions on gathering of dogs for dog competitions. Both of these species will shed the virus if infected. Children can play ball in a field that migrating geese grazed in just hours before. There are no restrictions of children gathering in large number as in schools.

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<sup>1</sup> Jenna E. Achenbach, Richard A. Bowen, March 2011, Transmission of Avian Influenza A Virus among Species in an Artificial Barnyard. PLoS ONE 6(3): e17643. Doi:10.1371/journal.pone.0017643

<sup>2</sup> Tsung-Hsiu Fang, Yi-Yang Lien, Ming-Chu Cheng, Hsiang-Jung Tsaid, Resistance of Immune Suppressed Pigeons to Subtype H5N2 and H6N1 Low Pathogenic Avian Influenza Virus, 2006, Avian Diseases 50(2):269-272

<sup>3</sup> Panigrahy B, Senne Da, Pedersen JC, Shafer AL, Pearson JE, Susceptibility of Pigeons to avian influenza. Avian Dis. 1996 Jul-Sep, 40(3) 600-4

<sup>4</sup> Hau-xia F, Yuan-yuan L, Qian-qian S, Zong-shual L, Feng-xia Z, Yan-li Z, Shi-jin J, Zhi-jing X, Interspecies transmission of canine influenza virus H5N2 to cats and chickens by close contact with experimentally infected dogs. Vet Microbiol. 2014 Jun 4. 170(3-4). 414-7