

LIMITED DETECTION OF ANTIBODIES TO CLADE 2.3.4.4 A/GOOSE/GUANGDONG/1/1996 LINEAGE HIGHLY PATHOGENIC H5 AVIAN INFLUENZA VIRUS IN NORTH AMERICAN WATERFOWL¹

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ABSTRACT

During 2014, highly pathogenic (HP) influenza A viruses (IAV) of the A/Goose/Guangdong/1/1996 lineage (GsGD-HP-H5) were detected in domestic poultry and wild birds in Canada and the United States. These clade 2.3.4.4 GsGD-HP-H5 viruses included reassortants possessing North American lineage gene segments; were detected in wild birds in the Pacific, Central, and Mississippi flyways; and caused the largest HP IAV outbreak in poultry in United States history. To determine if an antibody response indicative of previous infection with clade 2.3.4.4 GsGD-HP-H5 IAV could be detected in North American wild waterfowl sampled before, during and after the 2014 - 2015 outbreak, sera from 2793 geese and 3725 ducks were tested by bELISA and hemagglutination inhibition tests using both clade 2.3.4.4 GsGD-HP-H5 and North American lineage low pathogenic (LP) H5 IAV antigens. We detected an antibody response meeting a comparative titer-based criteria (two dilution difference in titer) for previous infection with clade 2.3.4.4 GsGD-HP-H5 IAV in only five birds, one blue-winged teal (*Spatula discors*) sampled during the outbreak and three mallards (*Anas platyrhynchos*) and one Canada goose (*Branta canadensis*) sampled during the post-outbreak period. These serological results are consistent with the spatiotemporal extent of the outbreak in wild birds in North America during 2014 and 2015 and limited exposure of waterfowl to GsGD-HP-H5 IAV, particularly in the central and eastern United States.

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