Cold fronts linked to European H5N1 outbreaks

April 8 2010

Avian influenza (H5N1) outbreaks in Europe during the winter of 2005-2006 occurred at the edge of cold weather fronts, according to researchers from Princeton University and the Erasmus Medical Centre, Rotterdam, the Netherlands. Their results, published April 8 in the open-access journal *PLoS Pathogens,* show that these outbreaks were driven by aggregated movements of wild waterbirds away from areas of frozen water.

The researchers found that most H5N1 outbreaks occurred at sites where maximum temperatures were between 0°C and 2°C. These usually occurred on the edge of cold fronts where bodies of freshwater remained unfrozen. Many wild waterbirds need unfrozen bodies of freshwater in winter to feed; in order to minimize the distance flown, they also try to stay as close as possible to the northern breeding grounds to which they will migrate during spring. The resulting congregation of different species of waterbirds along the freezing front likely created ideal conditions for the transmission of the H5N1 virus within and between wild bird species; in 2006, it caused many detectable outbreaks.

The genetic tree of the H5N1 virus that caused outbreaks in Europe is well known. However, the conditions favoring the virus' spread were previously unclear. Understanding these ecological links may help to predict and control future outbreaks.

Forecasts predicting near-freezing temperatures in Europe may act as an indication for concern, the authors say. When these conditions are

forecasted, the authors suggest that targeted surveillance in areas along the extreme edge of cold fronts may help in the early detection of the virus.

More information: Reperant LA, Fučkar NS, Osterhaus ADME, Dobson AP, Kuiken T (2010) Spatial and Temporal Association of Outbreaks of H5N1 Influenza Virus Infection in Wild Birds with the 0uC Isotherm. PLoS Pathog 6(4): e1000854. doi:10.1371/journal.ppat.1000854

Provided by Public Library of Science

Citation: Cold fronts linked to European H5N1 outbreaks (2010, April 8) retrieved 3 May 2024 from https://medicalxpress.com/news/2010-04-cold-fronts-linked-european-h5n1.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.