

The risks of H7N9 infection mapped

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A map of avian influenza (H7N9) risk is presented in Biomed Central's open access journal *Infectious Diseases of Poverty* today. The map is comprised of bird migration patterns, and adding in estimations of poultry production and consumption, which are used to infer future risk and to advise on ways to prevent infection.

As of today, there have been 127 confirmed cases of H7N9 in [mainland China](#) with 27 deaths. A lack of information about the virus and its mode of transmission has led to [public concerns](#) that H7N9 could be a pandemic waiting to happen.

To quantify the risk of this happening scientists from the Hong Kong Baptist University and Chinese University of Hong Kong have generated a map of H7N9 risk in eastern China. The map is based on the northwards [migratory patterns](#) of birds (from the 4th February to the end of April) using environmental and [meteorological data](#) over the same 12 weeks - from Zhejiang, Shanghai, and Jiangsu, to Liaoning, Jilin, and Heilongjiang.

The distribution of potentially infected poultry was also included in the model. The majority of early cases of H7N9 were found in Shanghai, but Shanghai is not a big poultry exporter so the model shows limited transmission via this route. In contrast, Jiangsu distributes poultry to Shanghai, Zhejiang, and beyond.

Prof Jiming Liu who led the study explained, "By basing our model on wild bird migration and distribution of potentially infected poultry we are able to produce a time line of the estimated risk of human infection with H7N9. The preliminary results of our study made a prediction of [bird flu](#) risk which could explain the pattern of the most recent cases. By extending the model we will be able to predict future infection risks across central and western China, which will aid in surveillance and control of H7N9 infections. Since the effect of poultry-to-poultry infection is not really understood it may become necessary to regulate the activity of poultry markets."

Prof Xiao-Nong Zhou from the Chinese Center for Disease Control and Prevention who was also involved in this study commented, "We are continuing to work on research into the sources of infection of H7N9 and the mode of transmission. However so far there is no evidence of the sustained human-to-human transmission required for a pandemic to occur."

More information: Shi, B. et al. Inferring the potential risks of H7N9 infection by spatiotemporally characterizing bird migration and poultry distribution in eastern China, *Infectious Diseases of Poverty* 2013. 2:8
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