Quantification of the effect of personal preventive measures against avian influenza

Te Beest DE (1,2), Bos MEH (1), Van Boven M (2), Stegeman JA (1), Koopmans M (2)

(1) Department of Farm Animal Health, Faculty of Veterinary Science, Utrecht University, Utrecht, The Netherlands (2) National institute of public health and environment, Bilthoven, The Netherlands

In 2003 an outbreak of H7N7 highly pathogenic avian influenza in the Netherlands led to the culling of 30 million chickens. During this outbreak, an unexpectedly high number of people reported illness, confirmed to be associated with H7N7 by virological testing (Koopmans et al., 2004). As a consequence, increasing emphasis was being placed on the use of protective masks and goggles, and the use of oseltamivir. This study aims to quantify the effect of these personal preventive measures on the rate of occurrence of conjunctivitis and serological response to H7N7.

Questionnaire data was available on the use of personal protective equipment and prophylactic treatment with a neuraminidase inhibitor (oseltamivir). This included an assessment of the consistency of use, and reasons for non-compliance. A serological test result (Meijer et al., 2006) and a self-reported conjunctivitis score were available as outcome measures for H7N7 infection. The human health data was linked to a second database that was used to manage the culling operation and registered who had visited which farm at which date for what reason. Farm mortality data was used to quantify whether a farm was infectious at the date of visit. From these data, the risk of becoming infected, depending on the use of personal protective measures, during a visit was calculated.

Preliminary results show that there was a protective effect of using oseltamivir in people that were involved in the culling, both on rates of conjunctivitis and on serology as outcome for infection. The effects of protective masks and goggles were less evident.

A quantification of the effect of personal preventive equipment and oseltamivir use can be used to guide future policies to enable a more effective use of protective measures in future outbreaks.