

INFLUE-AIR: Understanding and Modelling the Airborne Spread of Highly Pathogenic Avian Influenza Viruses

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Highly pathogenic avian influenza (HPAI) H5 viruses continue to threaten poultry production, wildlife, and public health worldwide. Although direct contact is considered the primary transmission route, increasing evidence suggests that airborne spread may contribute to local dissemination. The INFLUE-AIR project aims to improve understanding of airborne HPAI transmission and its implications for surveillance and control. Laboratory and field investigations will identify and quantify key determinants of airborne spread, including viral excretion in aerosols and faeces, viral stability under different ambient temperature and humidity conditions, and infectivity of aerosolised virus. Air and dust sampling will be evaluated experimentally and during field outbreaks as a cost-effective alternative or complement to conventional individual bird swabbing for early HPAI detection in poultry flocks. Experimental and field data will feed epidemiological and atmospheric dispersion models to simulate viral emission, airborne dispersion, environmental persistence, and infection risk from infected poultry farms and contaminated wild bird faeces. The models will generate dynamic risk maps to support outbreak management and targeted mitigation strategies. By integrating all these virological, epidemiological, and meteorological data, the final model will support risk assessment, outbreak management, and targeted prevention strategies for the rising threat of HPAI viruses.

Keywords

High Pathogenic Avian Influenza (HPAI), H5N1, field sampling, parameter identification, modelling

Professional status of the speaker

PhD student

Junior scientist status

Yes, I am a junior scientist.

Registration ID

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