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*Human Disease Burden and Key Symptoms Associated with Highly Pathogenic Avian Influenza: A Systematic Review and Meta-analysis*

Highly pathogenic avian influenza (HPAI), referring to H5 and H7 subtypes of bird flu that lead to high mortality rates in poultry or wild birds, is an emerging zoonotic disease that poses a significant global public health threat because of its high disease severity and substantial mortality among infected individuals. The continued circulation among wild birds and poultry leads to the potential of causing future pandemics. Human infections with HPAI remain a major public health concern and are primarily associated with exposure to infected poultry. The risk is particularly high among individuals who have close contact with poultry on farms or in live poultry markets, or with wild birds along migratory routes.

Quantitative evidence on HPAI remains fragmented across geographical regions and viral subtypes. We conducted a systematic review and meta-analysis to assess the human disease burden, clinical severity, and key signs and symptoms associated with HPAI for the Americas and the European regions. Our systematic review and meta-analysis follow the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) guidelines. Although avian influenza incidence and prevalence were low across studies (incidence, 0.93%; prevalence, 0.83%), an interesting finding was the relatively high severity among confirmed cases, with pooled hospitalization, ICU admission, and mortality rates of 3.24%, 2.79%, and 1.51%, respectively. Our results also indicate that the leading signs and symptoms for HPAI are conjunctivitis/eye symptoms (89.5%), pneumonia (86.7%), and fever (61.0%).