

## Evolution of the influenza A(H5) haemagglutinin: WHO/OIE/FAO H5 Working Group reports a new clade designated 2.3.4.4

12 January 2015

Recent detections of highly pathogenic avian influenza A(H5N8) in East Asia and Europe, A(H5N8) and A(H5N2) in North America, and A(H5N6) in East and Southeast Asia, have prompted the WHO/OIE/FAO H5 Evolution Working Group to review and update the H5 haemagglutinin (HA) clade nomenclature (1-4), which was last revised based on sequence data available prior to December 2012 (4). Although a detailed report describing the update of the existing nomenclature is in preparation, considering the high likelihood that these viruses will continue to be detected and reported, timely communication of the new clade designation is warranted. The phylogenetic analysis of H5 HA sequences from these viruses revealed extensive divergence and indicated the need to update the clade nomenclature for H5N1, H5N2, H5N5, H5N6, and H5N8 subtype viruses clustering in this HA group. After careful analysis of all available H5 sequence data, this group of HA gene segments has been designated as **clade 2.3.4.4** and use of this unified classification is recommended. The virology, animal and public health communities are encouraged to adopt this clade designation for these H5 HAs and discontinue use of the provisional clade 2.3.4.6 designation, which was assigned tentatively during the WHO Vaccine Virus Consultation in September 2014 in reviewing and selecting candidate vaccine viruses of this emerging group of viruses (5).

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1. WHO-OIE-FAO, H5 Evolution Working Group. Toward a unified nomenclature system for highly pathogenic avian influenza virus (H5N1). *Emerg Infect Dis* 14, e1 (2008).
  2. WHO-OIE-FAO, H5 Evolution Working Group. Continuing progress towards a unified nomenclature for the highly pathogenic H5N1 avian influenza viruses: divergence of clade 2.2 viruses. *Influenza and other respiratory viruses* 3, 59-62, [doi:10.1111/j.1750-2659.2009.00078.x](https://doi.org/10.1111/j.1750-2659.2009.00078.x) (2009).
  3. WHO-OIE-FAO H5 Evolution Working Group. Continued evolution of highly pathogenic avian influenza A (H5N1): updated nomenclature. *Influenza Other Respi Viruses* 6, 1-5, [doi:10.1111/j.1750-2659.2011.00298.x](https://doi.org/10.1111/j.1750-2659.2011.00298.x) (2012).
  4. WHO-OIE-FAO H5 Evolution Working Group. Revised and updated nomenclature for highly pathogenic avian influenza A (H5N1) viruses. *Influenza and other respiratory viruses* 8, 384-388, [doi:10.1111/irv.12230](https://doi.org/10.1111/irv.12230) (2014).
  5. Antigenic and genetic characteristics of zoonotic influenza viruses and development of candidate vaccine viruses for pandemic preparedness, September 2014. ([https://cdn.who.int/media/docs/default-source/influenza/who-influenza-recommendations/vcm-southern-hemisphere-recommendation-2015/201409\\_zoonotic\\_vaccinevirusupdate.pdf](https://cdn.who.int/media/docs/default-source/influenza/who-influenza-recommendations/vcm-southern-hemisphere-recommendation-2015/201409_zoonotic_vaccinevirusupdate.pdf))
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The WHO/OIE/FAO H5 Evolution Working Group, established in 2007, consists of representatives from international agencies (World Health Organization, World Organisation for Animal Health, and Food and Agricultural Organization) and academic institutes. Since its establishment the committee has provided a framework and regular updates for the H5 nomenclature system.