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## Co-infection of avian influenza virus subtypes of low and high pathogenicity in poultry in Bangladesh challenges diagnosis and control

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E ndemic co-circulation of potentially zoonotic highly pathogenic (HP) H5N1 avian influenza viruses (AIV) of goose/Guangdong (gs/Gd) lineage and G1 lineage H9N2 in poultry in Bangladesh created environments favorable for diversifying evolution of AIV. From clinical samples of sector 3 chickens and a backyard duck with obvious respiratory clinical signs and systemic pathological lesions, we isolated by plaque purification a total of five subtypes (HP H5N1, HP H5N2, HP H7N1, HP H7N2, H9N2) and eight genotypes. H5 sequences grouped with clade 2.3.2.1a viruses that circulated in Bangladesh during 2012-2014. H9 HA derived from the G1/ H9N2 lineage. HP H7 sequences are previously undetected in Bangladesh linked to Pakistani HP H7N3 viruses of 2003. N1 segments of H5 or H7 viruses derived from preceding gs/GD clade 2.2.2 and N2 remained similar to G1/H9N2. Interestingly, most of the internal genome segments of the purified subtypes originated from clade 2.2.2 of H5N1 and few of them derived from G1/H9N2 viruses. The unexpected findings of mixtures of reassorted HP H5N1 and G1-like H9N2 viruses, which carry genome segments of older gs/GD clades in association with the detection of HP H7 HA

segments calls for confirmation of these results by targeted surveillance in the area of origin of the investigated samples. Hidden niches may exist that retain genome segments of older gs/GD viruses and other, previously overlooked AIVs with zoonotic potential that cause additional challenges for diagnosis and control.

## Biography

Rokshana Parvin currently works as a postdoctoral fellow at the Friedrich-Loeffler-Institute, Germany. She is holding a position of associate professor at the Department of Pathology, Faculty of Veterinary Science, Bangladesh Agricultural University. Her primary research interest includes molecular virology and pathology of emerging and re-emerging infectious diseases of poultry. She has built her carrier after years of experience in research, evaluation, teaching, and administration both in research and education institutions. Since 2007, she is working on avian influenza viruses and will refine her carrier as an influenza expert in her home country.

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