

Highly pathogenic avian influenza in Poland in 2020/2021

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Abstract

Poland was among countries hit the hardest by the epidemic of highly pathogenic avian influenza (HPAI) caused by H5 Gs/GD clade 2.3.4.4 virus in 2020/2021 season. In comparison with the onset of the season in other European countries, the first outbreak in Poland was diagnosed quite late (November 24th, 2020) and although more outbreaks were notified in the subsequent weeks, the situation remained relatively stable for at least two months. The characteristic feature of the first period of the season was a low number of HPAI cases in wild birds, mostly detected as a result of active search for carcasses in close proximities to affected poultry establishments. The situation changed significantly in February 2021, when the harsh winter conditions triggered mass mortalities in wild birds and the number of HPAI cases in wildlife surged. However, the drastic alteration in epidemiological dynamics occurred in March/April 2021, the period of time usually associated with the steady decline of HPAI epidemics. This time, however, the dispersal of wild birds (provoked by the rise of temperatures) had coincided with an upsurge of outbreaks in poultry. The virus was introduced in two regions with very high concentration of poultry production (Wielkopolskie and Mazowieckie provinces) and the epidemic rapidly escalated. The implementation of preventive culling of all poultry within the radius of 1 km around the confirmed outbreaks helped to curb the spread of the virus and starting in May the number of outbreaks began to drop. Altogether, during the 2020/2021 season, 358 outbreaks in poultry, 2 outbreaks in captive birds and 92 detections in wild birds (involving approximately 170 individuals, mostly mute swans) were confirmed. All viruses detected in poultry belonged to H5N8 subtype clade 2.3.4.4b. In wild birds, the vast majority of HPAI viruses were subtyped as H5N8 but single cases caused by H5N1 and H5N5 subtypes were also confirmed. The epidemic was characterized by a great diversity of poultry species (chickens, turkeys, geese, ducks), production categories (broilers, breeders, layers) and type of poultry establishments (from small backyard holdings with few birds to huge commercial farms up to 1 mln birds). In total, >12.5 mln birds died or were culled as a result of implemented control measures. The experience gathered during the epidemic has led to conclusion that conventional control measures in areas with very high poultry density may be insufficient to quickly contain the spread of the virus.