Department for Environment, Food and Rural Affairs
Animal and Plant Health Agency
Animal Health and Welfare Advice - International Disease Monitoring

Preliminary Outbreak Assessment

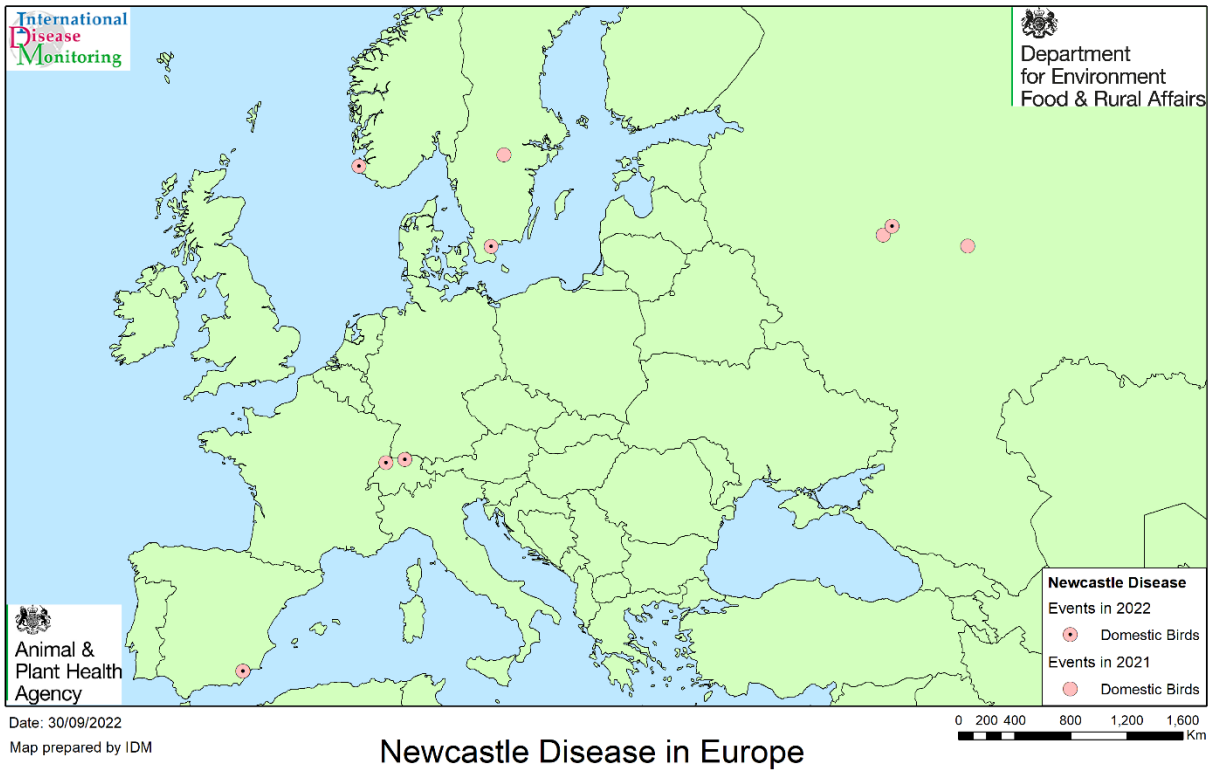
Newcastle disease in Norway

30 September 2022 Ref: ND in Norway

Disease report

In September, an outbreak of Newcastle disease (ND) caused by virulent avian paramyxovirus type 1 (APMV-1) was reported in commercial poultry at a premises in Klepp in Norway (WOAH, 2022). The premises had 7,500 laying hens present, and disease was detected following a decrease in egg production with low mortality. Disease control measures involving movement control, zoning, disinfection and stamping out have been applied, with surveillance to be implemented.

This is the first outbreak of ND reported in domestic poultry in Norway since 2003 when a premises with 112 mixed poultry in Hole municipality was confirmed. In August 2022, APMV-1) was detected in samples from dead city pigeons in Oslo (Norwegian Veterinary Institute, 2022).



Newcastle Disease in Europe
January 2021 - September 2022
(WOAH Data Only)

In 2022, there had been a total of 7 outbreaks of ND reported by the WOAH across Europe prior to the recently reported outbreak in Norway. One of these occurred at a backyard premises with 30 birds in Podolets, Russia, although the event actually occurred in December 2021. The other 6 outbreaks were on commercial farms. There were 2 premises with laying hens in Switzerland that have been linked to pigeon paramyxovirus-1, a sub-group of APMV-1 (Annaheim et al. 2022): one in Niederglatt with 500 birds and one in Develier with 14,280 birds. An outbreak was also reported in Kristianstad in Sweden at a premises with 40,117 laying hens, for which 60 cases of ND were reported. The remaining three outbreaks occurred in Huércal-Overa in Spain, affecting two broiler farms, one with 26,900 birds and one with 9,500 birds and a third poultry farm with 9,980 birds.

According to the Animal Disease Information System (ADIS), there were also single outbreaks of ND reported in Denmark and Germany although it is not clear whether these were in wild or captive birds (ADIS, 2022).

Situation assessment

Newcastle disease is a serious, notifiable disease of poultry which can cause large losses in unvaccinated domestic poultry, particularly chickens. It is considered endemic in many countries in Central and South America, Asia, the Middle East and Africa and is occasionally reported in Europe most often in backyard systems in the east.

The causative agent, virulent forms of APMV-1; (also known as Avian Orthoavulavirus-1, and formerly known as Avian avulavirus-1) is highly variable in its ability to infect different avian species and to cause differing severity of disease. The most virulent forms causes an acute, lethal infection in chickens and is referred to as Newcastle Disease Virus (NDV). Incursions of PPMV-1) into poultry from pigeons are also classified as NDV.

In terms of the diagnostic tests, the intracerebral pathogenicity index (ICPI) is the gold standard for pathogenicity determination and often velogenic viruses have an ICPI approaching 2.0 (all infected birds die within 24 hours).

NDV is transmitted most often by direct contact with diseased or carrier birds. Infected birds may shed the virus in their faeces, contaminating the environment. Transmission can occur by direct contact with faeces and respiratory discharges or by contaminated food, water, equipment, and human clothing.

The outbreaks of ND that occurred in Belgium in 2018, which included two commercial and 10 hobbyist poultry keeper premises serve to exemplify how rapidly the disease can spread when present.

Several genetic lineages within the APMV-1 group of viruses have been reported in recent years in the European Union (EU). Amongst the virulent strains are the genotypes VII (or

lineage ‘5’) XIII (5b lineage), and VI (lineage 4) which is primarily associated with pigeons. A previously unknown subgroup of genotype VII emerged in Europe in 2013 and subsequently spread, being associated with outbreaks in Bulgaria, Romania and the Republic of Cyprus. The rapid spread of a virus, shown to have derived from the Middle East/Central Asia region, was assumed to be as a result of human activity rather than wild bird mediated spread (Fuller et al, 2015) but has largely been associated with ‘backyard’ production. Anecdotally the virus has also been reported in flocks that were ND vaccinated but substantive data is either limited or lacking.

Newcastle disease is a mild zoonosis (disease of animals that can also infect humans) and can cause conjunctivitis in humans, but the condition is generally mild and self-limiting.

Vaccination of poultry against ND is not practised in Norway and the whole country is considered free from ND (EFTA Surveillance Authority, 2021). The detection in wild city pigeons in Oslo in late August, followed by confirmation of disease at a premises in late September suggests possible infection pressure from wild birds in Norway. Vaccination of poultry against ND is practised in the UK. In terms of trade, there have been no consignments of live poultry received in the UK from Norway since 1 January 2022.

The predominant route of entry of ND into the UK would be through trade in live poultry, although there are many wild bird species that can host ND. The precise host range of this virus is uncertain. PPMV-1 is thought to be endemic in Columbiformes world-wide and pigeons (Columbiformes) are known to be susceptible, but susceptibility for other bird orders vary with waterfowl (Anseriformes), gulls (Charadriiformes) and passerine birds (Passeriformes) known to be affected (WOAH, 2013). Gamebirds also vary in susceptibility and do present a theoretical pathway for introduction via trade; imported pheasants were proven to be the source of an outbreak in southern England in 2005 (Aldous et al. 2007).

The risk of introduction of ND to the UK is considered to be **low**. Although the location of the outbreak in Norway is close to the UK, there is limited trade with Norway and no evidence of reduced efficacy of the vaccines currently used for poultry in the UK.

Conclusion

The WOAH has reported an outbreak of ND at a commercial premises in Norway. This follows the detection of ND virus in samples from dead city pigeons in Oslo in August.

As the variety of species of wild bird which may be susceptible and may act as a reservoir for ND is wide, we generally consider there is a constant low risk of introduction of APMV-1 into the domestic poultry sector; hence the recommendation for poultry keepers to consider vaccinating their flocks. The risk of introduction of ND to the UK is considered to be unchanged, at **low**. Disease may be introduced via trade, wild birds or fomites. Reports to date have indicated only mild clinical signs so it is possible that producers would not report signs of disease.

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We will continue to monitor the situation closely, as this is an important exotic disease which will be a concern for Europe in terms of its ability to spread and the impact on poultry.

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