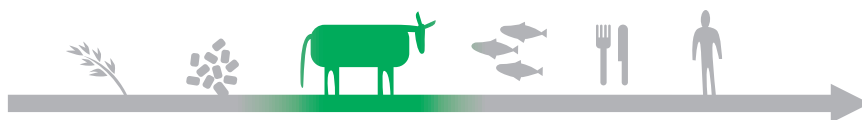


The surveillance programme for avian influenza (AI) in poultry in Norway 2016



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Summary

Surveillance in 2016 did not detect infection with highly pathogenic influenza A virus in poultry.

Introduction

The Norwegian Food Safety Authority is responsible for implementing the surveillance programme for avian influenza (AI) in poultry. The programme, which was started in 2006, is based on serological investigations of poultry. The Norwegian Veterinary Institute is responsible for planning, laboratory investigations and reporting components of the programmes.

AI is a serious, highly contagious disease of poultry and other captive birds caused by many different subtypes of influenza A viruses. The level of risks posed by the different subtypes for animal and public health is very variable due to rapid virus mutation and possible re-assortment of the genetic material between different subtypes.

Current knowledge indicates that the health risks posed by the so-called Low Pathogenic AI (LPAI) viruses are lower than that posed by Highly Pathogenic AI (HPAI) viruses. The HPAI viruses originate from a mutation of LPAI viruses of either H5 or H7 subtype. HPAI can cause disease in poultry resulting in mortality rates exceeding 90 %.

In general, domestic poultry populations are free from AI viruses. However, wild waterfowls are the natural reservoirs for all influenza A virus subtypes. Infected birds do not usually develop clinical disease, but may shed large amounts of virus upon infection (1). The national surveillance programme for AI in poultry was started in 2006 and modelled on EU's Council Directive 2005/94/EC.

HPAI has never been reported or diagnosed in poultry in Norway.

Aims

The aim of the national surveillance programme for AI in poultry is to document that the various poultry populations in Norway are free of influenza A virus of sub-types H5 and H7 and to contribute to the maintenance of this status.

Materials and methods

The programme in 2016 consisted of serological screening of blood samples from poultry. Poultry deemed at risk for exposure to influenza type A were preferentially sampled as outlined in EU's AI Directive Annex I. The sample selection was based upon a risk assessment published by the Norwegian Veterinary Institute in February 2006 (2). The sample selection included chickens, turkeys, ducks, geese, quails and emu.

In addition to the samples taken from farms on the basis of the risk assessment (2), samples from breeding flocks were also tested for AI. According to the national regulations for certification of poultry breeding farms (3), blood samples from 60 birds must be taken annually from every breeding flock at the farms. These blood samples are to be tested for Newcastle disease, as Norway is a non-vaccinating country. Ten of these 60 samples are also included in the national surveillance programmes for AI.

Blood samples were collected from at least 10 birds per holding. An exception to this was waterfowl, from which 50 samples were collected. If there were more than one shed on the holding, all sheds were sampled. In those instances where the flock size was less than the number required, all birds in the flock were sampled.

Chickens and turkeys

An indirect ELISA kit produced by IDEXX Laboratories (IDEXX AI Ab Test) was used for the testing of antibodies against influenza A virus. The test has been demonstrated to detect antibody reactivity to 20 different subtypes of avian influenza including 14 hemagglutinin glycoproteins and the H5N1 subtype.

Positive and inconclusive ELISA results were retested in duplicate with the same test method. In cases of positive or inconclusive retest results, the sample was retested for antibodies against H5 and H7 with the haemagglutination inhibition (HI) test as described in the OIE diagnostic manual (3). In cases of positive or inconclusive results with the HI test, the flock was resampled with at least 10 new animals. A single positive or inconclusive sample in the surveillance programme was considered a false positive if clinical signs of disease were absent in the flock, and all resampled birds were negative for antibodies against AI virus.

Other poultry

All serum samples from species other than chicken and turkeys were tested for specific antibodies against both H5 and H7 with the HI test. Positive or inconclusive results were followed up with retesting in duplicate using the same method, and resampling of the flock in cases of positive or inconclusive results in the retesting.

Results and Discussion

Table 1 shows the number of flocks and birds tested in 2016.

The number of domestic poultry flocks sampled relative to the Norwegian poultry population was adequate in achieving a high confidence in ascertaining its disease free status for AI. Besides the surveillance programme, there were additional samples taken for the purposes of diagnosing disease, production problems and the control of imported animals were also screened for antibodies against Influenza A virus or H5/H7. All were negative.

Table 1. Number of certified breeder flocks, commercial flocks, and birds tested in the surveillance programme for AI in poultry 2016.

Species	Certified breeder flocks		Commercial flocks		Total
	Flocks	Animals	Flocks	Animals	Animals
Chicken	98	980	58	580	1 560
Turkey	8	80	41	410	490
Duck	3	150	1	50	200
Goose	2	99	1	50	149
Quail	0	0	6	126	126
Emu	0	0	1	7	7
Total	108	1 240	110	1 589	2 534

References

1. Webster RG, Bean WJ, Gorman OT, Chambers TM, Kawaoka Y. Evolution and ecology of influenza A viruses. *Microbiol Rev* 1992; 56: 152-79.
2. Gjevne A-G, Handeland K, Jansen PA, Lyngstad TM, Ytrehus B. Risiko for smitte med høypatogen aviær influenza (HPAI) H5N1 fra ville fugler til fjørfe i Norge [Risk of transmission of HPAI H5N1 into the Norwegian poultry population via wild migratory birds, No]. Special report 2006. Oslo: National Veterinary Institute; 2006.
3. Office International des Epizooties. Manual of standards for diagnostic tests and vaccines for terrestrial animals (mammals, birds and bees). Vol 1. 5th ed. Paris: Office International des Epizooties; 2004. Updated version for AI from May 2005: http://www.oie.int/eng/normes/mmanual/A_00037.htm

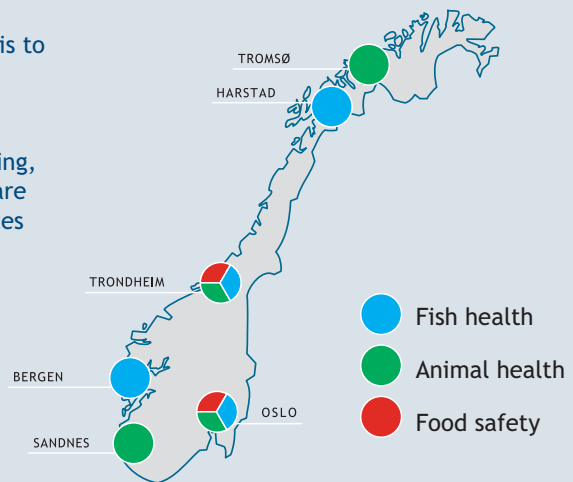
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