

The surveillance programme for avian influenza (AI) in poultry in Norway 2015



Surveillance programmes for terrestrial and aquatic animals in Norway

Annual report 2015

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ISSN 1894-5678

Title:

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Date: 2016-03-17

Front page photo: Processed from Colourbox

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Example of citation:

Sjurseth SK, David B, Er C. The surveillance programme for avian influenza (AI) in poultry in Norway 2015. *Surveillance programmes for terrestrial and aquatic animals in Norway. Annual report 2015*. Oslo: Norwegian Veterinary Institute; 2016.

The surveillance programme for avian influenza (AI) in poultry in Norway 2015

Siri Kulberg Sjurseth, Bruce David, Chiek Er

Surveillance in 2015 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 2015 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 and quails.

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 and quail flocks, 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 haemagglutinin glycoproteins and the H5N1 subtype.

Positive and inconclusive ELISA results were retested in duplicate with the same test method. In cases of a 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 resampling of the same flock and 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 2015.

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 in 2015.

| Species | Certified breeder flocks | | Commercial flocks | | Total |
|---------|--------------------------|---------|-------------------|---------|---------|
| | Flocks | Animals | Flocks | Animals | Animals |
| Chicken | 94 | 940 | 52 | 520 | 1 460 |
| Turkey | 10 | 100 | 43 | 430 | 530 |
| Duck | 4 | 200 | 10 | 499 | 699 |
| Goose | 0 | 0 | 1 | 50 | 50 |
| Quail | 0 | 0 | 4 | 90 | 90 |
| Total | 108 | 1 240 | 110 | 1 589 | 2 829 |

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The Norwegian Veterinary Institute (NVI) is a nationwide biomedical research institute and Norway's leading centre of expertise regarding biosafety in aquatic and terrestrial animals. The aim of the Institute is to become Norway's contingency centre of preparedness for One Health.

The primary mission of the NVI is to give research-based independent advisory support to ministries and governing authorities. Preparedness, diagnostics, surveillance, reference functions, risk assessments, and advisory and educational functions are the most important areas of operation. The Institute has its main laboratory in Oslo, with regional laboratories in Sandnes, Bergen, Trondheim, Harstad and Tromsø, with about 330 employees in total.

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The Norwegian Food Safety Authority (NFSA) is a governmental body whose aim is to ensure through regulations and controls that food and drinking water are as safe and healthy as possible for consumers and to promote plant, fish and animal health and ethical farming of fish and animals.

We encourage environmentally friendly production and we also regulate and control cosmetics, veterinary medicines and animal health personnel. The NFSA drafts and provides information on legislation, performs risk-based inspections, monitors food safety, plant, fish and animal health, draws up contingency plans and provides updates on developments in our field of competence. The NFSA comprises two administrative levels, five regions in addition to the head office, and has some 1250 employees. The NFSA advises and reports to the Ministry of Agriculture and Food, the Ministry of Trade, Industry and Fisheries and the Ministry of Health and Care Services.

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