



Q & A 'What about Avian Influenza', 28 January 2021

Prof Thijs Kuiken & Dr. Nancy Beerens have answered all questions asked in the chat during the NCOH webinar 'What about Avian Influenza' on 28 January 2021.

Q & A list belonging to the NCOH Webinar webinar 'What about Avian Influenza' on 28 January 2021
<p>Q: Might the cause for the increase of reported dead wild birds partially lie in the fact that many more people spend time walking in nature, due to the COVID-19 restrictions, and find dead birds?</p> <p>A: Good question. However, on discussing this question with field organisations, the opposite seems to be the case. The general public typically visits easily accessible locations and report dead wild birds from there. However, most of our dead wild bird reports come from (semi-)professional field people, and they have substantially reduced their presence in the field (especially less accessible nature areas) because of the COVID-19 restrictions.</p>
<p>Q: In addition the Netherlands implemented a rapid alert system and keeping poultry indoors during outbreaks in the wild population.</p> <p>A: Agreed. Soon after the first detection of HPAIV in wild birds (mute swans in Kockengen), there was an order to house all poultry indoors.</p>
<p>Q: Thank you. One thing that have been suggested before is compartmentalisation? How do see this proposal to avoid export restrictions and maybe to avoid restrictions on free range</p> <p>A: Compartmentalisation is a measure to distinguish between geographical areas where HPAIV is present and restrictive measures (indoor housing, export stop) are needed to prevent virus spread, and clearly separate geographical areas where HPAIV is not present and restrictive measures are therefore not needed. In the sense that it allows free-range poultry to keep on having outdoor access, it is beneficial to poultry health and welfare.</p>
<p>Q: What is going on at the moment? Are you observing the outbreaks in wild birds now?</p> <p>A: Dead wild birds are still found and submitted for testing. The peak was in November, when almost 300 birds were tested. Around 50% of them tested positive for H5 virus. In December the number of birds tested declined to 100, and only 10% tested positive. Similar numbers are expected for January 2021.</p>
<p>Q: 70% of outbreaks have happened in indoor holdings</p> <p>A: All of the outbreaks occurred after the government decided that poultry must be kept indoors. However, indeed several of the infected poultry holdings in the Netherlands normally keep their birds indoors, including a broiler breeder holding and a layer breeder holding.</p>
<p>Q: Do your additional measures have any influence on wild birds with HPAI coming from Asia?</p>



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A: If implemented in Asia, they would reduce the risk of HPAI conversion events in poultry holdings and spill over into wild birds. Unfortunately, the current H5 HPAIV appears to be adapting better and better to circulation in wild birds. If it can be maintained in wild bird populations in absence of its presence in poultry (like bovine tuberculosis in the U.K. appears to be maintained in wild badgers), it will become very difficult to improve the situation for wild birds, and to take away the risk of incursion into poultry holdings from the contaminated environment.

Q: Growth of broiler production was high in the last 70 years. How did it compare with growth of the human population?

A: Good point, and important to check. According ourwordindata.org, the human population in Europe increased 1.2X between 1961 (611 million people) and 2014 (742 million people), while poultry meat production in the EU in that period increased 6.7X. The human population in the Netherlands increased 1.5X between 1961 (11.61 million people) and 2014 (16.89 million people), while poultry meat production in the Netherlands in that period increased 12X. Therefore, the increase in poultry meat production was substantially higher than human population increase, both at the level of Europe and of the Netherlands.

Q: Hi great talk, thanks!! I have a question related to one of your aims which (if I understand well) is about inferring the wild bird mortality (in % of the population), I just wonder how do you plan to make such type of inferences?

A: For certain species of interest, e.g. barnacle goose, we will compare the estimated mortality rate (based on the collated dead wild bird reports during the period of the outbreak, corrected for duplication and background mortality observed in other years) to the estimated wintering population (based on winter bird counts by ornithologists).

Q: Should a HPAI vaccination strategy require system to quickly adapt to circulating variants (similar to human)?

A: Yes, as avian influenza viruses evolve quickly, regular update of vaccine strains is required.

Q: Would you suggest that poultry meat currently has a greater negative impact on our "one health" than other sources of meat?

A: Per kg of protein, poultry meat has a lower impact on both environmental health (e.g., in terms of greenhouse gas emissions) than pig meat or ruminant meat (see Poore and Nemecek 2018 [DOI: 10.1126/science.aag0216] for a review), but higher per kg protein from plant crops (e.g. pulses). At the global level, the problem is that this advantage of poultry meat is counteracted by the high poultry meat production (and related consumption). Poultry meat production was 36% of global livestock meat production in 2017, higher than pig meat production (35%) and cattle meat production (20%).

At the level of overall livestock production in the Netherlands, the poultry sector (both poultry meat and eggs) has between one-quarter and half lower impact on environmental health (greenhouse gas emission, land use, water use) than the cattle sector, and roughly the same as the pig sector. However, regarding human health, disease burden from particulate matter of the poultry sector is equal to that of the cattle sector and about one-third higher than that of the pig sector; disease burden from zoonoses, particularly Campylobacter infection, is more than twice than those of the cattle or pig sectors. See Post et al. 2020 (<https://doi.org/10.1016/j.scitotenv.2020.139702>) for details.

Q : How is decreasing intensive farming in Europe decreasing the number of outbreaks in wild birds? You suggest it will improve the situation, although it merely looks like an outbreak in wild population, which is just incidentally spilling over to commercial farms.

A: You are right that decreasing intensive poultry farming in Europe will not stop the current H5 HPAI outbreaks in wild birds, which are related to the spill over of H5 HPAIV from poultry to wild birds in Asia, with subsequent long-distance spread elsewhere, including to Europe. Changes would be needed to be made there to solve the cause of this problem. However, reducing the number of poultry in the Netherlands, together with having more



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distance in between poultry holdings and no poultry holdings in water bird habitat, would reduce the risk of incursion of the current H5 HPAIV from wild birds to poultry, and would make it easier to control HPAI outbreaks in poultry, and therefore keep them small. It also would reduce the risk of HPAI conversion events in poultry in the Netherlands, as occurred in 2003. The same as suggested here for the Netherlands would be relevant to evaluate for other poultry-dense regions in Europe.

Q: How reliable are the figures about hobby farms? Is it possible there is some under-reporting ?

A: This figures on “hobby farms” include hobby holdings, captive birds, care farms, petting zoos, recreation parcs and more.

Q: What to do when you find an injured or dead bird? Normally I would call the animal ambulance, but are they all informed what to do and where to report?

A: Yes, the animal ambulances are informed on the birdflu situation. See for example: <https://www.nvwa.nl/onderwerpen/vogelgriep-preventie-en-bestrijding/documenten/dier/dierziekten/vogelgriep/protocollen/handleiding-voor-het-opruimen-van-dood-gevonden-wilde-watervogels>, and <https://www.dier.nu/bf/nieuws/handvatten-voor-omgang-met-vogelgriep>.

Q: What samples are taken from dead birds?

A: We take swabs from trachea and cloaca of dead birds

Q: How worried are you about the H5N1?

A: The H5N8 virus that is predominantly detected in wild birds and poultry in Europe has not been reported to infect humans, so we are not so worried (but still cautious) about it from the point of view of its causing illness in people. The H5N1 virus that are currently detected in the Netherlands and elsewhere in Europe is not the same H5N1 virus that has caused severe illness and mortality in people, mainly in Asia; instead, it is a reassortant virus. This reassortant virus has the haemagglutinin ('H5') of the predominantly circulating H5N8 virus, and the neuraminidase ('N1') of a low pathogenic avian influenza virus that normally is present in free-living wild birds in Europe. We also are not so worried about this reassortant, because we expect is to have a similar low risk for human health, although this has yet to be confirmed in the laboratory.

Q: Was there a difference in virulence between H5N8 and H5N1?

A: Both viruses were tested in an IVPI, the pathogenicity for chickens is similar.

Q: Are we, in any way, incorporating swine into the monitoring strategy given their role as an intermediate host?

A: No, there is no monitoring program for swine flu in the Netherlands. The H5 HPAI viruses were introduced into poultry by infected wild birds, this is the main route of introduction of these H5 HPAI viruses.

Q: Zoo birds are vaccinated?

A: No, Zoo birds are not vaccinated against HPAI viruses in the Netherlands, although it was done in 2003, when another HPAI virus, of the H7N7 subtype, caused a big outbreak in poultry in the Netherlands.

Q: In addition: part of the Dutch approach is to update the public about the outbreak and zoonotic risks. Is there an inside in this approach in other EU member states?

A: This is similar in other EU counties. There is also information provided by international organisations like EFSA, FAO, OIE and WHO.

Q: When we would be able to vaccinate all commercial poultry what kind of vaccine type would you use? mRNA or other vector vaccines or inactivated vaccines? Why?



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A: The vaccine must be suitable for mass application in poultry. As mRNA vaccines would require individual injection, vector vaccines would be more promising.

Q: Are all dierenambulances and animal shelters informed that they should bring carcasses to WBVR?

A: All dead birds can be reported to the NVWA or DWHC, these organizations can submit birds for testing to Wageningen Bioveterinary Research (WBVR).

Q: Can we estimate/predict the dates of wintering/breeding/migration periods of wild birds?

A: The exact timing depends on the bird species and is partly dependent on the weather conditions. In the Netherlands, we work closely with Sovon (Dutch Centre for Field Ornithology; <https://www.sovon.nl/en>) for detailed information, as well as with Euring (the coordinating organisation for European bird ringing schemes; <https://euring.org/>). As part of the European project Delta-Flu (<https://delta-flu.fli.de/de/home>), we are also placing radio trackers on selected waterbird species in order to study their movement ecology more closely.

Q: Isn't it time for a conference on the vaccine possibilities ?

A: Yes, vaccination should be discussed internationally, as the situation is very complex.

Q: is there a policy from the government on where to bring the wild birds and on quarantine measures that bird shelters need to apply?

A: Yes, a protocol for this has been provided by the NVWA. See also answer to a similar question above.