

Workshop 4

Control measures and legislation

Chairman: Frits Pluimers

Frits Pluimers: I propose to concentrate on three items:

1. Is it necessary to control LPAI to accomplish the good control of HPAI?
2. About monitoring and surveillance, both in domestic and wild birds, is it necessary? What's the consequence for trade? Provide legal basis for monitoring and surveillance of LPAI in commercial and domestic animals or wild birds?
3. How can we achieve regionalization and compartmentalization in AI control?

Alberto Laddomada: The problem is: surveillance for AI in wild birds or commercial birds? Is surveillance of wild birds really necessary? We know that the virus is there and we cannot eradicate it. Maybe it's good to keep a good bank of virus strains for any purpose, molecular epidemiology or future vaccines, but I wonder if this is useful to prevent LPAI. What is a domestic bird? Is it a zoo bird, backyard bird? Do these birds play a role in the epidemiology of LPAI? Is it so important that we should focus our attention and resources on it?

Frits Pluimers: So we change the second item to: what types of birds should be monitored and surveyed for LPAI, how can we prevent trade complications by being open about the results?

Remco Schrijver: I think the discussion has not started, that's why there is a question mark. After the presentation by Ron Fouchier, we realize there is a reservoir of virus in wild birds. There is certain risk but we have a lack of knowledge, which means we have to do something about it. What exactly is there is something we can explore further, but can we neglect it or should we do something about the reservoir?

Frits Pluimers: Since the questions are about point two, let's concentrate on the second point first.

David Swayne: Just to make a comment on the surveillance issue. I think from a scientific standpoint, it's very critical to have surveillance in wild birds. The intervention strategy will vary, for example, what is the purpose of wild-birds surveillance? I think it's to establish what virus strains are circulating in wild birds, so you can already have an idea what to be looking for as precaution and prevention of the movement from wild birds to domestic birds. It can also help you in preparing, if you do have an outbreak, to have virus strains available for vaccine development. Surveillance can help us to understand what the risks are per year and individual species, mitigation factors to prevent transmission from wild birds to domestic birds. As far as controlling the population for wild birds, it's more feasible than to control the behaviour of people who raise domestic birds.

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Ron Fouchier: I agree with that statement. There should also be some legal basis for it. When we started wild-bird surveillance studies, we didn't get permissions from many European countries. They didn't allow us to monitor their wild birds because they didn't want to know what's in their wild birds, probably for trade purposes. They were afraid that if we found there was H5 in their wild birds, some countries might stop importing poultry. I think it's important to include all countries and include all species of the birds around Europe, not just in The Netherlands and Sweden.

Arjan Stegeman: I think we are now partly repeating what we discussed yesterday morning, when the majority here came to the conclusion that surveillance would be useful for molecular epidemiological purposes to have the reagents and to know what's going on. But from an early-warning perspective, where David Swayne is now referring to, the conclusion was that the perspective was not very well. Then Dennis Alexander gave us an example of the Great Lakes in the US, where vaccines were made from the strains isolated from wild ducks. I thought from his remarks that he was not convinced that it's a great success.

Dennis Alexander: My understanding was that Minnesota decided it wasn't a success, that's why they moved their turkeys to indoors.

David Swayne: The Minnesota situation varies from year to year. For example in the peak time of ranging around maximum 5% of the birds are on range so 95% are raised indoors, but they do have a pretty good correlation: when they reduced the number on range in the end of 1996 to zero, the outbreak went to zero. But over time, poultry people may forget that and want to put them outside on range. So currently some of the companies are putting more birds on range. Eventually they will probably have an influenza outbreak again. But the surveillance will give an idea to know which is the highest risk we are looking for.

Charles Beard: Concerning surveillance, I remember when it all started when Dick Slemons accidentally found AI in waterfowl in California during the Newcastle programme in the early 1970's, they were trying to determine if the waterfowl was involved in the epidemiology of Newcastle during their control effort. He got this haemagglutinating virus that was not prohibited by antiserum and started this whole global surveillance over several decades, and I shudder to think where we would be sitting around this table if we did not know AI came out of waterfowl and shorebirds and seabirds. So you can't always predict what the future is going to hold. Yesterday we heard about a new haemagglutinin type that has been discovered in black-headed gulls. So I think we certainly need to continue surveillance because we cannot predict where to find it. And there maybe discoveries down the road that will stun us concerning AI. I think it would be ostrich syndrome with the head in the sand to stop monitoring what we know to be the natural host of AI.

Tjep de Vries: Is there any practical evidence that this knowledge has led to the prevention of AI into commercial poultry? Or is this just for general knowledge to have an idea what influenza types are going around and afterwards to explain how it entered poultry?

Charles Beard: I certainly think it influenced the way in which we have responded in influenza control programs. Those Minnesota people are a good example. Our neighbours, the Canadians were influenced too. Of course a lot of things we do are probably based on the knowledge we have but we don't realize that's influencing our decision. I think it's been important information to have.

Tjep de Vries: Can I make a conclusion that it is more important to know where they are, which birds are carrying them than the types, because I think subtype is not so important?

Charles Beard: you are assuming that only H5 and H7 are the ones that we need to worry about, but there might be H17, H18..... I remember there were only 6 haemagglutinin types.

Tjep de Vries: I was wondering if there has been any direct relation between finding a type of AI virus and epidemic problem with the same type so you can say indeed this is the source of the problem.

Charles Beard: I heard your people in The Netherlands say yesterday that H7N7 was a reassortment that occurred in the waterfowl and then entered poultry. I think that information is beneficial and important to consider.

Remco Schrijver: I support Arjan Stegeman. It's important to do surveillance in those wild animals but not as an early warning, but as a tool in risk assessment in providing antigens and possible reagents for future vaccine through diagnostic test. An important consideration is that it is useless to do it in one country, it should be done in at least all member states and preferably globally; then you can have something that you really work on.

Peter Cargill: I think we have to stand back again and first of all consider the cost implications of including wild birds because if we are going to have surveillance in wild birds, we will have to have surveillance in commercial poultry. That's already a big cost burden. Even if we know if there is H5 in the wild birds, all we can do is to nudge everybody to improve the biosecurity which we know will be lacking. But we can't actually do anything to prevent it to get in other than reminding everybody it is there. If we are going to include wild birds, we are going to have to look at the data that Ron Foucher put up yesterday. We have to target the bird species that we perceive as the biggest risk. I think it is unworkable to look at every wild bird in every country. All we are going to do is to find it every time. So I think we have to target that monitoring.

Kennedy Shortridge: I think knowing what is up there is very important and this is going to be done in a very systematic way, we've got to link hands with ornithologists to have good feedback banning a bird. So this is a complex issue. The best we can get is a sort of surface of the possible likelihood of virus being a trouble to poultry industry, but not the mechanism.

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Remco Schrijver: I agree with the view that that there is a risk we should look at and it will be very costly. But we should not forget that it has also a human impact. We mentioned the collaboration between WHO and OIE, there should also be resources that we could use. Of course, we should prioritize our resources, but we cannot say that we can neglect to look at those animals.

David Swayne: I think the answer is not whether you spend all your surveillance money to wild birds or none. There are not just two choices. I think it's important to spend some of the resources on wild-birds surveillance because it does have some practical applications in two ways. One way is a general concept of knowing something about the ecology, as Ken Shortridge was saying, so that you know whether all wild birds in that area are a risk or not. If they are, then you need to alert the industry to improve their biosecurity. The other is for the specific information on what subtypes there are. The surveillance information is important to the industry.

Ilaria Capua: I don't think we need a legal basis for monitoring LPAI in wild birds. We know the virus is out there. Some member states have more resources and recognize AI as a greater problem and therefore they should invest or put more resources in wild-birds surveillance. But I don't really think we should make this a legal issue. What is missing is a legal basis to control LPAI. In my opinion, that is the priority number one in the control.

Frits Plumiers: I hear that monitoring wild birds is good to have an idea about what is present in the wild population. It is good to focus on certain migration patterns. So don't do it everywhere. And it is good to look at special methods to pick up what is really passing there. Maybe the sentinel ducks are a good example. Shall we then go on to the next point?

Ron Fouchier: I want to comment on the issue of picking an area; we only know migrating birds are playing a role. The danger is that you will not see new things. You have to look at other species of birds in other areas, there are geographic differences in the species of birds that are infected. I think it is very dangerous to look only in ducks in areas we have already been looking in, then we can only find the known virus.

Frits Plumiers: Shall we move to commercial flocks? What is necessary and what is rational to do there?

Arjan Stegeman: Since this is also the debate in The Netherlands, I think what is lacking now is to implement an efficient surveillance programme; we would need more knowledge first on the dynamics of the infection between flocks with LP strains. Perhaps our Italian and American colleagues could help us with that knowledge? The number of infected flocks has a high impact on the timing that the infection occurs and on the probability of finding this LP strain. And we would need some knowledge of the rate at which this LP strain reverts to HP strain. Apparently in the Italian situation, it took quite a long time before it became highly pathogenic but in the Dutch situation, also from Dennis Alexander in the UK there is an example, it appeared very quickly. In such situation, it is very demanding on the frequency you collect samples to detect it soon enough.

Dennis Senne: In the US, surveillance is very important for us as an industry. We perform somewhere about 1.5 million serologic tests per year for surveillance of AI. It varies from state to state depending on the size of the industry in different states. Some states test every production flock at slaughter. In some cases, the event I spoke about in Virginia actually picked up first in serological surveillance of the turkey flock that was shipped from North Carolina to Virginia. That led to further investigations in North Carolina, and also the first case in Virginia was picked up based on clinical disease. So we actually have both a combination of path surveillance where we look at the respiratory or other clinical diseases that are comparable to AI, and we also have aggressive active surveillance programmes based on serological test. USDA provides reagents for the AGPT test free of charge for domestic surveillance. We do charge those for export purposes because there is financial gain for companies who do that. We feel that this type of surveillance is very critical in our detection in knowing where these infections in commercial poultry exist. I would eventually say that we probably test more than other countries and that's probably why we report more LPAI than other countries in the world.

Frits Pluimers: So the conclusion can be that monitoring LPAI in commercial flocks is good to have an impression about what the situation is within the areas in your country. But the question of Arjan Stegeman remains: is it a tool for rapid detection?

Dennis Senne: I think if The Netherlands would have had an active surveillance programme in place, you would have detected this infection before the epidemic.

Frits Pluimers: I don't believe that. We did some monitoring afterwards. Samples were taken between end November and the beginning of February. From 1200 farmers, 27,000 samples, we found only 3 positive flocks, they were of another type than H7N7 and in a different region that had no contact. There is no indication in this monitoring that the same type has played a role extensively in this country.

Guus Koch: I don't believe in serology as an early warning for AI infections. As an example I can refer to what I presented yesterday about our monitoring programme. If you looked in random samples, you didn't find anything. But in those samples that were sent in because people found problems, there the positive farmers were. Looking retrospectively they had problems already 2 or 3 months before. Comparing the time point of infection and when serum samples were taken, it would have been retarded about 6 months. If you would have taken sample at slaughterhouse, it can be even a year, in case of layers.

Dennis Senne: I would have agreed with that. But here again you have to have a combination of both passive and active surveillance. We have had many producers in the US that have had production flocks that have met every expectation in terms of efficiency of production but still were positive for AI antibodies at slaughter. There was no evidence whatsoever of clinical disease. There were other situations where some flocks will be clinical; that depends on the virus strains. So you can't rely entirely on active or passive surveillance to detect with LPAI.

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Dennis Alexander: I want to mention what I have said twice before. I can't see any justification in doing surveillance if we are going to do nothing about any infection that we find. What Dennis Senne is talking about is that any AI virus is worth being looked for. But it seems to me what we should concentrate on and what we are going to do about H5N7s is whether we should have a legal basis put in place for insisting on surveillance for H5N7s or not. But there is no point in doing that if we are going to run with the definition of statutory AI that we have at this moment, we are doing nothing about the fact that we find LPAI like some member states in Europe did. You must first make a decision on what viruses you want to have a statutory controllable AI virus. When you have done that, you can then decide whether you should do surveillance or not. To do the other way around, it just seems pointless to me.

Ilaria Capua: I actually agree with Dennis Senne. After our H7N1 epidemic, we put up a surveillance programme because we wanted to be able to detect new introductions and in fact the H7N3 was picked up in surveillance. I think relying on submission of clinical cases is not that reliable simply because it depends on how adapted the viruses are to the host. So when we had our first introduction of H7N3, there were no clinical signs, no problems in the flock that was picked up for slaughter. We looked for the virus but we couldn't find it until it popped up again and we found it through surveillance and were able to isolate it. Serological surveillance is not always the best tool because we all know that animals take time to seroconvert and it depends on how your monitoring system is structured, but in many cases it's better than nothing. It has the utility that for us it worked.

Frits Plumiers: So the serological surveillance has its value to detect a problem that you cannot find by clinical symptoms. Then you can go ahead to investigate if it's circulating. It's only a tool for low-pathogenic AI that is not detected by clinical symptoms. Besides this type of passive monitoring, you need active monitoring. How should that be carried out?

Sjaak de Wit: If it's only for finding LP that was subclinical, I think that's a little too simple. It can also be a clinical problem but not recognized as AI. There are so many other chicken diseases that look like LP that people think it's another disease. Even then, you'll only find it by serology but not by clinical signs, because people do not send their chickens to check for AI. So it's more important than just finding subclinical infections.

Alberto Laddomada: I have a comment on what Dennis Senne said. I think we must look at the future legislation as a whole. We cannot disregard the fact that legislation has an impact on the measures. What I found weak in the option 2 of the scientific committee is that it's just simple transposition from LP to HP to solve the problem. This is a too easy approach. We know how difficult it is to apply legislation properly so we are blaming Brussels because we don't have measures that correspond to the actual situation found in the field. But there is a tendency to simplify things that are by their own nature so complex that you cannot respond in a simple way. We must look at the things in this complexity. In the case of surveillance for AI, I see a risk, mentioned by Dennis Senne: who looks more is penalized. This is not acceptable. This worries me. I think that basically, what we can say with regard to surveillance is that passive surveillance is important, active surveillance should be targeted to pick up the virus as early as possible with as little cost as possible and with as little trade

restriction as possible. We must have some rules on surveillance. I have some criticism on the US approach, because it is too much devoted to trade purposes. I think disease control first and trade second. I understand that your industry has been challenged by its international orientation. Therefore it wants to go for surveillance even when from an epidemiological point of view this is required, just to make your trade partners happy. We understand this is your current approach. But we think it is not the trade consideration that should be privileged but disease control.

Dennis Senne: As a response, I would disagree to some respect to that. If trade is our primary goal, less testing would be to our advantage. Our industry is extremely concerned about influenza, not only H5N7 but also influenza in general. It is truly a concern of our industry not to allow this particular disease to circulate in the industry. In that regard, I would contradict your comments previously. But we do get penalized, as you know. If we didn't look and didn't find these LP strains, we wouldn't be penalized in our export market. But we do look and do report them, in spite of the penalty that comes with it.

Frits Plumiers: Shall we go now to the first problem? Shall we control LPAI in commercial poultry? With the direction the OIE is going, I think we have to. The problem then comes as Alberto Laddomada stated earlier: that the people who are looking and doing their job on LP will have trade consequences in countries that are not doing it and believe they are disease-free and impose trade barriers because of this. On the other side we have to control LPAI and prevent HPAI, so how can we control it and what measures should be taken?

Arjan Stegeman: Maybe you could add to that what will be the consequences of finding LPAI in your country. If we would really put all these strains in the same category, we would also have the OIE legislation afterwards that, after finding these cases, we would be out of business for 6 months. In The Netherlands, if as Guus Koch said we would find 4 introductions in one year, we could stop raising poultry here.

Guus Koch: We seem to go in circles. We should have scientific advice here and later see what happens from a political point of view. Otherwise we cannot come to an advice. I agree with Dennis Senne that we should control LPAI outbreaks in the same way as we do HPAI, not only for economic reasons for the poultry industry but also for public health. What we now know is that the HPAI H7N7 is dangerous for humans, for which we had 82 cases of conjunctivitis and one death. But what we don't know is whether the LPAI has the same capacity. There is really a public issue until we have excluded this.

David Swayne: I think we should have scientifically credible evidence to make policy. One of the mistakes we have made in the US and other countries at times is that we made a general policy based upon a single isolate. For example, H7N7 from The Netherlands this time had human infectivity and fairly high rate of conjunctivitis and one death, but in animal model studies we have done with other influenza viruses, the same risk didn't seem to occur. Clarifying all of them as high risk is a mistake. They have to be looked at individually. I think low-pathogenic flu has to be controlled and eventually eradicated, the question is the methodology. The mistake would be if we legislate a single methodology as the only way of doing it. For example, some LP flu strains appear to be controlled and eradicated by methods other than immediate

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depopulation or stamping out. I think it's based on some scientific evidences on the spread and transmission rates.

Wolf Valder: If it is agreed now that you should control LPAI and that is scientifically based, what should we do now if we have the results from detection? Shall we stop trade immediately? Or is it possible to do something like regionalization or compartmentalization on geographical and in addition on management bases? If that's the idea behind it, can we then trade free of restriction or can we exclude in case of LPAI some commodities from trade restrictions? I heard that even from LPAI-infected herd, you can trade eggs under special conditions. Is it possible to do that with meat? Is it acceptable to trade live birds? I think live birds are not acceptable to trade but meat should be under special conditions. That must be reached and that must be the advice at the end of this day. You have to take into account what influence you have if you have vaccination. A decision tree has to be developed with these considerations. There is long way to go. But now it's first to accept other approaches.

Sjaak de Wit: If we see LPAI is a risk for the development of HPAI, is it necessary to combat LPAI as quickly as possible just to reduce this risk?

David Swayne: I think the answer is yes. The programme that is under development in the US is to do a federal state co-operative programme, so each state develops their programme of surveillance and monitoring and response plan which will be tailored to individual states depending on their industry and the risk of their industry. I think you cannot decide those on a legislative base now to say that there is only one reaction. It has to be developed as a reaction for smaller units that you have epidemiological or geographic links.

Sjaak de Wit: So vaccination is an option or an alternative to depopulation?

David Swayne: I think vaccination is seen as an option. Its use should be based upon probable-risk studies and epidemiological studies. So when a H5N7 virus is first diagnosed, you will not immediately go out to vaccinate. You probably attempt to control that by a rapid stamping-out programme. If it became clear from ongoing surveillance and diagnosis that it is not an effective method, then considerations should be given to vaccination programme. But be aware that if vaccination involves federal government, it takes a while. So even in that case, vaccination is not used as a rapid eradication programme, it's only an alternative to rapid eradication like stamping out.

Frits Plumiers: I think we have to close this discussion. We have had good arguments around the table. First about surveillance on wild birds, it was concluded that it's a good way to have some impression of what's going on in the wild population. Commercial-herd monitoring is good to have an impression of what's going on in commercial poultry, apart from that, you also need some active surveillance to pick up rapidly a problem that is occurring. For the control of LPAI, I hear around the table that it is necessary to try to eradicate LPAI as well as HPAI, but the ways to do this should be differentiated between one and the other and also depending on the local situation and the spread of the disease that has occurred already. Thank you for your contributions.