Update from Colin Walker

Current disease outbreak in Victoria.

Update 30th January 2017

Progress today.

I have today spoken to Prof Soren Alexandersen , Director, Centre for Emerging Infectious Diseases at Deakin University and Dr Travis Beddoe, Senior Lecturer. College of Science, Health and Engineering at La Trobe University. Both are reviewing the calf vaccine Rota and pigeon Rota sequences for potential cross immunity. The sequencing comparisons will be completed by the middle of this week. I did stress to both experts that even if we had to inoculate the birds 3 or 4 times to stimulate immunity then that would be Ok and also that if we could get enough immunity to sufficiently modify the disease so that birds would perhaps become unwell and recover rather than die then this would also be OK, at least as far as offering a short term solution. Discussions were wide ranging and covered the development of a vaccine if it was deemed unlikely for cross immunity to form. The discussions covered the likely time frame and potential cost of this. More detailed chronology and financial plans are being prepared. From these early discussions it seems that if necessary a vaccine could be available for use by Feb /March next year. There is obviously a lot of work to be done but this time frame seems quite achievable. If we are successful in getting an ARC linkage grant then one third of the cost will need to be met by the pigeon fraternity.

ANPA

The Australian National Pigeon Association (ANPA) announced on the weekend that they have cancelled all of their shows for 2017

Queensland

Dr Amanda Lee of the NSW DPI reports that there is now a suspect case of Rota virus in Queensland. Diagnostic work continues.

Subject:PPMV1 detection
Date: Tue, 31 Jan 2017 12:57:26 +1100
From: Amanda Lee < amanda.lee@dpi.nsw.gov.au>
To: Amanda Lee < amanda.lee@dpi.nsw.gov.au>

Dear all

PPMV1 has been detected in young pigeons (~8 weeks) in a vaccinated loft in the Sydney West area. Clinical signs included inappetance, weight loss, mild diarrhoea and wasting prior to death. No neurological signs. No vomiting. Parasitic infections were also detected on post-mortem.

Amanda

Amanda Lee | Senior Veterinary Officer
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Prevalence of Rota in Victoria.

I have had NSW fanciers tell me that they have been told, there are over 100 lofts infected in Victoria. Other fanciers have told me the disease is in “plague proportions” in Victoria . Today I emailed AgriBio and asked how many cases they have confirmed. The answer is the disease has been confirmed in 10 Victorian lofts and another 3 are under suspicion. 3 earlier cases thought to have the disease turned out to be PMV. With approximately 1000 racing, exhibition and pet lofts in Victoria the confirmed infection rate is 0.1 % or 1 in 100 lofts. Obviously there are other cases but without some fanciers presenting birds for testing an accurate answer is hard to estimate.

Getting a diagnosis.

I have discussed the importance of getting an accurate diagnosis before. Fanciers who suspect that their birds may have Rota virus are strongly advised to get an accurate diagnosis. In the absence of an accurate diagnosis any conclusions drawn about treatment results, how to manage the birds subsequently and the severity, pattern and distribution of the disease are difficult to evaluate.

Although a fancier’s suspicion may be aroused by the symptoms displayed by his birds, there are other conditions that cause birds to develop diarrhoea, vomit and die. In one situation, a fancier’s birds started to vomit. A fancier that he had visited several days earlier also had vomiting birds. He started to treat his birds with some Sulpha AVS and supplements. No birds died and the birds regained their health. His conclusion was that the treatment had worked remarkably well and that his birds must be very robust because they had been able to fight off the infection. Although the antibiotics and supplements may have helped his birds, it is unlikely that the birds had Rota. Conversely, another fancier had more than 45% of his birds die. He concluded that it must have been a severe case of Rota. Although Rota might have been involved, it is likely that some other health problem was also going on. In the cases that have been presented as suspect Rota virus cases and have been investigated, some had PMV, some had Circo and one bird had a chlamydia/coccidia infection. All of the common diseases that make pigeons sick around this time are still present. I feel that at the moment many of these cases are simply being labelled as “another case of Rota “. The result can be that Rota may appear more common than it really is. Fanciers are not doing themselves, their neighbours or their federation any favours by not getting a diagnosis.

Accurate diagnosis involves the submission of either a sick live bird or a freshly dead bird (ideally dead for less than 4 hours) to a vet and then subsequent histopathological examination of tissues by an experienced pathologist and sometimes further tests. The condition cannot be diagnosed over the phone. The availability of supported testing in Victoria, NSW and possibly other states by the DPI is a great initiative and means that there is no real reason for fanciers not to get an accurate diagnosis. It also shows the importance that the states place on getting the correct diagnosis.

Understanding the diagnostic process

How was Rota virus diagnosed?

Often one of the first steps in diagnosis is histopathology. This is where tissues from a freshly dead bird are collected, stained and examined under the microscope. Histopathology usually gives a good general indication of the nature of the problem. It often identifies whether the problem is bacterial, viral, a toxin or indeed something else. With some viruses, this early step will allow diagnosis. For example, Circovirus has such a characteristic appearance that a practiced pathologist quite literally can’t miss it. The next step can be electron microscopy (EM). There are several types of EM but essentially EM produces a super-magnified image. These bigger, clearer images allow you to see

something like a virus in much more detail. Sometimes the shape, size or surface of a virus that is now visible will enable a pathologist to suggest that a virus looks like a particular type of virus. The next step is virus culture. Here, the virus is grown. The way a virus grows and reacts further helps with identification. Virus culture also enables production of the virus for further testing. Usually the final step is sequencing. Here the sequence of genes on the viral genome is identified. The identification of recognised sequences and patterns enables accurate identification.

With this disease investigation, histopathology and some other tests identified the problem as a virus. EM allowed a provisional diagnosis of a Reo virus. Virus culture and sequencing identified the type of Reo virus as a Rota virus. Completion of the sequencing identified the virus as a type A Rota subtype G18. An easy way of understanding the diagnostic process is to imagine that you are trying to identify something moving along a road. The initial test might tell you that the object is a car. Further testing tells you that it is a Holden, further testing tells you it is a Torana, further testing tells you it is a 1970 model, and the final test tells you that it is blue. In this way, we know that the agent causing the current disease outbreak is a virus of the Reo family and the type of Reo is a Rota virus that belongs to type A and subgroup G18.

This type of diagnostic work is well beyond any private practitioner. Some fanciers might think that I have made this diagnosis. This is not the case. I am a clinician. What clinicians know is what samples are required for diagnosis and how to collect them, where and how to send the samples for testing, what tests to request and how to interpret the results. EM, virus vulture and certainly genetic sequencing can only be done by large research and diagnostic facilities. My role has been to guide and co-ordinate the diagnostic process with ways of immunising the birds, treatment options, and tests to more fully understand how this virus behaves. I have simply let the experts do their jobs. With the diagnostic phase now starting to end, time and effort are now being redirected to developing and manufacturing an effective vaccine so that the trouble being caused by this disease can come to an end.