

Dear Veterinary Colleagues,

Hamster Culling as a measure for the control of COVID-19

The events over the past week, involving infection with SARS CoV-2 in hamsters, have presented challenges that no other jurisdiction has had to face. The options available for managing this incursion, including quarantine/testing or euthanasia, were weighed carefully. The decision to cull hamsters was made reluctantly, especially given the concerns that we knew would be raised by the public.

Rationale for the decisions made

The information below formed the basis for the decision to cull the animals rather than use quarantine and testing:

- i) At the time the decision was made to cull the hamsters there was strong evidence of infection in the hamster population in at least two sites (Tai Po warehouse and Causeway Bay pet shop). There was also compelling genetic and epidemiological evidence that hamster-to-human transmission had occurred and there was good genetic evidence demonstrating the virus had been introduced to the hamsters outside of Hong Kong, most likely in Europe;
- ii) The infected hamsters in the shop with the index human case came from a Tai Po warehouse operated by the parent company of the pet shop. The warehouse did not operate on an all-in all-out basis and supplied hamsters to up to 34 pet shops in the territory. Once it was demonstrated that infection was present in this site it was expected that the virus would also have spread to other pet shops. This has proven to be the case through subsequent testing, and other human cases have been associated with at least one other pet shop;
- iii) The Tai Po warehouse population represented a significant threat to human health given the large number of hamsters housed there and that it formed part of a larger industrial building. It was not possible to convert the Tai Po site to a temporary quarantine facility. The risk of infection of humans was too great. There was no suitable quarantine facility available elsewhere to house the large number of animals present in the warehouse;
- iv) This outbreak was the first reported case of natural infection in hamsters globally and was also the first known case globally of hamster-to-human transmission, based on genetic and epidemiological evidence. In light of

such evidence, earlier advice from OIE and others about the low probability of pet animal-to-human transmission had to be reviewed. It meant information pertaining to infection in other species could not be applied to this case. Decisions had to be made based on the evidence from this novel outbreak and experimental evidence from hamsters, not from previous experience with other species that have not yet been associated with transmission back to humans;

- v) It is known that hamsters (both Syrian and dwarf) are capable of shedding very large quantities of virus and that contact transmission and airborne transmission between hamsters can occur easily, based on experimental studies, including work conducted at the University of Hong Kong;
- vi) Tracing studies found that two consignments of hamsters had been imported from the Netherlands on 22 December 2021 and 7 January 2022 respectively. Although the risk associated with hamsters from the earlier consignment was likely to be lower than that from the later consignment (given the likely limited duration of shedding of virus by hamsters based on a small number of studies), out of an abundance of caution and based on scientific uncertainty regarding duration of virus shedding, owners who purchased hamsters after 22 December 2021 have been advised to surrender their pets. AFCD made it very clear that this did not apply to animals purchased before this date; and
- vii) From a One Health perspective there are concerns that if a virus is allowed to circulate in another animal population (apart from humans) it could mutate to form a new variant. This virus already has multiple mutations in the spike protein, although the significance of these is yet to be determined. The chain of infection in the hamsters had to be broken.

We have since found at least 8 human cases genetically and/or epidemiologically linked to pet shops whilst there has also been secondary human-to-human transmission in some cases. This finding again demonstrates the threat that these animals posed to human health. AFCD has also demonstrated infection in one of the owner-surrendered hamsters.

Review of actions taken

We recognise that the decision to cull these animals, especially those that had been purchased recently, has caused considerable heartache and pain for pet owners. It would have created even more heartache if one of these pets had been responsible for

the death or serious illness of a family member or resulted in an uncontrolled outbreak of the highly transmissible Delta variant in Hong Kong and elsewhere. In other words, risk assessment not only includes the probability of an event occurring, but the consequences of that event. It should be noted that less than 3% of the animals that were euthanised were owned pets. The other 97% were animals awaiting sale in the pet shops and warehouse and were euthanised humanely.

We acknowledge that it would have helped if we had been able to provide additional information to veterinarians beyond that provided in the press release on the reason for decisions. Decisions on this outbreak had to be made quickly and we did address the risk communication with our letter to all veterinarians that was posted on the AFCD website on 19 January and sent to all practitioners on 20 January.

The challenge in this outbreak was balancing what represented a potentially major threat to both local and global public health with the sentiments of individual pet owners. We would have preferred not to have advised new owners to surrender their animals but believed that in the interest of public safety and, after examining other constraints, it was the only feasible option. We considered home quarantine but this was rejected because of the potential for airborne spread of the virus to others in the household and the difficulties likely to be encountered in testing, including the action to take in the face of positive results.

AFCD will continue its investigation into this outbreak to determine how a virus not previously found in Hong Kong was introduced. AFCD has, throughout the COVID-19 pandemic, provided support to the public for housing/quarantine of animals when owners were quarantined. It was not possible to provide this service in this case for a number of reasons but, in particular, because of the threat posed by infected hamsters to the safety of staff and other animals in our care. We will also continue to refine our approach to this disease based on information from on-going investigations.

Agriculture, Fisheries and Conservation Department
January 2022