

> Return address: PO Box 1 | 3720 BA Bilthoven

To the Director-General of Public Health
Ministry of Health, Welfare and Sport
Ms A. Berg, MSc
PO Box 20350
2500 EJ The Hague (NL)

A. van Leeuwenhoeklaan 9
3721 MA Bilthoven
PO Box 1
3720 BA Bilthoven (NL)
www.rivm.nl
Chamber of Commerce
Utrecht 30276683
T +31 30 274 91 11
F +31 30 274 29 71
ici@rivm.nl

To the Director-General of Agriculture
Ministry of Agriculture, Nature and Food Quality
Ms M. Sonnema, MSc
PO Box 20401
2500 EK The Hague (NL)

Our reference
0064/2020LCI/JvD/at/cs/nn
Handled by
LCI
T +31 30 274 7000
F +31 30 274 4455
ici@rivm.nl

Date 17 July 2020
Subject Advice in response to OMT-Z mink and SARS-CoV-2

Dear Ms Berg, Dear Ms Sonnema,

As previously announced, on 16 July 2020 I convened a follow-up meeting with the Outbreak Management Team for Zoonoses (OMT-Z) on the continuing transmission of SARS-CoV-2 from mink and the potential impact on public health. The following will provide a summary of the situation and the recommendations of the OMT-Z.

The OMT-Z is composed of experts on veterinary and human infectious disease. Representatives of both human medicine and veterinary medicine organisations and knowledge institutions were present at the convened meeting.

Summary of the situation

Up until 14 July 2020, SARS-CoV-2 infections had been identified on 23 mink farms, and the animals on the farms in question were culled. In response to the SARS-CoV-2 infections detected on mink farms, and based in part on the advice provided by previous DB-Z/OMT-Z, the Ministry of Agriculture, Nature and Food Quality (LNV) instituted a transport ban on mink and manure, and also imposed a more rigorous hygiene protocol and a ban on visitors. In addition, dogs and cats at a mink farm (even if it has been cleared) are now required to stay at that location. Additionally, employees with symptoms that could indicate COVID-19 have been urged to not come into contact with the mink and to get tested.

The reporting obligation for illnesses and deaths among farmed mink and the Early Warning System (EWS) (which required that any animals dying of natural causes had to be examined for SARS-CoV-2 and the results reported on a weekly basis) have shown that new infections at mink farms continue to emerge. It is unclear why this continues to occur despite the measures

implemented. At the request of the Ministries of Agriculture, Nature and Food Quality (LNV) and Health, Welfare and Sport (VWS), the OMT-Z discussed the following questions.

1. Five weeks after the OMT-Z's recommendations of 3 June were implemented, new infections are still occurring. How do you explain that this is happening? What additional measures could be considered?

The sequence analysis of SARS-CoV-2 on the infected farms shows that so far there are at least five unique introductions of the virus in the mink farming sector. Two of these cases pertain to the same infected farm, and the other three are a cluster of multiple farms. Within such a cluster, the cause may be exposure to a common source or transmission between farms.

At most of the infected farms, SARS-CoV-2 was also found among the people (company owner, employees). A number of these people only had mild symptoms. The sequences found among the employees match the sequences found in the mink on the farm where the infected employees work. Although the current sequence analysis does not make it possible to make any statements on the vector of infection among all human cases (human-to-mink, mink-to-human or human-to-human), the OMT-Z considers it plausible that most introductions of the virus on the farms were from people who were infected elsewhere.

The vaccination and weaning of the animals has recently been completed (June and July, respectively); this is a very labour-intensive time on the farms involving frequent, close, direct contact between employees and the animals. Many companies also engage temporary employees to perform this work. The degree to which the recommendations on good hygiene and triage (people with symptoms not entering the shed) have been adequately carried out in all situations is unclear, and it cannot be ruled out that people with very mild symptoms or no symptoms at all (asymptomatic SARS-CoV-2 infection) did in any case enter and work in the sheds of the infected farms.

Another possibility is that the virus was transported from farm to farm through contamination of people, materials, vehicles, domesticated or wild animals, or feed. This possibility has and will continue to be investigated extensively, but so far there are no indications of such routes. The infected farms that are geographically close to each other were not all found to have the same variant of the virus; this suggests an infection route in which introduction by an infected person was more significant than cross-contamination from nearby companies through an animal vector (e.g. virus carried on paws, fur, etc.). Although cross-contamination does not appear to be the most significant cause of the continuing incidence of new infections among mink farms, it does remain of major importance that all mink farmers and employees of the farms adhere to all hygiene procedures to prevent potential introduction of the virus.

The hygiene protocol for mink farms was recently made more rigorous; this included making the use of non-medical face masks and face shields mandatory for all employees on all mink farms (since 10 July). It is as yet too early to assess the effect of these measures.

It is important to continue the current EWS. This could potentially be further improved by adding analysis of dust samples from the sheds. The OMT-Z also recommends considering a repeat of the serological screening.

For further details of additional measures, see the recommendations in response to question 4.

2. Can you indicate what you see as the potential infection routes and measures to prevent infection of mink farms? In your answer, could you please give specific attention to the role of humans in the infection of mink and specifically the role of labour migrants working on mink farms?

See also above.

The measures for preventing infection of mink farms need to include meticulous and complete registration of all people, including labour migrants, who have been present on the farm, in order to get a clear picture of potential transmission and infection routes, as well as the risks on and off the farm. The exchange of personnel between companies should be avoided, and must be prevented under any circumstances if the employees have worked in an infected shed.

The OMT-Z is of the opinion that, from the perspective of job health & safety, it is important to determine whether employees who have been exposed to SARS-CoV-2 while working in an infected shed should be monitored to see if they develop COVID-19, including laboratory tests as required (PCR and/or serology). To prevent introduction of COVID-19 on a farm, the OMT-Z recommends further development of whether it would be helpful to test employees without symptoms, for example, testing temporary employees prior to the start of work.

There are no particular measures to recommend with regard to labour migrants. They are engaged for temporary work involving intensive contact with mink, which is the type of work that happens in the final phase.

3. What does the increasing number of infections on mink farms mean for human health, such as the health of nearby residents and employees, and for public health in general, particularly in view of the fact that the number of human cases now seems to be dropping?

The risk of a human becoming infected by a mink is only a real risk for people who enter an infected shed. No transmission to surrounding properties has been established. In short, outside of the farm there is no increased risk to public health. Although multiple employees have become infected with SARS-CoV-2, as far as is currently known, none have become seriously ill and none have had to be admitted to intensive care.

It cannot be ruled out that persons infected by mink may have spread the virus to other contacts outside of their work environment, which could theoretically lead to new clusters. Although this has been suggested in Denmark, no such clusters have been found in the Netherlands. The virus sequences found on the mink farms have not been found elsewhere, not even in other clusters such as slaughterhouses, fruit farms and other sectors where labour migrants work. It has already been clear that patients from the same postcode areas as the mink farms have not been found to have the same virus sequences that were detected among the mink. This is another indication that there is no transmission to the surrounding area. Having said that, the OMT-Z does recommend repeating this sequence analysis on recently discovered COVID-19 patients from the same postcode area surrounding infected farms in order to keep the sequence database up-to-date.

The risk to public health therefore remains unchanged from the previous OMT-Z. Although the number of documented human infections in the Netherlands is currently still low, even in the areas containing infected mink farms, there is still continuing circulation among the human population, and SARS-CoV-2 is expected to continue to circulate for quite some time.

4. What measures can be used to limit or prevent the risks to public health described above?

A range of potential measures could be implemented, from continuation of the current policy with tightening of some measures, to, at the other end of the scale, preventive culling of all mink on all farms in the Netherlands and a ban on repopulating the sheds.

The expectation is that as the number of contact moments between humans and mink decreases after the animals are completely weaned in July, and the recent implementation of more rigorous hygiene protocols and preventive use of PPE on non-infected companies, the risk of infection on farms will decrease. The full effect after complete implementation of these measures can only be assessed in a few weeks' time. Additionally, detection of infection is by its nature always running behind the infections themselves. The OMT-Z expects that in the coming 3-4 weeks, some further infected farms will come to light (at a rough estimate, 6-12).

The OMT-Z recommends making the existing measures more rigorous with regard to persons who have contact with animals: extensive and meticulous triage of employees, strict testing of all employees with symptoms and potentially testing of employees without symptoms, fixed teams on farms and proper registration of the persons coming into contact with the mink in the course of their work, no exchange of employees between companies, and attention to compliance with the measures imposed.

If after mid-August new infections on mink farms are still being identified, the OMT-Z will take this to mean that the measures for preventing infection are not effectively workable in practice. In that event, if the human epidemiological situation remains the same, then the recommendation will be for preventive culling in order to prevent the mink farming sector from becoming a virus reservoir. If the human epidemiological situation in the Netherlands changes, this option will have to be considered again.

In view of the expectation that the virus will continue to circulate in the Netherlands, the OMT-Z advises accelerating the phase-out of the mink farming sector in the Netherlands to prevent the outbreaks among mink in the upcoming breeding season (and the increased engagement of temporary employees involved in this activity) from recurring, and potentially also in other areas.

Companies that do not wish to make use of a stop scheme will have to agree to strict commitments on the conditions under which this activity can continue, such as strict compliance with rigorous hygiene measures.

5. In view of the changed epidemiological situation with more infected farms and fewer human cases, how do you now assess the risk that other animals such as cats or rodents could become infected by SARS-CoV-2 from mink farms and that reservoir formation could occur in such animals? What would this mean for public health?

This risk has not changed since the previous OMT-Z. On every farm, all feral cats present on the property after the culling will have to be kept on the property for some time. They will be fed actively for several weeks. The chance of reservoir formation in cats is small due to the feline lifestyle (more solitary), and this measure can prevent reservoir formation in groups of feral cats. Rodents are not susceptible to the infection and are therefore not an infection risk. Mice cannot become infected, and it is still unknown whether or not rats can become infected. There are no revised insights and no further measures are required in the interests of public health.

Following on from the previous recommendations about the risk of SARS-CoV-2 on rabbit farms, it can now be reported that after further study of rabbits by WBVR and EMC, no antibodies could be found in the rabbits on the farms studied. On the basis of these results, the OMT-Z concludes that the serological screening of the rabbit farms offers no indication of the presence of SARS-CoV-2 on rabbit farms.

I am available to provide additional verbal explanation of the recommendations.

Yours sincerely,

Professor J.T. van Dissel, PhD
Director of the Centre for Infectious Disease Control (CIb)