To: 5.1.2e)[5.1.2e @minvws.nl]; 5.1.2e)[5.1.2e @minvws.nl]; 5.1 5.1.2e .
(5.1.2e)[5.1.2e @minvws.nl]
From: 5.1.2e .
Sent: Fri 11/13/2020 6:34:57 AM
Subject: RE: PRO/AH/EDR> COVID-19 update (487): 5.1.2a animal, mink,zoonotic, risk assessment ECDC
Received: Fri 11/13/2020 6:34:58 AM

In the meantime, the Danish government's decision to cull the country's entire mink farms has been subject to discussions in media and the parliament. According to local press, an assessment from the Statens Serum Institut, SSI, has opened up the possibility to maintain a small core of 56 000 breeding make-up minks surviving under severe epidemiologically prescribed maintenance conditions (<https://ekstrabladet.dk/nyheder/politik/enhedslisten-vil-ikke-forhindre-avlsminks-overlevelse/8363746>).

5.1.2a fokteven blijven misschien

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Van: 5.1.2e @promedmail.org <5.1.2e @promedmail.org> Namens 5.1.2e @promedmail.org
Verzonden: vrijdag 13 november 2020 01:40
Aan: 5.1.2e @promedmail.org; 5.1.2e @promedmail.org; 5.1.2e @promedmail.org
Onderwerp: PRO/AH/EDR> COVID-19 update (487): 5.1.2a animal, mink, zoonotic, risk assessment ECDC

CORONAVIRUS DISEASE 2019 UPDATE (487): DENMARK, ANIMAL, MINK, ZOONOTIC, RISK ASSESSMENT ECDC
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Date: Thu 12 Nov 2020
Source: ECDC (European Centre for Disease Prevention and Control) [edited] <https://www.ecdc.europa.eu/en/publications-data/detection-new-sars-cov-2-variants-mink>

Citation: European Centre for Disease Prevention and Control.
Detection of new SARS-CoV-2 variants related to mink - 12 Nov 2020.
ECDC: Stockholm; 2020.

This assessment considers the risk to human health posed by SARS-CoV-2 mink-related variants. It is based on information available to ECDC at the time of publication, and, unless otherwise stated, the assessment of risk refers to the risk that existed at the time of writing. It follows the ECDC rapid risk assessment methodology with relevant adaptations. The overall risk is determined by a combination of the probability of an event occurring and its consequences (impact) for individuals or the population.

Executive summary
Since April 2020, when the 1st SARS-CoV-2 infection was reported in the Netherlands in a mink and subsequently in a mink farm worker, it has been established that human-to-mink and mink-to-human transmission can occur. Since then, infections in mink have been reported in Denmark, Italy, Spain, Sweden, and the United States.

On 5 Nov 2020, Denmark reported 214 human COVID-19 cases infected with
SARS-CoV-2 virus variants related to mink, as well as infected mink at more than 200 mink farms. Most human and animal cases reported since June 2020 have been in the North Jutland Region. The SARS-CoV-2 variants detected in these cases were part of at least 5 closely related clusters; each cluster was characterised by a specific mink-related variant, identified in humans and animals from infected mink farms. Denmark has implemented robust response measures to control the outbreaks in mink and decrease the spill-over between the human and the animal reservoir.

One of the clusters (Cluster 5), which was reported as circulating in August and September 2020, is related to a variant with 4 genetic changes -- 3 substitutions and one deletion -- in the spike (S) protein. Since the S protein contains the receptor-binding domain and is a major target for immune response, such mutations could, in theory, have implications for viral fitness (ability to infect humans and animals), transmissibility, and antigenicity. As a consequence, the evolution of viruses with increasing changes in functional domains of the S protein could affect treatment, certain diagnostic tests, and virus antigenicity. It could also have an impact on the effectiveness of developed vaccine candidates, and possibly require them to be updated. Investigations and studies are ongoing to clarify the extent of these possible implications.

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<5.1.2e @promedmail.org>

[Hereby, the full summary of the Rapid Risk Assessment is presented (references omitted).

"Since April 2020, when the 1st SARS-CoV-2 infection was reported in the Netherlands in a mink and subsequently in a mink farm worker, it has been established that human-to-mink and mink-to-human transmission can occur. Since then, infections in mink have been reported in Denmark, Italy, Spain, Sweden, and the United States. On 5 Nov 2020, Denmark reported 214 human COVID-19 cases infected with SARS-CoV-2 virus variants related to mink, as well as infected mink at more than
200 mink farms [see comment]. Most human and animal cases reported since June 2020 have been in the North Jutland Region. The SARS-CoV-2 variants detected in these cases were part of at least 5 closely related clusters; each cluster was characterised by a specific mink-related variant, identified in humans and animals from infected mink farms. Denmark has implemented robust response measures to control the outbreaks in mink and decrease the spill-over between the human and the animal reservoir. One of the clusters (Cluster 5), which was reported as circulating in August and September 2020, is related to a variant with 4 genetic changes -- 3 substitutions and one deletion -- in the spike (S) protein. Since the S protein contains the receptor-binding domain and is a major target for immune response, such mutations could, in theory, have implications for viral fitness (ability to infect humans and animals), transmissibility, and antigenicity. As a consequence, the evolution of viruses with increasing changes in functional domains of the S protein could affect treatment, certain diagnostic tests, and virus antigenicity. It could also have an impact on the effectiveness of developed vaccine candidates, and possibly require them to be updated. Investigations and studies are ongoing to clarify the extent of these possible implications.

What is the risk to human health posed by SARS-CoV-2 mink-related variants?
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1. Transmissibility
Current evidence available from Denmark and the Netherlands on
SARS-CoV-2 variants related to mink indicates that these variants are able to circulate rapidly in mink farms and the human communities close to the farms; however, they do not appear to be more transmissible than other circulating SARS-CoV-2 variants. Thus, the probability of infection with mink-related variant strains is assessed as low for the general population, moderate for populations in areas with a high concentration of mink farms, and very high for individuals with occupational exposure.

2.Severity
Patients reported to be infected with mink-related variants, including the Cluster 5 variant in Denmark, do not appear to have more severe clinical symptoms than those infected with non-mink-related variants.
Therefore, the current impact of COVID-19 on disease severity in patients infected with any mink-related variant appears to be similar to those infected with non-mink-related variants. This impact was previously assessed as low for the general population and very high for individuals with risk factors for severe COVID-19 disease, such as the elderly.

3.Immunity, reinfection, vaccination, and treatment Of all mink-related variants analysed so far, only the Cluster 5 variant has raised specific concern due to its effect on antigenicity.
Further investigations are needed to assess whether this may have any impact on
i) the risk of reinfection,
ii) reduced vaccine efficacy, or
iii) reduced benefit of treatment with plasma from convalescent patients or with monoclonal antibodies.
It should be noted that continued transmission of SARS-CoV-2 in mink farms may eventually give rise to other variants of concern.

4. Cross-border spread
The cross-border spread of SARS-CoV-2 variants related to mink in EU/EEA countries and the UK through humans has not been observed so far, but there is no indication that the potential for cross-border spread is different to that for other SARS-CoV-2 variants. Genetic adaptation in mink populations could give rise to a selective advantage in regions with mink-farming activity. The mutation Y453F, defining mink-related variants, has also been detected outside of Europe, indicating the potential for circulation of such strains. In the past few months, community transmission has occurred in Denmark and, to some extent, in the Netherlands, which could lead to cross-border spread. The cross-border spread of SARS-CoV-2 variants related to mink in EU/EEA countries and the UK through animals and animal products appears very low.

5. Conclusion
Based on the information currently available on transmissibility, severity, immunity, and cross-border spread, the overall level of risk to human health posed by SARS-CoV-2 mink-related variants can be determined as
- low for the general population and moderate for medically vulnerable individuals, which is no different than other SARS-CoV-2 strains (not related to mink);
- low for the general population in areas with a high concentration of mink farms and moderate-to-high for medically vulnerable individuals living in the same areas; and
- moderate for non-medically vulnerable individuals with occupational exposure and very high for medically vulnerable individuals with occupational exposure.

If the concerns raised in relation to immunity, reinfection, vaccination, and treatment are confirmed, the risk assessment will be immediately reviewed to reassess the overall level of risk to human health and the potential implications for COVID-19 diagnosis, treatment, and vaccine development. This also applies to any further mink-related variants with mutations in the S protein that may arise and spread in the EU/EEA and the UK.

Options for response

To decrease the risk posed to public health, national authorities should consider implementing measures aimed at mink farms, mink farm workers, and communities in contact with mink farms along the lines
below:

1. Human testing, sequencing, and characterisation of antigenic properties and virus infectivity National authorities should implement a systematic approach to testing and sequencing, particularly in mink farm workers and nearby communities. Outbreak investigations, comprehensive testing of workers and contact tracing, isolation, and quarantine should be immediately initiated if a human case is identified related to a mink farm.
Mutations of concern should be reported, and assessments of antigenicity and viral infectivity should be developed.

2. Infection prevention and control measures for mink farm workers and visitors The number of people in contact with mink and mink farms should be limited, and farm workers with COVID-19-compatible symptoms should not have access to the farms. Appropriate technical and organisational measures should be taken to ensure the health and safety of workers in the workplace. Workers should be informed, trained, and provided with appropriate personal protective equipment, including respiratory and eye protection. The possibility of language barriers for seasonal workers at mink farms needs to be considered when implementing hygiene and prevention measures on the farms.

3. Animal testing and prevention of spread from animals Monitoring and surveillance of mink farms (repetitive surveys and/or testing of dead mink on a weekly basis) should be undertaken for as long as SARS-CoV-2 exposure from humans to mink cannot be excluded. It is recommended that isolated SARS-CoV-2 strains be genotyped systematically according to validated protocols, and genome sequences from all infected animals, in particular mink, should be shared. This will enable the rapid identification of possible clusters and related variants. Culling of mink and destruction of raw pelts from infected farms should be considered in accordance with appropriate biosecurity measures.

4. Development of One Health preparedness and response strategies Enhanced coordination between the agricultural, animal health, and human health (including occupational health and safety) sectors is essential for a timely and effective response. It is also important to increase public awareness of mink-related SARS-CoV-2 prevention and control strategies specifically targeting mink producers, mink farm workers, veterinarians and veterinary staff working with mink farms, and partners in the fur industry."

The Annex includes 3 figures presenting stats of the mink industry in
13 EU/EEA countries, led by (mink pelts production) Denmark, Poland, Netherlands, Lithuania, Greece, and Finland.

The paper (19 pages, 90 references) is available at <https://www.ecdc.europa.eu/sites/default/files/documents/RRA-SARS-CoV-2-in-mink-12-nov-2020.pdf>.
Hopefully, mink-farming countries, in Europe and beyond, will closely study this timely rapid risk assessment and consider early implementation of the outlined surveillance and prevention measures.

As of 12 Nov 2020, the number of infected farms in Denmark has risen to 255, in 21 municipalities within 3 regions; a continuously updated interactive map, presenting the total number of mink farms in each municipality and of the infected ones, is available at <https://www.foedevarestyrelsen.dk/Leksikon/Sider/Kort-over-screening-af-COVID-19-i-mink.aspx>.

In the meantime, the Danish government's decision to cull the country's entire mink farms has been subject to discussions in media and the parliament. According to local press, an assessment from the Statens Serum Institut, SSI, has opened up the possibility to maintain a small core of 56 000 breeding make-up minks surviving under severe epidemiologically prescribed maintenance conditions (<https://ekstrabladet.dk/nyheder/politik/enhedslisten-vil-ikke-forhindre-avlsminks-overlevelse/8363746>).
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HealthMap/ProMED-mail map:
Denmark: <http://healthmap.org/promed/p/111>]

[See Also:
COVID-19 update (485): animal, Italy, dog
http://promedmail.org/post/20201111.7934864
COVID-19 update (482): animal, Denmark, mink, zoonotic, eradication, discussed http://promedmail.org/post/20201109.7929573
COVID-19 update (480): animal, 5.1.2a mink
http://promedmail.org/post/20201108.7923387
COVID-19 update (479): farmed animals, guidance, 5.1.2a
http://promedmail.org/post/20201108.7926649
COVID-19 update (478): genome, mink, mortality rates, FDA, WHO, global
http://promedmail.org/post/20201108.7925666
COVID-19 update (477): animal, 5.1.2a mink, spread, genotyping
http://promedmail.org/post/20201107.7924269
COVID-19 update (475): animal, Denmark, mink, spike protein sequences
http://promedmail.org/post/20201106.7922587
COVID-19 update (473): animal, Denmark, mink, mutation, eradication, RFI http://promedmail.org/post/20201105.7918210
COVID-19 update (471): animal, Denmark, mink, zoonotic, eradication
http://promedmail.org/post/20201104.7916300
COVID-19 update (468): animal, 5.1.2a mink, 1st rep, OIE
http://promedmail.org/post/20201103.7912846
COVID-19 update (464): animal, Denmark, mink, control, One Health
http://promedmail.org/post/20201101.7906484
COVID-19 update (461): animal, 5.1.2a mink, 1st case, RFI
http://promedmail.org/post/20201030.7903582
COVID-19 update (458): animal, 5.1.2a mink, RFI

http://promedmail.org/post/20201028.7897986
COVID-19 update (445): animal, Netherlands, Denmark, mink, spread, epidemiology http://promedmail.org/post/20201019.7873326
COVID-19 update (439): animal, Denmark, mink, spread, control
http://promedmail.org/post/20201014.7861560
COVID-19 update (437): animal, Netherlands, Denmark, mink, spread, control http://promedmail.org/post/20201013.7858915
COVID-19 update (433): animal, Denmark (ND, MJ) farmed mink, spread, control http://promedmail.org/post/20201010.7851707
COVID-19 update (430): animal, 5.1.2a (UT) mink
http://promedmail.org/post/20201009.7847704
COVID-19 update (425): animal, Denmark (ND) farmed mink, spread, control http://promedmail.org/post/20201004.7835635
COVID-19 update (414): animal, Netherlands (LI), Denmark (ND), farm mink, spread http://promedmail.org/post/20200925.7813579
COVID-19 update (406): animal, Netherlands (LI), Denmark (ND), farm mink, spread http://promedmail.org/post/20200918.7794239
COVID-19 update (401): Netherlands (NB), Denmark, farmed mink, spread
http://promedmail.org/post/20200914.7777661
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http://promedmail.org/post/20200908.7759382
COVID-19 update (387): Netherlands, mink, animal & public health, research http://promedmail.org/post/20200902.7740793
COVID-19 update (382): Netherlands, animal, farmed mink, spread, control http://promedmail.org/post/20200830.7730463
COVID-19 update (376): animal, ferret, mink, comment
http://promedmail.org/post/20200827.7721923
COVID-19 update (366): animal, 5.1.2a UT) mink
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COVID-19 update (340): animal 5.1.2a envir monitoring, Netherlands (NB), mink http://promedmail.org/post/20200801.7635820
COVID-19 update (334): animal, Netherlands, mink, spread, UK, cat, 1st rep, OIE http://promedmail.org/post/20200727.7617582
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COVID-19 update (307): Netherlands (NB), Denmark (ND) farmed mink, spread, control http://promedmail.org/post/20200708.7553067
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COVID-19 update (281): Netherlands 5.1.2a farmed mink, spread, animal, global http://promedmail.org/post/20200623.7502849
COVID-19 update (266): Denmark (ND) animal, farmed mink, 1st rep
http://promedmail.org/post/20200617.7479510
COVID-19 update (251): Netherlands (NB, LI) animal, farmed mink, spread, culling http://promedmail.org/post/20200610.7453845
COVID-19 update (248): Netherlands (NB, LI) animal, mink, spread, culling, cat http://promedmail.org/post/20200609.7446478
COVID-19 update (236): Netherlands (NB, LI) animal, farmed mink, spread, culling http://promedmail.org/post/20200604.7427849
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COVID-19 update (215): Netherlands (NB) animal, mink-to-human, epidem., control http://promedmail.org/post/20200527.7385049
COVID-19 update (209): Netherlands (NB) farmed mink, animal-to-human, cat, epid http://promedmail.org/post/20200525.7375359
COVID-19 update (198): Netherlands (NB) farmed mink, animal-to-human infect susp http://promedmail.org/post/20200520.7359976
COVID-19 update (189): Netherlands (NB) animal, farmed mink, research, cat, dog http://promedmail.org/post/20200517.7344274
COVID-19 update (177): Netherlands (NB) animal, farmed mink, Spain
(CT) cat susp http://promedmail.org/post/20200512.7328587
COVID-19 update (174): Netherlands (NB) animal, farmed mink, comment
http://promedmail.org/post/20200511.7323845
COVID-19 update (169): Netherlands (NB) animal, farmed mink, spread, rabbit susp http://promedmail.org/post/20200509.7316646
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http://promedmail.org/post/20200503.7294846
COVID-19 update (146): Netherlands (NB) animal, farmed mink, epidemiology http://promedmail.org/post/20200501.7286113
COVID-19 update (135): Netherlands (NB) animal, farmed mink http://promedmail.org/post/20200427.7272289]
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