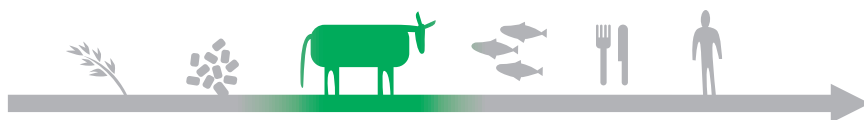


A survey on methicillin resistant *Staphylococcus aureus* (MRSA) in mink in Norway 2016



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Summary

The survey investigating the occurrence of MRSA in mink in 2016 detected no MRSA positive mink farms.

Introduction

MRSA (Methicillin Resistant *Staphylococcus aureus*) are *Staphylococcus aureus* that are resistant to beta-lactam antimicrobial agents. There are several varieties of MRSA, and some of these are carried by animals, especially swine, and are called LA-MRSA (Livestock Associated - animal associated - MRSA). LA-MRSA have become common in the global animal population, especially in swine, though other animal species may also be carriers (1).

All types of MRSA can be transmitted between humans and animals and vice versa. However, not all types are well fitted for establishing a reservoir in other species than their original host specie. MRSA rarely cause disease in animals and healthy humans, but it is important to prevent spread to health institutions such as hospitals and nursing homes where the bacteria can cause serious infections that are difficult to treat.

Norway has an eradication strategy for LA-MRSA in swine, and a yearly surveillance program was implemented in 2014 (2-4). The rationale behind this strategy is to avoid the swine population to become a reservoir of MRSA with the potential of zoonotic transmission. A successful implementation of this strategy depends among others on the knowledge of occurrence in other animal species, so that possible preventive measures can be taken. LA-MRSA have the last years also been reported commonly found in mink in Denmark (5). In the same time period, Norwegian mink farmers have imported live mink from Denmark to Norway. Therefore, mink was subjected for investigation of the occurrence of MRSA in 2016.

Aims

The objective of the survey was to investigate the occurrence of methicillin resistant *Staphylococcus aureus* (MRSA) in mink farms in Norway.

Materials and methods

All registered Norwegian mink farms in 2016 (n=151) were eligible for testing. Sampling was conducted immediately after euthanasia before pelting. From each farm, 50 animals were sampled. Each animal was swabbed in the throat and under one paw using a culture swab (Copan, Italy). The swabs were analyzed as pooled samples containing a maximum of five swabs.

The samples were submitted to the Norwegian Veterinary Institute's laboratory in Sandnes and analysed for MRSA by the following method: The swabs were enriched in 8 mL Mueller Hinton broth with 6.5% NaCl at 37°C for 18-24 h. After incubation, 10 µL were inoculated on Brilliance™ MRSA2 Agar (Oxoid) and incubated at 37±1 °C for 24± 2 h. The 95% confidence interval (CI) was calculated based on a binomial distribution.

Results and Discussion

Samples from 121 mink farms were included in the survey. None of these were positive for MRSA, indicating that Norwegian mink is free from LA-MRSA (95% CI 0 - 0.02). Samples were missing from 30 farms. Some of these have been deregistered in 2017, and it is possible that these had very few or no mink in 2016. All the farms with previous import of live animals were included in the survey. The result thereby indicates that the import of mink from Denmark has not led to a widespread distribution of MRSA in Norwegian mink farms.

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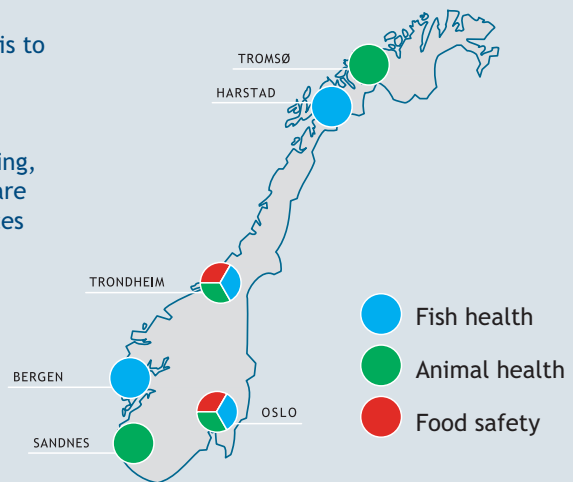
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