

11. Comparison of different samples for the detection of MRSA in pigs

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Sampling herds and animals for pathogens is vital for the control of these pathogens. It was the objective of this study to analyse published data on the sensitivity of different types of samples for the detection of methicillin resistant *Staphylococcus aureus* in individual animals and groups of animals in livestock species in the absence of a gold standard.

Literature was reviewed to collate data that allowed for comparison of sampling methods for MRSA in livestock. Whenever possible, data of several studies were combined to get a more accurate estimate of the sensitivity. If more than two methods were combined the effect of including more than two types of samples on the sensitivity of detection was also estimated.

On animal level, nasal swabs were compared to skin swabs that were collected close to the ear and to rectal swabs. On the individual animal level, nasal swabs were slightly superior to skin swabs with a relative sensitivity of 90.2 vs. 88.5 %. However, 21.4 % of the total positive swabs were only detected by one of the methods. Inclusion of further samples further enhanced the number of identified positive pigs. However, the benefit from additional sampling was limited as nose and skin had a combined RS of 97 % and 100 % over an additional sample from the perineum or from conjunctiva and rectum.

For the detection of positive pig farms, air sampling, sampling of 50 to 60 pigs in the nose or the skin can be considered fairly equivalent in terms of sensitivity. Likewise, boot swab samples seem to be a promising alternative. However, it has to be kept in mind that neither of the methods detects all positive herds, hence using one approach alone does not result in a satisfactory sensitivity. Therefore, a combination of the methods needs to be considered.

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