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## Variation of reported meat inspection findings of slaughter pigs in Finland

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### Introduction

Meat inspection data can be used for animal health and welfare monitoring (Horst et al., 2019; Stärk et al., 2014). However, the reported meat inspection findings can vary between slaughterhouses due to various reasons. The variation can be related to slaughterhouse arrangements such as slaughter line speed and light, lesion coding and recording methodology, but also personnel inspecting the carcasses (Horst et al., 2019). In Finland, abscesses, arthritis, milk spots, pericarditis, pleuritis and pneumonia of slaughter pigs are monitored in meat inspection (MAF 6/EE0/2012). According to the decree, the slaughterhouse operator is obliged to deliver the data to the pig producer from each batch. In addition, the official veterinarian has to notify the regional state administrative agency responsible for the animal welfare control of the farms where the proportion of arthritis, abscesses or tail bites exceed twice the mean of the slaughterhouse. The aim of this study was to assess the variation of these reported meat inspection findings in pig slaughterhouses in Finland.

### Material and Methods

Yearly meat inspection data recorded in 2013–2018 for animal disease and welfare monitoring in three (A–C) pig slaughterhouses, slaughtering majority (98% in 2018) of pigs in Finland, was collected from Finnish Food Authority meat inspection database. The occurrence of abscesses, arthritis, milk spots, pericarditis, pleuritis and pneumonia each year was recorded in Microsoft Excel 2016. The differences of the reported occurrences of these lesions between the slaughterhouses was tested using Independent-Samples Kruskal-Wallis Test and Dunn's post hoc test was used to test pair-wise differences in IBM SPSS Statistics 24. The mean occurrence of lesions in the slaughterhouses was calculated in Excel.

### Results

The occurrence of all lesions varied between slaughterhouses significantly ( $p < 0.05$ ). The occurrence of pericarditis differed significantly in two slaughterhouse pairs (AB and AC) and abscesses

(AC), arthritis (AC), pleuritis (AC) and milk spots (AB) in one slaughterhouse pair. No significant slaughterhouse pair-wise difference of tail bites was observed. The mean occurrence of abscess was 2.9%–3.4%, arthritis 2.9%–3.3%, milk spots 5.6%–7%, pericarditis 2.3%–4.0%, pleuritis 16.6–22.6%, pneumonia 2.2%–2.4%, and tail bites 0.9%–1.7% during 2013–2018 and the occurrence was markedly affected by the slaughterhouse variation.

### Discussion and Conclusions

The meat inspection findings vary significantly between the biggest pig slaughterhouses in Finland. Of the recorded lesions, tail bite findings were reported most uniformly. The reported variation between slaughterhouses can be related to the variation in animals and their background. E.g. production systems (conventional vs. organic) can affect the prevalence (Alban et al., 2015; Kongsted and Sørensen, 2017) and farm management practices and farm health and welfare status (Heinonen et al., 2001; Teixeira et al., 2016) of farms delivering pigs to different slaughterhouses can vary. However, the variation of meat inspection data between slaughterhouses has been taken into account in the regulation MAF 6/EE0/2012, where the notification limit is twice the mean of the slaughterhouse. To reduce possible reporting variation, Finnish Food Authority formulated detailed instructions for the meat inspection personnel for the judgement and recording of meat inspection findings used for pig health and welfare monitoring. The effectiveness of the instructions will be assessed later.

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