PP-150 [Bee Health]
How safe is swarm trapping in areas with a high density of bee colonies and a history of American foulbrood outbreaks: an example of swarm surveillance in the city of Ljubljana

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Background/Purpose.
The City of Ljubljana carries out numerous activities related to beekeeping and local food production for its citizens. The popularity of beekeeping also leads to a greater density of bee colonies, a more frequent occurrence of swarms and a greater risk of disease outbreaks.

Problem description
Swarms can cause unpleasant inconvenience to citizens and also pose a risk to beekeepers dealing with swarms of unknown origin. American foulbrood, the most economically important bacterial bee disease, can be spread vertically through swarms both from colonies with clinical signs of the disease and from colonies without clinical signs.

Methodology
In cooperation with the Slovenian Civil Protection and Diseaster Relief Administration and the Ljubljana Fire Department, swarms have been managed in the city of Ljubljana since 2016. A network of swarm collectors has been established. In 2023 and 2024 swarms of unknown origin were sampled before they were placed in new hives. Since qPCR quantification of Paenibacillus larvae in adult bees has a high diagnostic value for predicting disease outcome based on P. larvae spores, 69 analyses of bee samples from captured swarms were performed.

Results and conclusions
The detection of P. larvae was negative in 44 samples of bees from captured swarms. Only two samples had spore counts of more than 500 spores per bee, namely 632 and 1175. These results show that with proper management, the probability of a disease outbreak in the swarms examined is very low.

Practical implications for beekeepers
In most cases of American foulbrood outbreaks in colonies colonised as swarms, the spores originate from hives, previously used combs or contaminated food. Swarms should always be colonised with foundations and fed with sugar solution. With proper management, the risk of a disease outbreak is very low, even in areas with a high density of bee colonies.