

### P40

#### Retrospective study of hypodermic needles and other metallic physical hazards detected in the dismantling of pig carcasses by metal detectors

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#### Introduction

The objective of this study was to compare the occurrence of hypodermic needles with other metallic physical hazards, during the dismantling of pig carcasses.

#### Methods

- Data was collected over a period of 5 years and 3 months (63 months), from December 2012 to March 2018. The data included: gauge, length, localization and date of occurrence.

Other metallic physical hazards:

- Data was collected over a period of 2 years and 8 months, from January 2015 to August 2018, not including the year of 2017. The data included: localization, date and type or brief description.

#### Results

In a period of 63 months a total of 26 hypodermic needles were found, but in a much smaller period of 32 months a total of 23 other metallic hazards have been found.

Hypodermic needles:

Localization - 57,69% (n=15) were in the neck muscles and 23,07% (n=6) were found in the shoulder, making these the most affected parts of the carcass;

Length - Most of the needle fragments were between 2,4 cm and 2,6 cm, 84,62% (n=22);

Gauge - 57,69% (n=15) were 16 G and 26,92% (n=7) were 17 G;

Other physical hazards:

Type or brief description - the majority of hazards found were just simple metal fragments with no evident shape 73,91% (n=17), the second most frequent type were both steel filings and washers of steel mesh gloves 8,70% (n=2), the least common were metal bearings and metal filaments 4,35% (n=1);

Localization - the most common was the spare ribs 52,17% (n=13), the neck was the second most common 13,04% (n=3), followed by the ribs and belly both with 8,70% (n=2), the least common place was the shoulder, tenderloin and the ribbon all three with 4,35% (n=1).

#### Conclusions

The fact that the neck and shoulder were the parts with the highest number of hypodermic needles is possibly because of the preferential zones for IM and SC administrations are precisely in those two parts.

Although the frequency of needles per month (0,413) is much lower than the other metal objects (0,719), it still constitutes a large part of all the physical metal hazards identified.

If we consider all the objects found, we have a monthly average of more than 1 hazard / month, which clearly reflects the importance of equipment such as metal detectors and x-ray machines in the food industry and consumer protection.

It is essential to reflect on the potential impact on food safety arising from the use of hypodermic needles.