Investigating the epidemiology of Salmonella in pork. A systematic review approach from slaughter to cooler

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The purpose of the review was to describe, based on all available studies that could be identified, the points of introduction and amplification of Salmonella in the harvest process to the cooler. These results were obtained from 15 publications which described 40 studies that evaluated the presence of Salmonella on pork carcasses during primary processing. The review concluded that there is little evidence that Salmonella is introduced into the pork product as it moves along the processing chain to the cooler.

The change in Salmonella prevalence as the carcass moved toward the cooler was evaluated at multiple points during processing. The carcass sampling points evaluated in the review were after bleeding, after stunning, after scalding, after dehairing, after singeing, after polishing, after evisceration, after washing and after chilling. The studies evaluated Salmonella prevalence as the carcass moved from sampling points along the processing line. There were 48 unique comparisons of Salmonella prevalence between points on the processing line in the 40 studies i.e. a comparison of Salmonella prevalence of the carcass after scalding compared to Salmonella prevalence after singeing represents only a single comparison. 48 such comparisons were found and of these 40 were associated with either no change or a decrease in Salmonella prevalence on the carcass. Of the 8 times that Salmonella prevalence increased as the carcasses moved closer to the cooler, the observed increase in Salmonella was more than 10% only 4 times.

The median prevalence of Salmonella positive carcasses evaluated in the cooler was 0%, and the mean was 4%. This compares favorably to the median prevalence of Salmonella evaluated at bleeding of 37% and mean of 58%. This suggests that generally the processing procedures in place resulted in decreased carcass contamination as the carcass moved toward the cooler.