

Title: Systematic Review of the Magnitude of Change in Prevalence and Quantity of *Salmonella* after Administration of Pathogen Reduction Treatments on Pork Carcasses – **NPB # 14-287**

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Date Submitted: 17th December 2015

Scientific Abstract: In this systematic review, we summarize the change in *Salmonella* prevalence and/or quantity associated with pathogen reduction treatments (washes, sprays, steam) on pork carcasses or skin-on carcass parts in comparative experimental designs (natural or artificial contamination). In January 2015, Centre for Agriculture and Biosciences International Abstracts (1910–2015), Science Citation Index and Conference Proceedings Citation Index – Science (1900–2015), Medline® and Medline® In-Process (1946–2015) (OVIDSP interface), Science.gov, and Proceedings of the International Symposium on Epidemiology and Control of *Salmonella* in Pork (1996–2012) were searched with no language or publication type restrictions. Reference lists of 24 review articles were checked. Two independent reviewers screened 4001 titles/abstracts and assessed 122 full-text articles for eligibility using pre-tested forms. Non-English-language records were not translated or extracted. Data were extracted from 14 studies and risk of bias was assessed independently by two reviewers. Five of these studies were conducted in commercial abattoirs. We considered risk of bias due to systematic error to be moderate overall; a major source of bias was the potential differential recovery of *Salmonella* from treated carcasses due to knowledge of the intervention. There was no strong evidence that any one intervention protocol (acid temperature, acid concentration, hot water, cool water) was clearly superior to others for control of *Salmonella*. The most consistently observed association was a positive effect of acid washes on measures of *Salmonella* that were categorical; however, this was based on individual results, not a summary effect measure.

These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

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