Potential Human Health Implications of Swine Health

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Abstract

This study measured the relationship between subclinical pig health at slaughter and carcass contamination. 280 randomly selected carcasses were swabbed at three points during slaughter: skin pre-scald; pelvic cavity following removal of the distal colon and rectum; and pleural cavity, immediately before the final carcass rinse. Swabs were cultured quantitatively for Campylobacter spp. and Enterococcus spp. Campylobacter spp. were recovered from the pleural cavity in 58.9% (33/56) and 44.6% (25/56) of pools from the bung cavity. Enterococcus spp. were recovered from 66.1% (37/56) and 38.7% (22/56) of pleural and bung samples, respectively. The most common lesion identified was pleuritis/adhesions, with a total of 7.1% (186/2,625 total head). Linear regression showed that for every percentage point increase in lesions, there was a significant 4.4% increase in Enterococcus spp. and 5.1% increase in Campylobacter spp. contamination. Additionally, significant relationships were identified between pleuritis and the quantity (log CFU) of Enterococcus spp. present in the bung cavity or Campylobacter spp. in the pleural cavity.

This study shows a connection between animal health and human health risk, as measured by bacterial contamination on the carcass. If disease is not outwardly evident during processing, subclinically ill animals may go undetected until slaughter, and lesions may interfere with processing. If swine carcass contamination is indeed a reasonable proxy for human health risk of bacterial foodborne illness, and the findings from this study can be supported by further research, then management decisions on-farm, such as antibiotic use, housing, and veterinary care directly impact public health.