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Investigation on the sanitary practices and the prevalence of *Staphylococcus aureus* on chicken carcasses and coliform contamination of water used at informal chicken market in Gauteng province, South Africa: Risk for food safety

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Statement of the Problem: Street vended chickens are valued for their importance as good source of protein, easy accessibility and tasty attributes. However, under poor hygienic practices, they are sources of pathogenic bacteria which may pose a health hazard to consumers. The study was conducted to quantitatively and qualitatively determine the presence of *Staphylococcus aureus* and staphylococci on chicken carcasses and 'weep water' and coliforms in rinse water at the outlets and to assess the risk associated with contamination.

Methodology: A total of 363 samples comprising 121 sample each of whole chicken swabs, 'weep water' (water in bagged chickens) and rinse water were collected from 39 informal chicken outlets in Gauteng province, South Africa between September 2016 and February 2017. A standardized questionnaire was administered to information on risk factors for carcass contamination. Standard bacteriological techniques were used for bacterial isolation and enumeration.

Findings: Of a total of 242 samples of carcass swabs and weep water tested, 131 (54.1%) and 58 (24.0%) were positive for staphylococci and *Staphylococcus aureus* respectively. Risks for contamination of carcasses identified at the 39 outlets visited include: 14 (35.9%) exposed processed chickens to flies and dust for long periods on counter tops, 27 (22.3%) left chickens at ambient temperature for over 60 minutes, 28 (71.8%) dumped solid waste around outlets and 25 (64.1%) outlets used stagnant water to rinse carcasses. The mean±SD per mL of rinse water for total coliforms count was $2.7 \times 10^5 \pm 4.5 \times 10^5$. For weep water samples, the mean±SD count/mL for *S. aureus* and staphylococci was $3.5 \times 10^5 \pm 6.3 \times 10^5$ and $8.8 \times 10^6 \pm 1.1 \times 10^7$ respectively. The insanitary practices observed at the outlets and the poor bacterial quality of carcasses and water used are potential food safety risks to consumers of chickens from these outlets.

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