Occurrence and Evaluation of Antimicrobial Susceptibility of *Staphylococcus aureus* Isolated from Chicken Eggs, Eastern Ethiopia.

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Conference hashtag: #ANH2020

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June, 2020
1. Introduction

- The extent of *S. aureus* contamination of eggs and the antimicrobial profile has not been adequately studied in Ethiopia and none from eastern part.

- The study was designed to:
  - Investigate the occurrence and determine antimicrobial resistance patterns of *S. aureus* isolated from chicken eggs.
2. Materials and Methods

• A total of 335 chicken eggs from:
  – poultry farm (n=161)
  – retail outlets (n=174) were undertaken.

• 10 eggs from the market and 10 eggs from HU caged birds were collected once per week using a simple random sampling technique

• *S. aureus* identification was done based on Gram staining and biochemical tests including:
  – Catalase,
  – Coagulase,

• The isolates were tested for drug susceptibility by the disc diffusion method with 12 antimicrobials (*CLSI*, 2013).
3. Results

Level of *S. aureus* in egg shell and content of raw chicken eggs

<table>
<thead>
<tr>
<th>Sample source</th>
<th>Poultry farm</th>
<th>Open market</th>
<th>Total</th>
<th>OR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. Ex</td>
<td>No. +ve (%)</td>
<td>No. Ex</td>
<td>No. +ve (%)</td>
<td>No. Ex</td>
</tr>
<tr>
<td>Egg shell</td>
<td>161</td>
<td>22(13.7)</td>
<td>174</td>
<td>41(23.6)</td>
<td>335</td>
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<tr>
<td></td>
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</tr>
<tr>
<td>Egg content</td>
<td>161</td>
<td>6(3.7)</td>
<td>174</td>
<td>24(14.9)</td>
<td>335</td>
</tr>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td>161</td>
<td>28(17.4)</td>
<td>174</td>
<td>65(37.4)</td>
<td>335</td>
</tr>
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</tbody>
</table>
Antimicrobial Resistance Testing

- *S. aureus* isolates revealed **3.9 - 92.0%** level of resistance pattern to the antimicrobials tested.
- A large proportion of the isolates were resistant to penicillin (92%), ampicillin (89.5%), amoxicillin (55.3%) and erythromycin (51.3%).
- A lower level of resistance was observed to chloramphenicol, gentamycin and ciprofloxacin with resistance level of **3.9%** each.
- Multiple drug resistance to **more than two** antimicrobial agents was detected in **66 (86.8%)** of the total 76 *S. aureus* isolates.
- Additional research is required with continuous surveillance and monitoring of pathogens.
Thank you!!