Erysipelothrix rhusiopathiae infection in pigs, pork and raw pork handlers in Kamuli district, Eastern Uganda

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Introduction – *Erysipelothrix rhusiopathiae*

Ubiquitous gram+ bacterium

Adapted from Reboli and Farrar, 1989

In pigs: erysipelas, diamond skin disease

In people: erysipeloid
Why study *E. rhusiopathiae* in Uganda?

- No published research in Uganda
- CGIAR Research Program on Livestock & Fish
- Clinical signs of diamond skin disease in pigs reported by farmers in 3 subcounties in Kamuli district
Objectives

• To determine the prevalence of ER infection in pigs, pork and raw pork handlers in Kamuli district.

• To establish risk factors associated with infection in raw pork handlers.
Methods

1. Serology

- Part of a multi-pathogen assessment including 4 subcounties in Kamuli district (Dione et al., 2014 and Erume et al., 2016)

- 426 pig sera

- IgG (CIVtest Suis SE/MR; Laboratorios Hipra, Spain)
Methods

2. microbiology

- 100 x 250g fresh pork samples from 67 butcheries
- 302 whole blood samples from raw pork handlers:
  - ER selective media
  - Confirmatory tests: catalase, aesculin, gelatine

3. Risk factors

- Semi-structured questionnaire, 6 focus group discussions, 3 key informant interviews
## Results – prevalence

<table>
<thead>
<tr>
<th>Subcounty</th>
<th>Pig serology</th>
<th>Pork culture</th>
<th>Abattoir workers</th>
<th>Butchers</th>
<th>Cooks**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitayunwa*</td>
<td>27/38 (71.1%)</td>
<td>5/14 (35.7%)</td>
<td>8/20 (40.0%)</td>
<td>3/19 (15.8%)</td>
<td>0/60 (0.0%)</td>
</tr>
<tr>
<td>Bugulumbya*</td>
<td>81/118 (68.6%)</td>
<td>11/24 (45.8%)</td>
<td>2/4 (50.0%)</td>
<td>1/6 (16.7%)</td>
<td>1/39 (2.6%)</td>
</tr>
<tr>
<td>Namwendwa*</td>
<td>49/79 (62.8%)</td>
<td>23/55 (41.8%)</td>
<td>4/14 (28.6%)</td>
<td>5/34 (14.7%)</td>
<td>6/106 (5.7%)</td>
</tr>
<tr>
<td>Butansi</td>
<td>128/192 (66.7%)</td>
<td>6/7 (85.7%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>285/426 (66.9%)</strong></td>
<td><strong>45/100 (45.0%)</strong></td>
<td><strong>14/38 (36.8%)</strong></td>
<td><strong>9/59 (15.3%)</strong></td>
<td><strong>7/205 (3.4%)</strong></td>
</tr>
</tbody>
</table>

* Subcounties where farmers reported clinical signs of ER in pigs
** 147 female, 58 male
Results – risk factors

11 variables in bivariate analysis, included to multivariate analysis if p<0.20

associated with ER infection

- Work in abattoir (OR=26.13, p<0.001)
- Work at butchery (OR=8.37, p<0.01)
- Alcohol consumption (OR=4.01, p<0.05)
Discussion & conclusion

• First report of ER in Uganda
• High level of occurrence, especially among abattoir workers
• Findings consistent with previous research
• Low level of awareness that the disease exists

• More research needed on sources of infection

• Prevention in pigs: vaccination
• Prevention in humans: protective gear
• Treatment possible
• Cost versus benefits?
Participatory research & feedback to communities
Acknowledgements

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- Supervisors and lecturers