Taenia solium cysticercosis: Risk factors, perceptions and practices in smallholder pig production systems in Uganda

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Background

- Pigs are “living banks”
- More than 1.1 million households
- Backyard production, mainly managed by women and children
- Tethering & scavenging are common
- Limited access to technical services and information
- Poor slaughtering and waste management practices
Given the high potential for occurrence of *T. solium* cysticercosis in Ugandan pig production systems:

- **Objective**: to determine the risk factors for occurrence of *T. solium* cysticercosis as well as perceptions and practices of farmers regarding the disease
T. solium cysticercosis cycle
Study sites

- Masaka, Mukono and Kamuli districts
- High pig density, high poverty levels
- Poor pig management systems
Methodology

- **Sample collection**: Blood and serum
- **Household survey**: semi-structured questionnaire
- **Laboratory analysis**: HP10 and B158C11A10/B60H8A4 antigen ELISA
- **Statistical analysis**: Logistic regression to measure associations of predisposing factors with the infection and *performance scores* to assess perceptions and practices of farmers regarding taeniosis, human cysticercosis and porcine cysticercosis.
## Results: Serology

<table>
<thead>
<tr>
<th>District</th>
<th>Production System (positive / total samples)</th>
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<tbody>
<tr>
<td></td>
<td>Rural (positive / total)</td>
<td>Urban</td>
</tr>
<tr>
<td>Kamuli</td>
<td>(55/408) 13.5%</td>
<td>---</td>
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<tr>
<td>Masaka</td>
<td>(20/243) 8.2%</td>
<td>(24/132) 18.2%</td>
</tr>
<tr>
<td>Mukono</td>
<td>(25/276) 9.1%</td>
<td>(20/126) 15.9%</td>
</tr>
<tr>
<td>Overall</td>
<td>(100/927) 10.8%</td>
<td>(44/258) 17.1%</td>
</tr>
</tbody>
</table>

Antigen sero-prevalence results from parallel interpretation of the two ELISA tests (ApDia, HP10) (Kungu et al., 2016)
Results: Risk factors

- Improved breed
- Poor farmer knowledge about *T. solium* cysticercosis transmission cycle
- Dirty sources of water
- Absence of latrines
Results: risk factors

- Up to 54.6% of the farmers interviewed had clean water near the latrines designated for washing hands.

- Of these, 41.9% used water with soap to wash hands after latrine use.
Results: knowledge about *T. solium*

- Farmers were mostly aware about taeniosis (63.0%; CI95:60.0-65.8);

- Only 3/1096 (0.3%; CI95=0.1-0.8) had knowledge on all three conditions (*taeniosis, human cysticercosis and porcine cysticercosis*).
Conclusions

- Predisposing factors to the maintenance of taeniosis- *T. solium* cysticercosis cycle exist
- Farmers lack knowledge and capacities to combat the disease in pigs and humans
Recommendations

- **Improve pig management and husbandry practices**

- **Sensitize and educate farmers and other value chain actors on the control of** *T. solium* **cysticercosis**

- "One health Approach" is needed to achieve efficient and sustainable control of *T. solium* cysticercosis
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