Evaluation of the implementation of one health in Kenya: a case study of the zoonotic disease unit

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Kenya became one of the first countries in Africa to institutionalize One Health (OH) and operationalized it on 1st March 2012 as a cross-sectoral collaboration. It created a cross-sectoral One Health unit called the Zoonotic Disease Unit (ZDU) that establishes and maintains active collaboration at the human, animal and ecosystem interface towards better prevention and control of zoonotic diseases in Kenya. Using Network for Evaluation of One Health's (NEOH) standardized One Health evaluation framework a process evaluation of the ZDU was conducted to appraise its effectiveness and impact. The NEOH tools helped in identifying the drivers and outcomes of One Health, as well as necessary operations and how to implement an integrated approach. The evaluation included a description of the context and the initiative, illustration of the theory of change, identification of the expected and unexpected outcomes and assessment of OHness. The latter is the sum of characteristics that defines an integrated approach and includes OH thinking, planning, working, sharing infrastructure, learning infrastructure, and systemic organisation. Data for the analysis were gathered in 27 face-to-face key informant interviews using the Bristol On-line Survey, 1 focus group discussion and a desktop review of literature. Qualitative data was thematically analysed using NVivo Pro version 12 while quantitative data was through SPSS v23 and the One Health Index. ZDU attained a One Health Index of 0.8261 with a score of 0.44 in One Health planning, 0.58 in One Health learning, 0.72 in One Health working and 0.71 in One Health thinking. The unit was praised for its elaborate strategic implementation strategy, vast network of stakeholders, and its relevance to address imminent One Health challenges in Kenya. Shortcomings were identified regarding duplication of efforts with no framework to harmonize activities between the animal and human health agencies. The critical application of the NEOH evaluation tools allowed identifying advantages and shortcomings in the processes of the ZDU that can be used by its coordinators to improve impact. We recommend that the next evaluation to focus on the assessment of impact and economic efficiency in line with the developed theory of change.

Serological prevalence of human trichinellosis and cysticercosis in Hoa Binh province of Northwest Vietnam

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In Vietnam, parasites that use pigs as intermediate hosts are a multifaceted concern, which we often call "neglected tropical diseases", typically trichinellosis and cysticercosis. According to the joint report of FAO and WHO in 2014, Taenia spp. ranks 1st and Trichinella spp. ranks 8th of 24 food-borne parasites assessed [1]. Trichinella spiralis has worldwide distribution and five outbreaks were recorded in Vietnam between 1970 and 2012, affecting between 20 and 36 people each [2-4] while there has been little recent research into rates of human taeniasis and cysticercosis in Vietnam due to the accurate national baseline figures do not exist [5]. Those diseases can vary across region and there are about 0.1-12.0% human affected by trichinellosis and cysticercosis according to estimated [6, 7] and indigenous pig was found with high antibody of T. spiralis and T. solium of 12.5% and 28.5% respectively [8]. Exposure to those parasites primarily occurs through the consumption of raw or undercooked pork products [9-11]. However, transmission can also occur through the consumption of wild or omnivorous animals such as boars, dogs and rats [3, 10]. In addition, the driven factor could also be poor sanitation, the consumption of raw/uncooked pork has been quite ubiquitous in this area. By the aforemention results indicating that men engaged in higher levels of risk behaviours, including the consumption of wild animals and undercooked pork. Noticeably, five of nine positive or suspected cases reported at Tan Minh commune (Table 1).

Discussion and Conclusion

On the one hand, the seroprevalence of trichinellosis (0.67%) and cysticercosis (0.67%) positive cases were in line with previous study in Vietnam [6, 7, 14] and Slovakia [15]. Low infection rates suggest that the disease may be circulating in the community but may also be the result of past infections, since antibodies produced may exist in the body for several years after being infected [16]. Moreover, positive and suspected cases concentrated mainly in Tan Minh commune, which is a warning sign of future outbreaks may occur surround this area. It poses urging that in the future the commune authorities should have solutions such as human and pig screening and conduct treatment for positive cases.

On the other hand, the consumption of raw/uncooked pork has been quite ubiquitous in this area, which could facilitate the likely of Trichinella spiralis infection 3.5 times [17] and increase the risk of other parasitic diseases. In addition, less access to adequate sanitation such as not having toilet could increase the likely of cysticercosis 5.9 times [17] due to the fact that warm eggs from infect human and animal can be excreted through the feces to the environment. Improving hygienic condition can be a potential solution to prevent the spread of diseases.
Table 1: Risk factors associated with positive and suspected cases of trichinellosis and cysticercosis

<table>
<thead>
<tr>
<th>Status (Positive/ Suspected)</th>
<th>Trichinellosis</th>
<th>Cysticercosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Pos</td>
<td>Pos</td>
</tr>
<tr>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>Age</td>
<td>36</td>
<td>39</td>
</tr>
<tr>
<td>Ethnic minority</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Access to adequate sanitation</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Livestock producer</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Consumed wild animal</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Consumed raw vegetables</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Symptoms in the last three months</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

References

17. Okello, A.L., et al., Integrating market chain information for Southern provinces is lacking. While some study exists for Northern Laos updated information for Southern provinces is lacking. This study aimed to determine the prevalence of cysticercosis and trichinellosis in pigs and humans and related risk factors in communities of Champasak province, Laos.

Discussion and Conclusion

While results of this study for trichinellosis and cysticercosis in humans were considerably lower than those reported for the neighbouring province of Savannakhet (Holt et al. 2016) both parasitic zoonoses still pose a considerable risk to villagers in the study area. As we also observed risky consumption habits of villagers it is crucial that public health campaign also cover socio-cultural aspects of communities to be more effective in the future. Follow up activities are planned for 2019 to focus on more in-depth diagnoses procedures for cysticercosis in pigs and may include dissection of carcasses in an attempt to get more reliable information on the presence of cysts in pigs. Furthermore the multi-institutional platform will be further engaged and linked to a recently established one health platform to facilitate dissemination of results to relevant stakeholders and informative materials to villagers.

Acknowledgement

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Reference