

SHORT TERM SCIENTIFIC MISSION (STSM) – SCIENTIFIC REPORT

The STSM applicant submits this report for approval to the STSM coordinator

Action number: FA1408

STSM title: Developing expertise in systematic review on risk-factor analysis and source attribution for the foodborne parasite *Toxoplasma gondii*

STSM start and end date: 06/08/2018 to 15/08/2018

Grantee name: Sandra Stelzer

Researchers involved at the host institution: Joke van der Giessen, Marieke Opsteegh, Hannah Morgan, Jenny Deng

PURPOSE OF THE STSM

The purpose of this STSM was to gain expertise in, and enhance the knowledge on, methodology for systematic review.

Prior to this STSM, the WG4 group of COST Action FA1408 had performed an extensive literature search with specific criteria on models of source attribution of *T. gondii*, which was in the final steps of the screening phase at the start of the STSM. The applicant had already been involved in the process. The STSM should be the continuation of this previous work, with the goal of the applicant taking over the main work for the systematic review after the conclusion of the STSM in terms of coordinating this task.

Additionally, the extended (systematic-like) review titled “Relationship between seroprevalence in the main livestock species and presence of *Toxoplasma gondii* in meat” (GP/EFSA/BIOHAZ/2013/01), which had also been conducted previously including researchers of the RIVM and FLI, should be updated as a systematic review, and plans of conducting a meta-analysis in the future should be discussed. For that purpose, the applicant talked to the librarian about the search terms and strategy, taking into account the specific differences between the databases that have been used.

The expertise of the researchers at RIVM, who have conducted the previous work on both systematic reviews, was of great importance.

Overall, the STSM led to a better understanding of the relative importance of particular sources for infection with *T. gondii* in humans and livestock, which will subsequently be used to establish better risk-based approaches to the control of this parasite. In addition, the stay aimed at enhancing the collaboration between FLI and RIVM, and will help to perform the systematic reviews of the COST Action FA1408, WG4 more effectively.

DESCRIPTION OF WORK CARRIED OUT DURING THE STSM

For the systematic review on source attribution of *T. gondii*, conducted by the WG4 group of COST Action FA1408, it was most important for me to become familiar with the process, so that I would be able to take over the work following this STSM.

With the researchers, who had been responsible for the literature search and screening phases, the setup of the process was discussed. I became acquainted with the search strategy for the different databases, the reference articles for the search, and the setup of the different screening stages, including the definition of questions, that needed to be answered by the screeners.

The second round of the final full-text-screening was still in process during the beginning of my STSM, which made it possible for me to be involved in the evaluation of that. For this, we additionally conducted a quality check procedure for the screening pairs.

Subsequently, following the screening process, a quality assessment sheet for the selected references was discussed, finalized, and sent out to experts for evaluation. This process will continue after the end of the STSM.

As the next step in the process was the data extraction, we discussed and finalized Excel sheets for the different types of studies we found in the selected references. Those were also sent out to the fellow researchers involved in the process for approval. After receiving the comments, we tested the sheets by extracting data from the reference studies. Following that, we also continued with extracting data from the studies found in the literature search, where my main task was the extraction from the risk factor studies. This process has not been finished, but will be continued after the conclusion of the STSM.

The possibility of conducting a meta-analysis has also been discussed. For this purpose, a meeting with Brechje de Gier, who is experienced in this field, was scheduled and she gave us valuable insight into the topic, and is willing to help during our task.

For the extended (systematic-like) review titled "Relationship between seroprevalence in the main livestock species and presence of *Toxoplasma gondii* in meat" (GP/EFSA/BIOHAZ/2013/01), firstly the literature search needed to be updated. For this purpose, a meeting with the librarian at the RIVM was scheduled, who had conducted the original search. We discussed how it was possible to update the search by using the original strategy in the same databases. This had to be adjusted, because of changes in the organisational structure of those databases. Finally, we were able to repeat the search successfully in Medline, Embase and Biosis, so that I could compare the original search, which concluded in 2014, with the newly obtained results. To be sure not to miss references, we decided to include the update results from 2013 in the comparison as well.

To be able to start with the screening soon, I created Excel sheets for the different screening phases, following the protocol of the original search, so that the results of the update can be consistent with it.

DESCRIPTION OF THE MAIN RESULTS OBTAINED

For the systematic review on source attribution of *T. gondii*, conducted by the WG4 group of COST Action FA1408, we were able to finalize the full text screening, which resulted in 46 articles relevant for data extraction. The Excel sheets for this purpose were finalized and data extraction was started, but has not been completed during the STSM. This process will continue.

Also, a structured quality assessment questionnaire was finalized and is in the process of being evaluated by experts. The processes of quality assessment and data extraction are meant to be conducted in synchronisation, so that these two stages will be finalized at the same time.

We have discussed the possibilities of data analysis for this review, but have not finally concluded, how we are going to follow up on that. This will have to be discussed further, taking into account the quality of the data obtained.

For the extended (systematic-like) review titled “Relationship between seroprevalence in the main livestock species and presence of *Toxoplasma gondii* in meat” (GP/EFSA/BIOHAZ/2013/01), the search in the databases Medline, Embase and Biosis has been updated from 2013 until the present, resulting in n=667 from the first two and n=346 from Biosis.

The results were obtained at the end of the STSM, so that the next steps will be the duplicate check and check against the originally obtained search results.

The Excel sheets for all phases of screening, from title to full text, have been set up and finalized, so that, once the final list of references has been established, the screening can begin promptly, after setting up the screening team, which is already in process.

FUTURE COLLABORATIONS

As I am going to take over the coordination tasks for the systematic review on source attribution of *T. gondii*, conducted by the WG4 group of COST Action FA1408, there will be continuing collaboration between the FLI and RIVM. We are going to stay in close contact regarding the process of data extraction and evaluation, as well as the joint publication of these results.

Also, the work on the risk factors for *T. gondii* infection in the main livestock species will be done in collaboration between the two institutions, which will also lead to joint publications.

Overall, this work will be helpful to establish further collaborations in the field of risk-based control programs for *T. gondii* in these two neighboring countries.