

STSM Report: Contribution to the handbook for evaluation of One Health by Introducing the Use of Scales and their Dynamics to better conceptualize and describe the inbuilt multidimensional complexity of One Health

REFERENCE: Short Term Scientific Mission, COST TD1404 NEOH

Beneficiary

Full name of grantee : Ilias Chantziaras
Current position: PhD student
Affiliation: Ghent University
Country: Belgium

Host

Name of Host: Peter Panduro Damborg
Current position: Associate Professor in Veterinary Clinical Microbiology
Affiliation:
Country: Denmark

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1. Purpose of the visit

The aims of the visit was to gain insights from scientists practising and promoting One Health, contribute to the NEOH evaluation handbook of One Health (Chapters 4 and 5) and be thoroughly informed on the MiniResist project, a recently completed project that was in line with the concept of One Health. Once the One Health Evaluation framework will be finalized, it will be employed to assess and evaluate the One Health attributes of the MiniResist project.

2. Description of the work carried out

In the aspect of One Health (OH) thinking, a great amount of work has already been done by the respective team members. Yet, to better assess and manage the complexity of OH, scales and their dynamics are to be employed. For this, the task of creating a questionnaire with a focus on scales¹ and cross-scale dynamics² was undertaken.

Several informing meetings and discussions took place with Dr. Simon Rüegg (University of Zurich) concerning the clarification of the terms and the building and structuring of the questionnaire. I had the chance to work also with Dr. Barbara Häslér (Royal Veterinary College, London) for the build-up of the questionnaire both via mail and in person (as a NEOH workshop took place in Copenhagen during the STSM). Dr. Häslér and Dr. Soledad Cuevas (Royal Veterinary College, London) guided me through the economic aspects on the different scales of OH. In the aspect of OH thinking, I additionally had useful input and constructive remarks on the questionnaire from Dr. Elena Boriani, who previously did an STSM in NEOH. As an excellent host, Associate Prof. Peter Panduro Damborg helped me with all kinds of queries (e.g. set up of a questionnaire on OH perceptions). Last but not least, I benefited greatly from the discussions and the scientific guidance that I had from Prof. Liza Rosenbaum Nielsen.

Besides working on my contribution to the NEOH handbook, various activities took place during my stay at the University of Copenhagen. I actively got involved in the newly formed VetCast³, which is

part of the ESCMID's and ECDC's EUCAST (European Committee for Antimicrobial Susceptibility Testing). The vision of VetCAST is to contribute to global standards for antimicrobial susceptibility testing of bacterial pathogens of animal origin.

Concerning MiniResist⁴, I met and discussed with several people involved in this project. To wit, Prof. Søren Saxmose Nielsen informed me of the scientific structural backbone (statistical methodology, mathematical modeling, data analysis) of the project and Prof. John Elmerdahl Olsen who was principal investigator of the project, provided briefly his insights on leading a project that involved multiple disciplines.

3. Description of the main results obtained

The STSM helped me to get involved and updated in the preparation of contributing to the NEOH handbook. Great input has resulted from discussing, reading and working on scales and their potentials in conceptualizing OH. Contributions on the handbook will be made accordingly. A first questionnaire has been prepared outlining the concept of scales in OH. It will be distributed to all the contributing members of the NEOH consortium (among others). This questionnaire serves a twofold mission:

- gather input from OH practitioners of different disciplines.
- provide a common ground (scales) for different expertise areas.

As soon as the scales that seem to contribute most to the explanation of this model, the focus will be on the levels that comprise each scale as well as their interactions. The results of this questionnaire will be analysed and the outcomes will help better conceptualize One Health. Already a second questionnaire is being developed to deepen the knowledge on One Health perceptions by using scales to characterise One Health and the aspects of One Health that need to be addressed with evaluating One Health.

Apart from that, for the needs of VetCast, a file with data including all tetracycline and cephalosporines formulations licensed for animal use in Belgium was prepared. These data will be merged in a greater dataset with similar data from other European countries. Thus, new knowledge and better awareness on antimicrobial use policies and dosage schemes across Europe will result.

4. Future collaboration with host institution (if applicable)

Collaboration with the host institution will continue with the refinement of the questionnaires, and especially within WG1 activities with the writing of the handbook. Apart from that, as a result of the collaboration with Assoc. Prof. Peter Damborg, I got involved in the EUCAST's VetCast subcommittee.

5. Projected publications resulting or anticipated to result from the STSM

The input from this STSM is anticipated to result in contributions to Chapters 4 and 5 of the handbook for evaluation of One Health. Furthermore, the handbook will be used to assess the One Health characteristics of MiniResist. For any publications that may arise relating to the work performed for this COST action, the support of COST action will be acknowledged.

6. Confirmation by the host of the successful execution of the mission

It has been a pleasure to have Ilias at the University of Copenhagen and discuss VetCAST, NEOH, and the above-mentioned questionnaire. The mission was carried out as planned, and the resulting questionnaire is expected to contribute significantly to the NEOH evaluation handbook of One Health (Chapters 4 and 5).

7. Financial summary

Expenses	Total expenses in EUR	% covered by NEOH grant (EUR)
Travel	500 EUR	100% (500 EUR)
Accommodation	1046 EUR	85% (889 EUR)
Consumables	891 EUR	85% (761 EUR)
Total	e.g. 2437 EUR	e.g. 88% (2150 EUR)

8. Other comments (if any)

I would sincerely like to thank Prof. Damborg and the University of Copenhagen for hosting my STSM.

I provide below some additional information on scales, scales dynamics, VetCast initiative and the MiniResist project.

¹: Gibson et al (2000) defined 'scale' as analytical dimensions used to measure and study any phenomenon. Examples of scales in One Health could be spatial scale, temporal scale, institutional scale, economics scale etc.

²: Interactions may occur within or across scales, leading to substantial complexity in dynamics (Cash et al, 2006).

³: The vision of VetCAST is to contribute to global standards for antimicrobial susceptibility testing of bacterial pathogens of animal origin.

⁴: MiniResist used existing theories derived from mathematical modelling in human medicine to formulate alternative treatment-protocols for antibiotic use against intestinal diseases in pigs with the aim to reduce resistance development.

Signatures

Date (Day-Month-Year)

Grantee

24-05-2016

Host

PETER DAMBORG

