



SHORT TERM MISSIONS

Short Term Missions (STMs) are small travel grants with the aim of:

- Sharing scientific expertise, methodologies, equipment and facilities to harmonise the existing approaches and methodologies within the large
- OHEJP European network
 Driving the research forward in a collaborative and non-duplicative fashion to strengthen both the scientific capacity within the OHEJP
- Contributing to the future prevention, preparedness, detection and response of the EU to foodborne and other emerging threats across human-animal-environmental sectors.

Validation and exchange of modelling tools to assess the risk of human Salmonellosis based on environmental factors using multiple sources of data



The mission has not only helped me to accomplish the main objective of validating the model for my PhD but has also helped me to enhance my networking and communication capacities, opening my mind to different ways of communicating and interpreting each other. I cannot thank the OHEJP consortium enough. It was inspiring to see such motivated and skilled scientists in action applying in practice what I am learning.

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The aim of this mission was to investigate whether the effect of weather on human salmonellosis cases is similar regardless of the country under study, using a novel statistical modelling approach developed in the University of Surrey, UK. The model was built on 30 years of daily epidemiological data from the UK Health Security Agency (UKHSA) and a high resolution spatio-temporal matching weather database from the MetOffice. The model first estimates the probability to observe salmonellosis cases conditional on a given combination of weather factors. Based on this information together with local weather and demographic data, the model reproduces relatively well the empirical patterns from epidemiological surveillance data for England and Wales. It also points to maximum air temperature, relative humidity, and day length as one of the most relevant combinations that influence the incidence of the disease.

During this mission, the model was applied to the Dutch setting, using 5 years of national surveillance data on salmonellosis cases reported to the Dutch National Institute of Public Health at a daily resolution and the weather variables of interest for the same period of time obtained from the open-resource Royal Netherlands Meteorological Institute (KNMI) website. To assess the universal component of the model to identify the weather-disease relationship regardless of geographical area, the probability of finding a salmonellosis case calculated for England and Wales were used. The model's results were then compared with salmonellosis disease records from The Netherlands. The preliminary results indicate that the model captures the magnitude and key seasonal patterns of the Dutch data. However, the model also results in some secondary peaks in the incidence in early spring not observed in the real data, perhaps related to differences in notification and health seeking behaviour.

The STM has improved on the relationship between two existing One Health EJP partners and enhanced both current and future collaborations between the partner institutes. A joint publication of the collaborative results should be published soon and this STM should result into a unified programme of research integrating the two approaches over diverse geographic and socio-economics settings.

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