

Report on the outcomes of a Short-Term Scientific Mission¹

Action number: CA18218

Grantee name: José Chen Xu

Details of the STSM

Title: Burden of lung cancer associated with occupational exposure to hexavalent chromium

Start and end date: 12/05/2022 to 31/05/2022

Description of the work carried out during the STSM

Description of the activities carried out during the STSM. Any deviations from the initial working plan shall also be described in this section.

(max. 500 words)

During the period before the Short-Term Scientific Mission, a dedicated literature review was conducted to get acquainted with the topic specificities which proved to be relevant for the later phases. This allowed to understand contexts of exposure, different occupational exposure limits, health consequences of exposure, as well as exposure risks. This allowed to understand the relevant research carried out in the topic and the novelty of the proposed research.

As the Burden of Disease Training School took place during 9th -11th May 2022, the STSM was moved to 12th - 31st May 2022. During the Training School, the general concepts of burden of disease were acquired and served as a theoretical basis for the comprehension of the elements needed for the estimations.

The STSM started on 12th May 2022, with an introduction of the Technical University of Denmark and the National Food Institute, as well as the Risk-Benefit Group. This was followed by conversation on the adjustment of the working calendar, as well as discussion and further reading on main methodologies available: the risk assessment approach and counterfactual analysis.

On the week of 16th – 20th May 2022, a presentation of the project was delivered in the Risk-Benefit Group Meeting of the DTU National Food Institute, including an overview of occupational contexts of exposure, previous calculations and rationale for the Burden of Disease estimation.

The assessment of the necessary data was carried out afterwards, with identification of information sources, such as the Global Burden of Disease 2019, Eurostat, the reports of the Institute of

¹ This report is submitted by the grantee to the Action MC for approval and for claiming payment of the awarded grant. The Grant Awarding Coordinator coordinates the evaluation of this report on behalf of the Action MC and instructs the GH for payment of the Grant.

Occupational Medicine (IOM), and the reports of the European Commission. Data collection, database tidying and methodological discussions were carried out from 17th - 24th May 2022.

On 25th – 30th May 2022, calculations and further methodological discussions were carried out. Interpretation of results and discussion of the way forward were done on 30th– 31st May 2022, including a presentation of the main results in the Risk-Benefit Group weekly meeting and some considerations for follow up, including the consideration of country-specific Occupational Exposure Limits and regulations.

Some discussions of further estimations on monetisation of DALYs and cost of illness were held, as well as the possibility of writing a scientific paper.

The STSM report started being drafted on 31st May 2022, the last day of the STSM.

Therefore, the STSM lasted 20 days, allowing a great acquisition of knowledge and application of Burden of Disease concepts and calculations.

Description of the STSM main achievements and planned follow-up activities

Description and assessment of whether the STSM achieved its planned goals and expected outcomes, including specific contribution to Action objective and deliverables, or publications resulting from the STSM. Agreed plans for future follow-up collaborations shall also be described in this section.

(max. 500 words)

The Short-Term Scientific Mission allowed to understand the current burden of lung cancer associated with exposure to hexavalent chromium across European countries, as well as create scenarios with different exposures and calculate the respective DALYs and number of cases of lung cancer. As such, the STSM fulfilled the planned goal and obtained the expected outcome, which is the calculations of the estimation of Burden of disease related to the exposure to the risk factor in occupational contexts. Moreover, it fulfilled the COST Action CA18218 objective, which is to build and increase capacity in burden of disease assessment across Europe, especially among Early Career Researchers.

The knowledge acquired should be shared and transferred to other colleagues from the Home Institution, so that the burden of disease methodologies are adopted and harmonised across Europe. Besides that, the STSM allowed to open up several possible burden of disease studies to be carried out on a national level.

A scientific publication is planned to be carried out in the upcoming months, with continued collaboration from DTU National Food Institute, Denmark, and the National School of Public Health, NOVA University of Lisbon, Portugal.