



HBM4EU Workshop
'Chemical Mixtures: Lessons we are learning from HBM4EU'

Virtual, 14-15 October 2021

Organizers: Mirjam Luijten (RIVM), Erik Lebret (RIVM), Jelle Vlaanderen (IRAS), Andreas Kortenkamp (BRUNEL) and Robert Barouki (INSERM)

Risk assessment of chemical mixtures is complex and poses a number of challenges for scientists, risk assessors and managers, due to the large number of chemicals present in the environment. The HBM4EU project addresses how human biomonitoring (HBM) data can contribute to both the science and policy/regulation of dealing with the phenomenon of mixtures. Within the HBM4EU project, the focus for chemical mixtures is on chemicals with exposure routes through the environment, food, occupation and/or consumer products.

With the aim to improve current procedures for risk assessment of chemical mixtures, various approaches are being investigated within HBM4EU. These include: i) estimating exposure to mixtures through differential network analyses of existing HBM data, ii) estimating exposure to pesticide mixtures using suspect screening analyses of citizens living in 'hot spot' versus 'control' areas, and iii) establishing an advanced workflow for assessing mixture health effects. These activities are carried out by HBM4EU partners working closely together and in dialogue with EU regulatory agencies and similar initiatives in the EU. Based on the results obtained thus far, recommendations for risk assessment of chemical mixtures and for further research have been drafted.

The overall aim of the workshop is to discuss recommendations for further research and for policy development regarding chemical mixtures, using the insights and lessons being learned within HBM4EU. This involves, firstly, to share these insights across the partnership and stakeholders involved; then, on these shared and overarching insights, their implications for research and policy development can be jointly assessed. The recommendations will be outlined in D15.8 'Report on policy recommendations and future research avenues on mixtures'. Since not all inputs from all tasks could be harvested in time due to COVID-19 implications, some mock data may need to be used. As a consequence, the recommendations in D15.8 may have a preliminary character and an update may be supplied around May 2022 in a hand-over document to PARC.

To share the lessons learnt and sketch the regulatory context, a series of four pre-conference webinars are foreseen, open to HBM4EU partners and involved stakeholders. These involve:

1. Patterns in real-life exposures to mixtures; results from network analyses in WP15.1
2. Health risk from exposure to mixtures; results from the case studies in WP15.3
3. Suspect screening of mixtures; results from the SPECIMEn pesticide study in WP15.2
4. EC's Chemicals Strategy for Sustainability; context of mixture risk assessment and management

In the online workshop, covering two half-day sessions, and following the webinars, results from the WP15 tasks will be summarised and draft recommendations prepared by WP15 leadership and Pillar 3 leader will be presented and discussed in three discussion sessions. We aim for an interactive workshop, with both plenary and break-out sessions. The focus will be on improvements to mixture risk assessment that are considered achievable on the short-term and contribute to improved and more efficient protection of human health. Also, a more long-term perspective will be drawn. The workshop will be held in the spirit of the Chatham House Rule¹, to facilitate open and frank discussions. The outcomes of this workshop will not only be captured in D15.8 but will also be submitted for publication to a peer-reviewed journal.

¹ Under the **Chatham House Rule**, anyone who comes to a meeting is free to use information from the discussion, but is not allowed to reveal the identity nor the affiliation of the speaker (s). It is designed to increase openness of discussion.

Programme

Thursday October 14th; chaired by Erik Lebret (RIVM/IRAS)

- 12.45 – 13.00 Joining the online platform
- 13.00 – 13.05 Welcome; short introduction to HBM4EU to stakeholders – *Robert Barouki (INSERM)*
- 13.05 – 13.15 Goals of the workshop, expectations and limitations – *Mirjam Luijten (RIVM)*
- 13.15 – 13.55 Suspect screening in SPECIMEn: Joint survey of pesticides – *Jean-Philippe Antignac (INRA)*
& *Ilse Ottenbros (IRAS/RIVM)*
- 13.55 – 14.05 EFSA perspective on suspect screening analyses – *Sara Levorato (EFSA)*
- 14.05 – 14.20 Chemical mixtures: draft recommendations from HBM4EU, session 1 – *Mirjam Luijten (RIVM)*
- 14.20 – 15.05 Guided discussion on recommendations, session 1 – *Breakout groups*
- 15.05 – 15.15 *Coffee break*
- 15.15 – 16.15 Health risk from exposure to mixtures; Case studies on health effects – *Andreas Kortenkamp (BRUNEL), Marcel Mengelers (RIVM), Wieneke Bil (RIVM)*
- 16.15 – 16.25 EFSA perspective on recommendations for the assessment of health effects of chemical mixtures – *Sara Levorato (EFSA)*
- 16.25 – 16.40 Chemical mixtures: draft recommendations from HBM4EU, session 2 – *Marcel Mengelers (RIVM)*
- 16.40 – 17.25 Guided discussion on recommendations, session 2 – *Breakout groups*
- 17.25 – 17.30 Wrap up Day 1 – *Mirjam Luijten (RIVM)*

Friday October 15th; chaired by Robert Barouki (INSERM)

08.45 – 09.00 Joining the online platform

09.00 – 09.05 Goal of day 2 – *Erik Lebret (RIVM/IRAS)*

09.05 – 09.25 Reporting back of break-out sessions Day 1

09.25 – 09.45 Network analyses for the identification of relevant mixtures – *Jelle Vlaanderen (IRAS)*

09.45 – 10.05 HBM and measurement error – *Rémy Slama (INSERM)*

10.05 – 10.15 ECHA perspective on utility of patterns in exposure – *Fleur van Broekhuizen (ECHA)*

10.15 – 10.25 *Coffee break*

10.25 – 10.40 Chemical mixtures: draft recommendations from HBM4EU, session 3 – *Erik Lebret (RIVM/IRAS)*

10.40 – 11.25 Guided discussion on recommendations, session 3 – *Breakout groups*

11.25 – 12.30 Lessons learned from HBM4EU on mixtures; what are the implications of the HBM4EU findings?

12.30 – 12.40 Wrap up and closure – *Mirjam Luijten (RIVM)*