

Pronk A, Loh M, Kuijpers E, Albin M, Selander J, Goderis L, Ghosh M, Vermeulen R, Peters S, Sivesind Mehlum I, Turner M, Schlünssen V, Goldberg M, Kogevinas M, Harding B, Solovieva S, van Tongeren M, Garani-Papadatos T, Stierum R

Applying the exposome concept to working-life health: The EU EPHOR project

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ABSTRACT

INTRODUCTION - Exposures at work have a major impact on non-communicable diseases (NCDs). Current risk reduction policies and strategies are informed by existing scientific evidence, which is limited due to the challenges of studying the complex relationship between exposure in the work place and outside work, and health. We define the working-life exposome as all occupational and related non-occupational (i.e. urban, lifestyle, behavioural and socio economic status) exposures. **OBJECTIVE** - By taking an exposome approach, the Exposome Project for Health and Occupational Research (2020–2024) aims to advance knowledge on the complex working life exposures in relation to disease beyond the single high exposure-single health outcome paradigm, mapping and relating interrelated exposures to inherent biological pathways, key body functions and health. **METHODS** - This will be achieved by combining 1) large-scale harmonisation and pooling of existing cohorts systematically looking at multiple exposures and diseases, with 2) the collection of new high-resolution (in time or agents/markers) external and internal exposure data in two case studies. Methods and tools to characterize the working-life exposome will be developed and applied, including sensors, wearables, a harmonised job exposure matrix (EuroJEM), non-invasive bio-monitoring, omics, data mining, and (bio)statistics. **RESULTS & CONCLUSION** - The toolbox of developed methods and knowledge will be made available to policy makers, occupational health practitioners and scientists. Advanced knowledge on working life exposures in relation to NCDs will serve as a basis for evidence-based and cost-effective preventive policies and actions, ultimately contributing to reducing the burden of NCDs. This presentation will present the EPHOR design and approach as well as some developments so far.

KEYWORDS: -

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