

## Session 8A: Nanomaterial epidemiology & biomonitoring

Thursday 1 June, 10:30 - 12:00

Location: Room 3

Session chairs: Enrico Bergamaschi & Anne T Saber

### Health surveillance and epidemiology in nanomaterial workers worldwide - where are we today?

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Epidemiological studies and health surveillance are essential to understand the risk to workers exposed to potentially harmful substances, and to evaluate the effectiveness of “safe exposure levels” that were derived from animal and cell experiment data. Globally, a few epidemiological studies already started to assess the health of workers potentially exposed to manufactured nanomaterials. However, as anticipated in early discussions, most companies have still relatively small numbers of workers. To allow pooling international cohorts, five years ago, several leading groups defined together a road map for a globally harmonized framework for exposure characterization, identification of study populations, definition of health endpoints, evaluation of appropriateness of study designs, data collection and analysis, and interpretation of the results. These studies have progressed but it is not clear how strongly funding limitations impacted their ability for a coordinated approach. This presentation will review studies ongoing to data and compare the progress made to the initial roadmap.

### Epidemiological surveillance of nanotechnology workers: Past and new challenges based on the French example

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France was a pioneer country developing the first registry of engineered nanomaterials (ENM) in Europe and launching a program of prospective epidemiological surveillance of nanotechnology workers focused on potential long-term health effects of ENM. While the former was ordered by the French Ministry of Ecology, the latter was a joint demand of the Ministries of Health and of Labor. A challenge was both, political and scientific: the definition of ENM was imprecise and ENM physicochemical properties influencing their exposure potential, biological and clinical effects following the exposure, and related risks were unknown.

In 2012, the French Institute for Public Health Surveillance proposed a step-by-step project where the first step was to identify companies dealing with ENM, and to register potentially exposed workers. An exploratory study showed that the ENM-producing companies are more willing to cooperate as compared to ENM-using companies. A strong involvement of the ministries was required to establish collaboration with them; however, it also appeared challenging. Moreover, lacking standardized methodology of ENM exposure assessment made challenging identification of eligible workers even in collaborating companies.