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**PLASMA DIOXIN LEVELS AND CAUSE-SPECIFIC MORTALITY IN AN OCCUPATIONAL COHORT OF WORKERS EXPOSED TO CHLOROPHENOXY HERBICIDES, CHLOROPHENOLS AND CONTAMINANTS**

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**Objectives** We recently reported modestly increased risks for all cancers and urinary cancers in workers exposed to chlorophenoxy herbicides using data from the Dutch Herbicide cohort study. These risks could not be linked to any of the qualitative exposure proxies available. Here, we re-investigate exposure-response relations using a (semi-)quantitative measure of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) exposure.

**Methods** plasma TCDD levels of 187 workers were used to develop a predictive model for TCDD exposure in the cohort. Cox proportional-hazards model was used to investigate associations between TCDD exposure as a time-varying variable and cause-specific mortality. Additional sensitivity analyses were performed to assess the impact of key assumptions in exposure assessment.

**Results** predicted TCDD levels were associated with mortality from all causes (HR=1.08; 95% CI 1.03 to 1.13), ischemic heart disease (HR=1.19; 95% CI 1.08 to 1.32), and non-Hodgkin's lymphoma (HR=1.30; 95% CI 1.02 to 1.65), but no relations were found between TCDD exposure and mortality from all cancers, respiratory cancers, or urinary cancers. Sensitivity analyses showed that these results were relatively robust to changes in key assumptions in the exposure estimation.

**Conclusions** Modelled TCDD exposure does not explain the previously reported increased risks for cancer mortality in the Dutch herbicide cohort. Although risk estimates for some of the rarer cancer outcomes were still rather imprecise, we do not expect more precise estimates from longer follow-up of this cohort due to the long time-span since last exposure to TCDD.