

creatinine for background samples within the spraying season. Outwith the spraying season, concentrations for chlorpyrifos were the same as those within spraying season backgrounds, but for chlormequat, lower concentrations were observed outwith the spraying season (12.3 µg/g creatinine). Overall, we observed no strong evidence indicative of additional urinary pesticide biomarker excretion as a result of spray events. Consequently, the majority of measured concentrations were well below the predicted concentrations based on the models used for regulatory risk assessment.

### Exposure to fungicides and attention in 6-year old children from the Infants' Environmental Health Study (ISA)

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TPS 731: Neurological effects in children, Exhibition Hall, Ground floor, August 26, 2019, 3:00 PM - 4:30 PM

**Background:** Several fungicides are suspected endocrine disruptors and may impair children's neurodevelopment, but data from prospective studies are lacking. In Costa Rica, fungicides are aerially sprayed and used postharvest on bananas. We examined whether exposure to fungicides was associated with poor attention in children from the Infants Environmental Health Study (ISA).

**Methods:** To evaluate attention, we applied the Conners Continuous Performance Test (K-CPT-II) in 6-year old children (mean 6.4 ± 0.4 years) (n=268) using T-scores of omissions, commissions and Hit Reaction Time (HRT). To assess exposure to the fungicides mancozeb, pyrimethanil, and thiabendazole, we measured ethyleneurea (ETU), hydroxy pyrimethanil (OHP), and 5-hydroxythiabendazole (5-OHT), respectively, in repeated urine samples collected during pregnancy and 5-6 years of age. We ran separate linear regression models for log-10 transformed mean prenatal, and mean child metabolite concentrations and CPT-II, adjusting for child age, child sex, HOME score, and maternal education. We examined effect-modification by sex.

**Results:** Median (p25-p75) prenatal specific gravity-adjusted ETU, OHP and 5-OHT were 3.40 (2.38-4.79), 0.50 (0.21-1.28) and 0.10 (0.03-0.53) µg/L, and current ETU, OHP and 5-OHT were 2.66 (1.90-3.63), 0.86 (0.34-2.32) and 0.12 (0.04-0.49) µg/L, respectively. Higher current ETU concentrations were associated with increased omissions (β=8.4 95%CI 3.5-13.4, per ten-fold increase in exposure). The association was stronger for girls (β=7.3, 95%CI 0.6-13.9) as compared to boys (β=5.5, 95%CI -1.6-12.6). For girls, both higher prenatal and current OHP concentrations were associated with increased omissions (β=3.1, 95%CI 0.6-5.6 and β=4.0, 95%CI 0.9-7.0, respectively), and current OHP concentrations were also associated with slower responses (β=2.1, 95%CI 0.2-.2.9). OHT and prenatal ETU were not associated with measures of attention.

**Conclusion:** Six-year old children with higher current exposure to mancozeb and higher prenatal and current exposure to pyrimethanil had poorer attention as compared to children with lower exposures, the effect was stronger for girls.

### Association between asthma symptoms and NO<sub>2</sub> exposure

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TPS 681: Short-term health effects of air pollutants 1, Exhibition Hall, Ground floor, August 26, 2019, 3:00 PM - 4:30 PM

### Background/Aim

Exposure to air pollution is often estimated by one or two monitoring stations per city, which may lead to measurement error and potentially to underestimation of air pollution risks. A recently developed air quality sensor network in the city of Eindhoven, the Netherlands, measures air pollution at a fine spatio-temporal resolution. We set up a panel study in Eindhoven with the aim to evaluate associations between short-term variation of nitrogen dioxide (NO<sub>2</sub>) and fine particles concentrations, and short-term variation of asthma-related symptoms and lung function in children.

### Methods

Children with asthma-related symptoms, aged between 7-11 years, reported daily symptoms and use of on-demand asthma medication over a period of four months in an electronic diary. Lung function was measured daily at home by the children. Associations with air pollution of the past days from the nearest air quality sensor were obtained using a mixed effects model, correcting for potential confounders and baseline differences between participants.

### Results

Only five children could be recruited. Some symptoms in the upper airways were positively related to NO<sub>2</sub> concentrations on the same day. Odds ratios per 10 µg/m<sup>3</sup> (95% C.I.) were 1.06 (0.85, 1.33) for cough and 1.13 (0.87, 1.45) for nose complaints. For short breath related to NO<sub>2</sub> on the previous day, the odds ratio was 1.33 (1.01, 1.75). Odds ratios were 1.82 (1.29, 2.55) for short of breath after exercise, and 1.66 (1.10, 2.51) for on-demand asthma medication use, both related to the mean NO<sub>2</sub> concentration of the last three days. No associations were found between NO<sub>2</sub> and lung function and PM<sub>10</sub> with any symptom and lung function.

### Conclusions

Despite the small sample, we found associations between short-term variation of NO<sub>2</sub> concentrations and short-term variation of asthma-related symptoms, possibly due to the use of fine resolution air quality sensor data.

### Long-term exposure to outdoor air pollution and risk factors for cardiovascular disease within a cohort of older men in Perth

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TPS 671: Cardiometabolic effects of long-term air pollution exposure, Exhibition Hall, Ground floor, August 26, 2019, 3:00 PM - 4:30 PM

### Background

While there is clear evidence that high levels of pollution are associated with increased all-cause mortality and with increased cardiovascular mortality and morbidity, the biological mechanisms that would explain this association are poorly understood. We examined the association between long-term exposure to air pollutants with blood pressure and other risk factors associated with cardiovascular disease (CVD).

### Methods

A cross-sectional analysis of the risk factors and measures of outdoor air pollution was undertaken. Air pollutant concentrations were estimated at place of residence for cohort members in the Western Australian Health In Men Study. Blood samples and blood pressure