the air pollutants, controlling for daily temperature, day of the week, time trend and deprivation index and age distribution at LSOA level.

Results: During the study period 638,983 consultations were recorded. The daily NO2 concentrations ranged from 7.1 to 297.9 μg/m3; the average concentration for the whole study period in the Lambeth LSOAs ranged from 23.8 to 164.7 μg/m3. A significant association between short-term exposure to traffic pollution and the total number of consultations was found. Specifically, an interquartile range increase in NO2 (29.3μg/m3) was associated with 2.27% (95% Confidence Interval: 1.65-2.88%) increase in the daily number of consultations. No significant spatial association was identified.

Conclusions: In an analysis of both short and long-term effects of air pollutants on primary care outcomes in a specific area within a megacity, using novel approaches to exposure estimation, an effect of short-term exposures was found but no spatial variation could be identified.

Assessing the relevant window of exposure – a comparison between different methods

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TPS 691: Methods: of measurement, design and data analysis, Exhibition Hall, Ground floor, August 28, 2019, 3:00 PM - 4:30 PM

Background
For many environmental exposures (e.g. particulate air pollution) it is of interest to explore which exposure window that has the highest association with the health outcome. Lagged exposure variables (exp(t), exp(t-1), ..) are highly correlated with each other, which presents a problem in a regression model. To overcome this, distributed lags procedures are available to estimate the exposure effect at each lag (e.g. PROC PDL in SAS, dlm in R). The performance of a lag distribution procedure was compared to an ordinary regression model.

Methods
A small simulation study was performed to assess the effect of mis-specifying the number of lags. An individual living at the same address will have similar exposure from one year to the next. To mimic this, exposure observations for 500 individuals were computer-generated according to first-order autoregressive processes. In the simulation model, the outcome depended on exposure five years prior to the outcome (lag0, lag1 - lag5), with decreasing effect.

From the computer-generated data, the exposure-outcome association was estimated using i) DL: a distributed lags procedure, ii) REG: regression analysis with exp_lag0, exp_lag1 - exp_lag5, and iii) REGMEAN: regression analysis with the mean exposure from [t, t-1 - t-5].

Results
The correlation between exposure at lag0 and lag1 was 0.9 in the computer-generated dataset. When the correct number of lags was used (lag5), both DL and REG produced unbiased estimates, but DL had a higher power (~25% higher). The estimate from REGMEAN was (approximately) equal to the summed effect from all six lags (lag0, lag1 - lag5).

When, incorrectly, lag=2 was used, neither of the two methods did preserve the decreasing structure. Again, the power was higher for DL.

Conclusions
The main advantage of using the distributed lags procedure is a higher power. Specifying too few lags can lead to biased estimates.

Impact of the Residential Surrounding Greenness and the parent-child’s relationships on the preschool-children asthma risk

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OPS 70: Green space, Johan Friso Foyer, Floor 1, August 28, 2019, 1:30 PM - 3:00 PM

Aim. The aim of this epidemiology study was to examine the effect of pathological parent-child relationships on asthma risk in 5–6-year-old children residing in different surrounding greenness levels areas. Methods. This nested case-control study included 721 KANC birth cohort study children followed-up for 5–6 years in Kaunas, Lithuania. The surrounding greenness level of each home address was measured as the satellite-based Normalised Difference Vegetation Index (NDVI), and the parent-child relations were measured using the Parent-Child Dysfunctional Interaction subscale by questionnaire. Responses to the questionnaires completed by parents were used to ascertain children with physician-diagnosed asthma. Logistic regression models were fitted to examine the associations as odds ratios (OR) between parent-child relationships and the risk of doctor diagnosed asthma adjusted for relevant covariates. Results. In this study a total of 6.9% of the children had physician-diagnosed asthma. At age 5–6 years the proportion of children with borderline and abnormal parent-child relations who had asthma was 7.3% and 12%, accordingly. In univariate analysis, pathological parents-child relations were statistically significant associated with higher risk of asthma (OR 3.82; 95% CI 1.10 to 13.25) for children with lower residual surrounding greenness, while for residents in higher than median greenness level the asthma risk was lower (OR 1.20; 95% 0.26 to 5.51). After adjusting for potential confounders, we found that the pathological parent-child relations statistically significant increase risk of asthma (aOR 4.75; 95% 1.26-17.92) for children.