For Marianthi:

Hi Marianthi! Thanks for looking at our models. This is a little explanation/justification of what we did.

We wanted to test the association between wildfire-generated PM 2.5 exposure and healthcare visits of 5 kinds in a population of people who use electricity-dependent medical equipment. We looked at outpatient visits, ED visits, inpatient visits, ED visits made only for cardiorespiratory concerns, and inpatient visits made only for cardiorespiratory concerns. We have made groups of ZCTAs as the spatial unit of analysis.

We included lags 0-6 mean daily wildfire PM 2.5 as our exposure, and we have the number of healthcare visits made by day and ZCTA grouping as our outcome.

We originally wanted to control for temperature, time, non-wildfire PM, and spatial confounding, so we included penalized spline terms for daily mean temperature and daily mean non-wildfire PM, and a natural spline with 12 degrees of freedom (since our study period is 4 years) to control for temporal effects. We tried including a random effect for spatial grouping, but the models took too long to run (> 3 weeks), so we included a set of SES variables to try to control for geographic differences instead.

We also ran an analysis at the weekly level, using mean weekly wildfire PM, weekly temperature, time, etc.

We ran a sensitivity analysis testing natural vs. penalized splines and it changed our results, both at the daily and weekly levels. We are a bit stumped by this because we don’t know which splines to prefer, and the results vary enough that it matters. Our main question is, how do we deal with this?

Only the results in our models looking at outpatient visits and wildfire PM are significant, so this is mainly a question about those models. The tables of results include DID models for a different analysis, which I think we’re confident about, so it’s just the two first tables that are relevant to this question. I included a script (print\_results.R) that loads all the outpatient models are prints summaries of them.

We have another small question, which is, what does it mean that the natural spline for daily non-wildfire PM in the summary of the model has a bunch of 0s as coefficients? Is something broken?

Thank you for looking at our models!