

ST14 Health Effects

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Aim of this ST

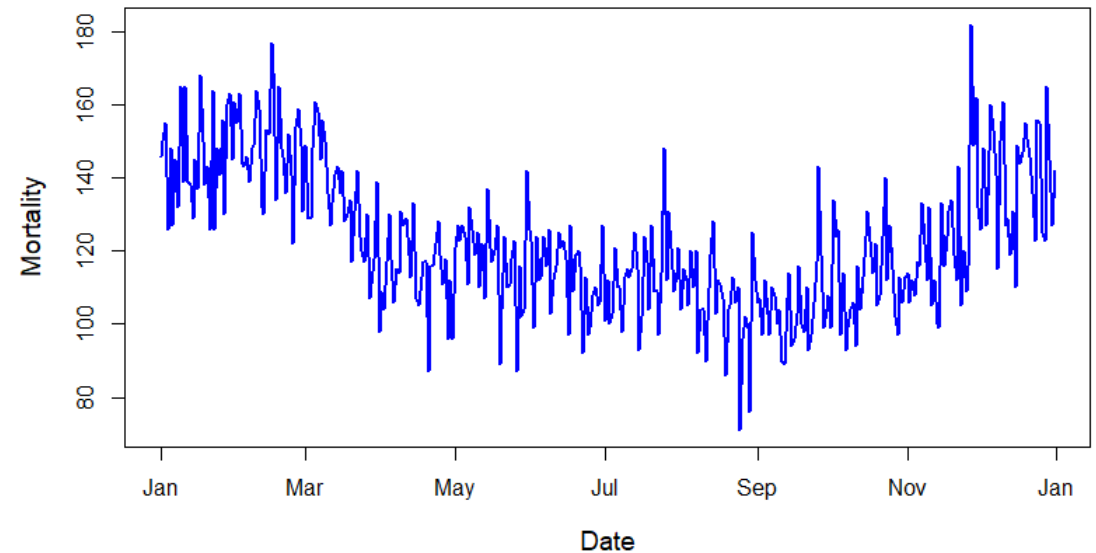
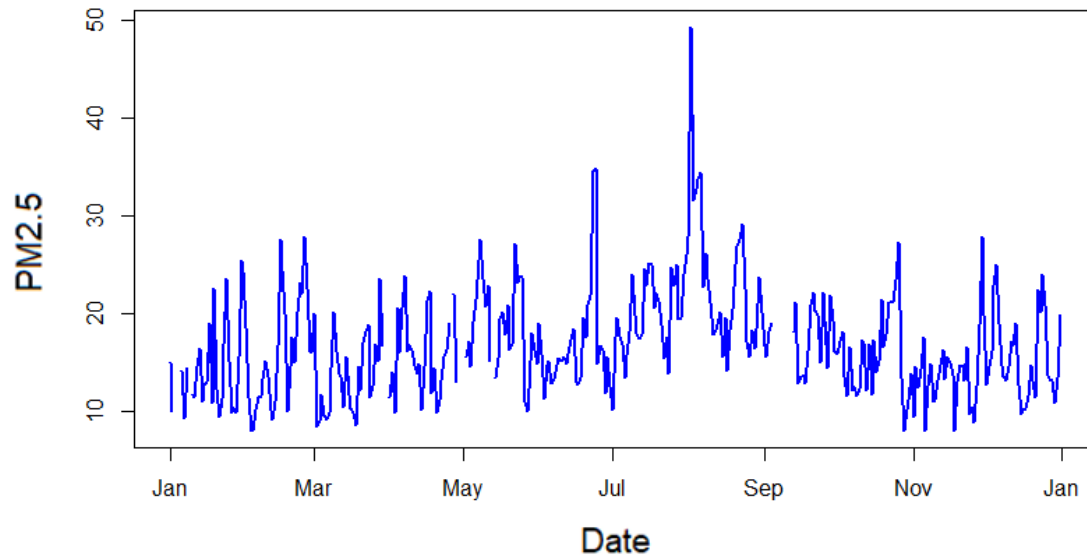
- Illustrate how air quality data can be used to investigate the health effects they can produce, with a focus on novel pollutant metrics.

Link air quality and health

Air Quality Monitors



Mortality or hospitalization registries



- Time series analysis
- Health impact assessment

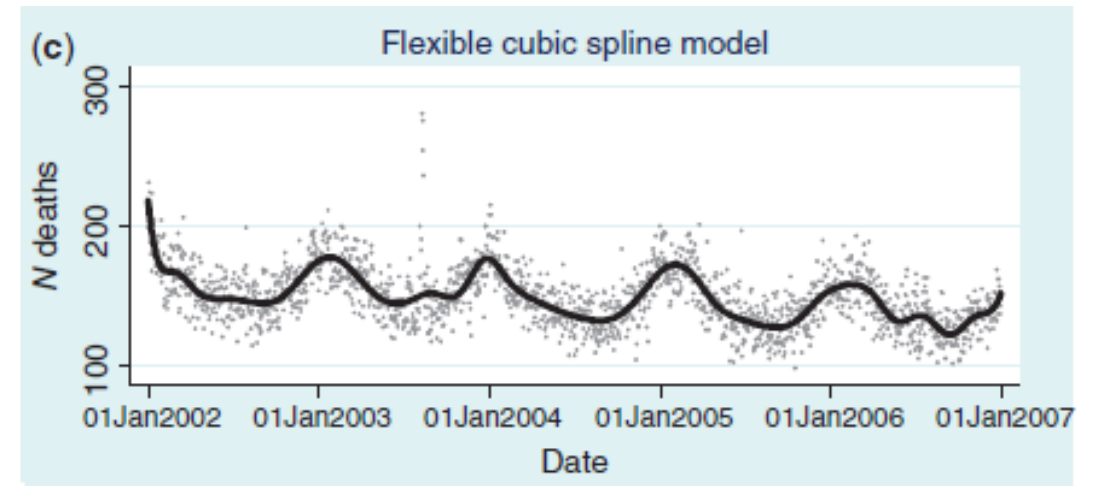
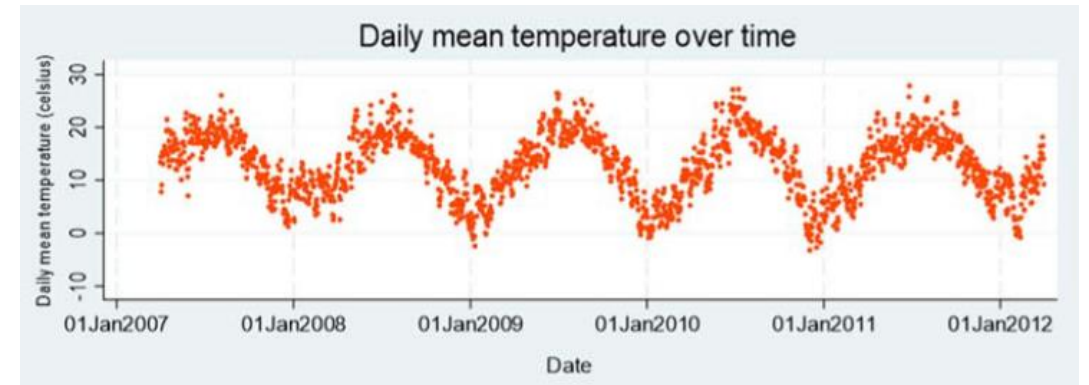
Health data

- Where to obtain it
- How to process it
- Challenges and recommendations: data suppressions, costs, unavailable recent data, data licenses, data access limitations, ...

DEATH		Entry No.
Registration district		Administrative area
Sub-district		
1. Date and place of death		
2. Name and surname		3. Sex
		4. Maiden surname of woman who has married
5. Date and place of birth		
6. Occupation and usual address		
7.(a) Name and surname of informant		(b) Qualification
(c) Usual address		
8. I certify that the particulars given by me above are true to the best of my knowledge and belief		Signature of informant
9. Cause of death		

Complementary data

- Weather variables
- Other pollutants
- Bank holidays
- Time trends, seasonality

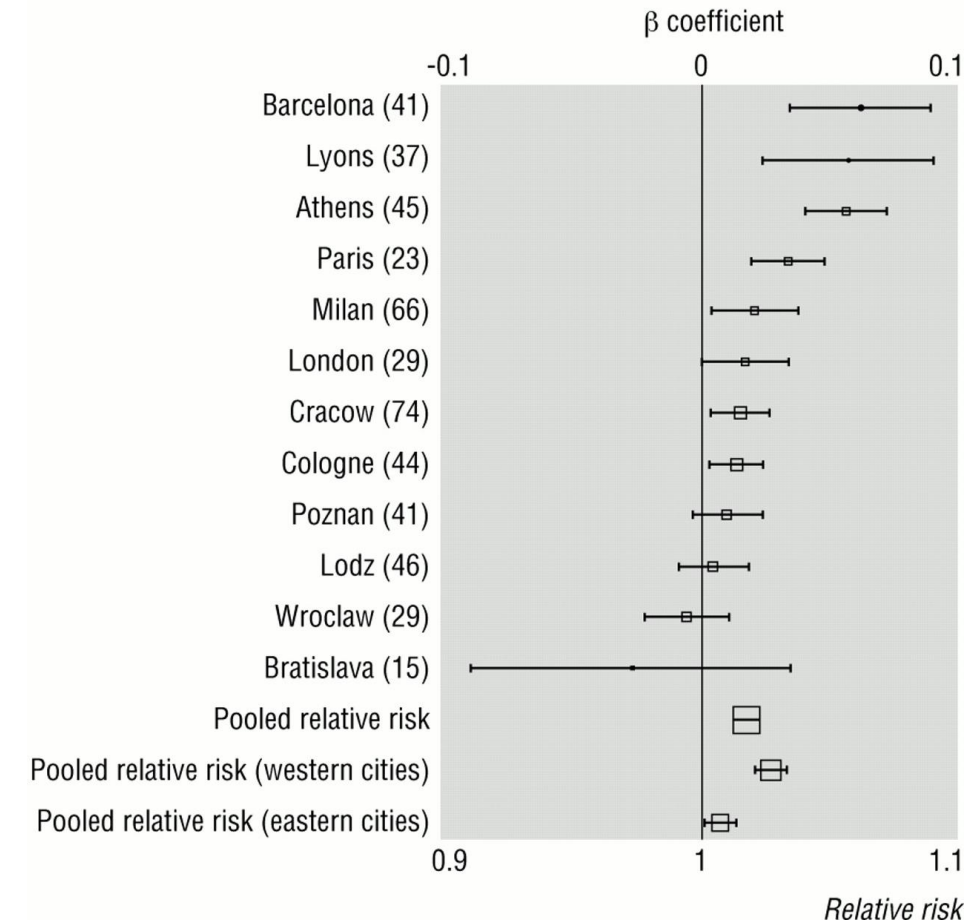
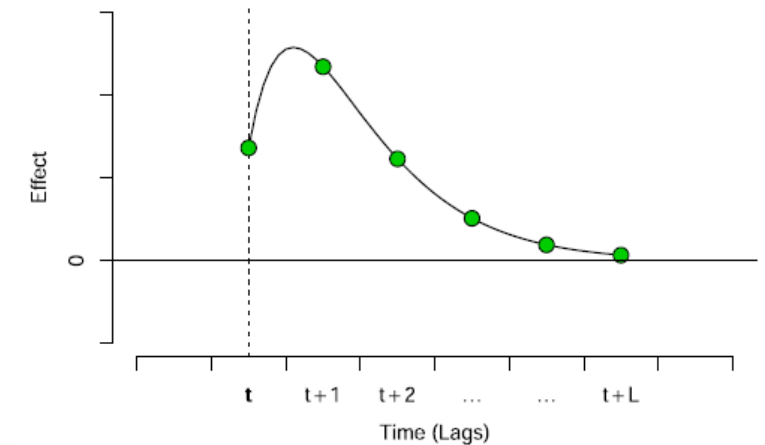


Required sample size

- Small effects (e.g. 0.5% increase in mortality), although relevant at population level
- May need 100,000s of deaths to detect them
- Include large cities, long periods

Statistical analysis

- quasi-Poisson regression models
- Delayed effects (distributed lag models)
 - references to documents to help fitting those models
- Meta-analysis to combine results from multiple cities



Statistical analysis

- Multi-pollutant models
 - 2- or 3-pollutant models
 - Factor analysis/source apportionment
 - Clustering days
 - Hierarchical models
 - other methods

Statistical analysis

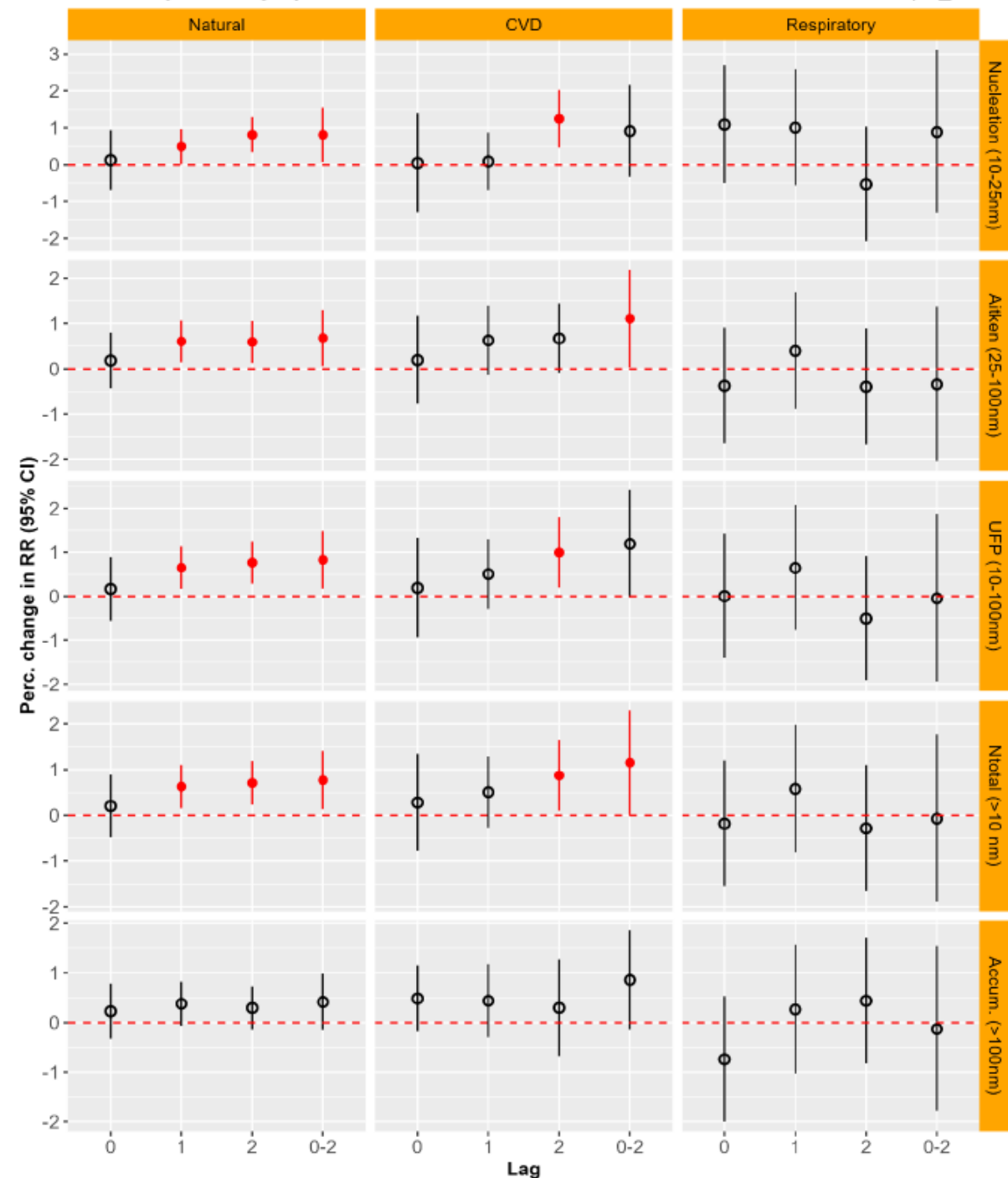
- Components:
 - ways to adjust for total mass
- Ultrafine particles:
 - accounting for lower size limit
 - exposure misclassification (spatial heterogeneity)

Health impact assessment

- Predict the potential health benefits and health impacts from a policy in a given population – E.g. Number of deaths
- Data needs
- Calculations
- Uncertainty

Illustration with RI-URBANS data

- How we have estimated health effects of UFP-PNSD.



RI-URBANS (

Thank you!