

Breathing City AQ & health metrics meeting

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Air quality metrics to inform health practice and policy – unresolved challenges and future opportunities

Dr Ben Barratt

MRC
Centre for Environment & Health



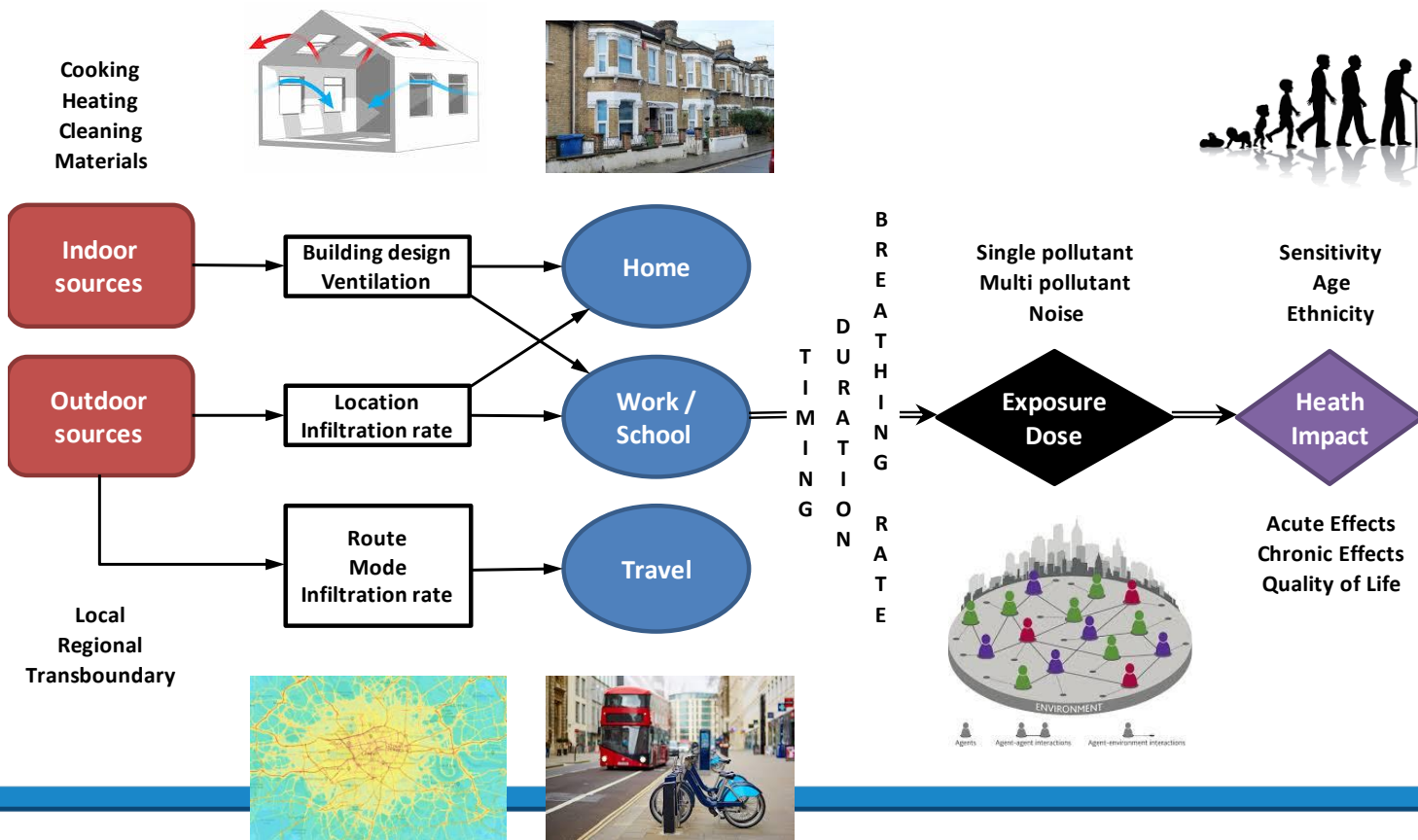
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Ambient air quality metrics



Metrics for 'true' exposure?

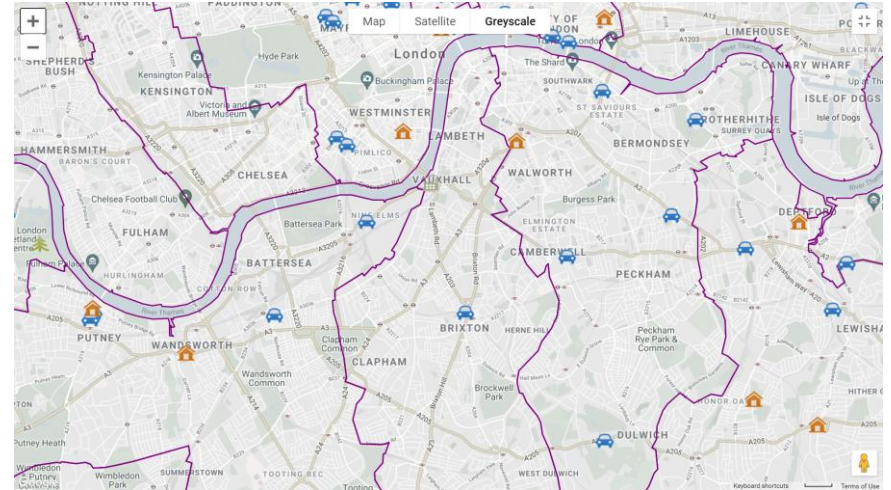
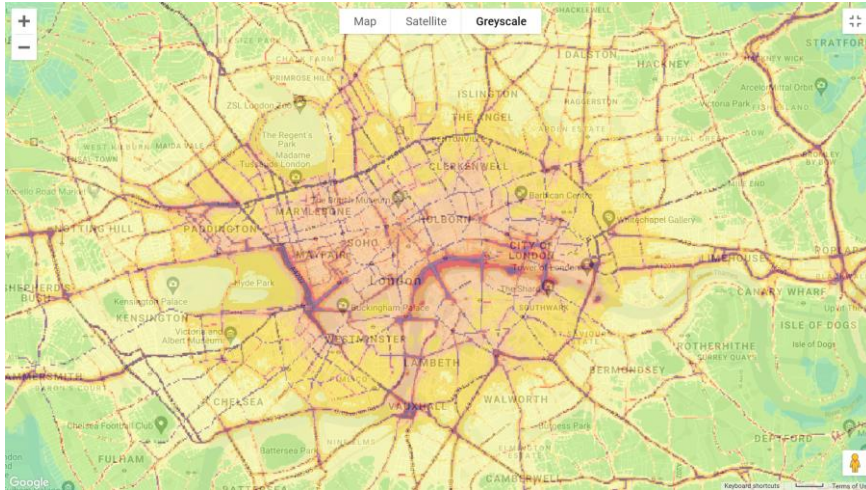


Challenge 1 – Ambient metrics are a proxy for human exposure

- Evidence often based on ambient epidemiological evidence – this cannot be directly translated to exposure
- “Living in a location that experiences X ambient air quality results in Y elevated risk of harm”
- Therefore an ambient metric of 10 $\mu\text{g}/\text{m}^3$ is not the same as an indoor metric of 10 $\mu\text{g}/\text{m}^3$ in health terms.

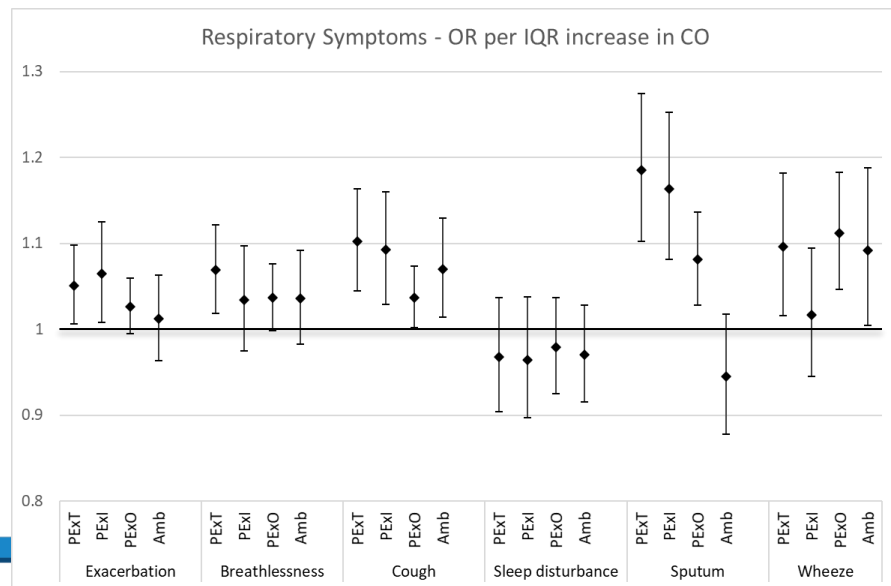
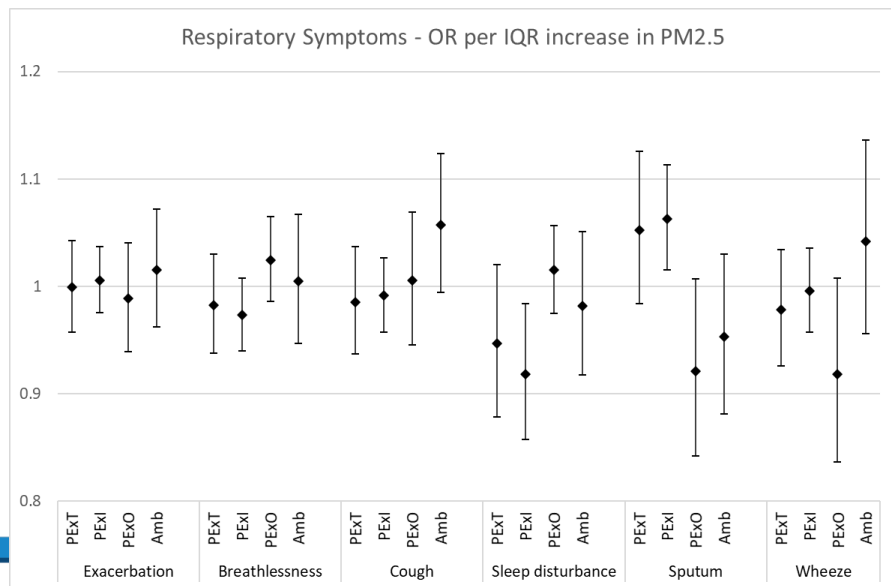
Challenge 2 – this is a health issue

- Do metrics protect health, or create a distraction?
- Air quality management system is currently based on environmental quality, not health protection



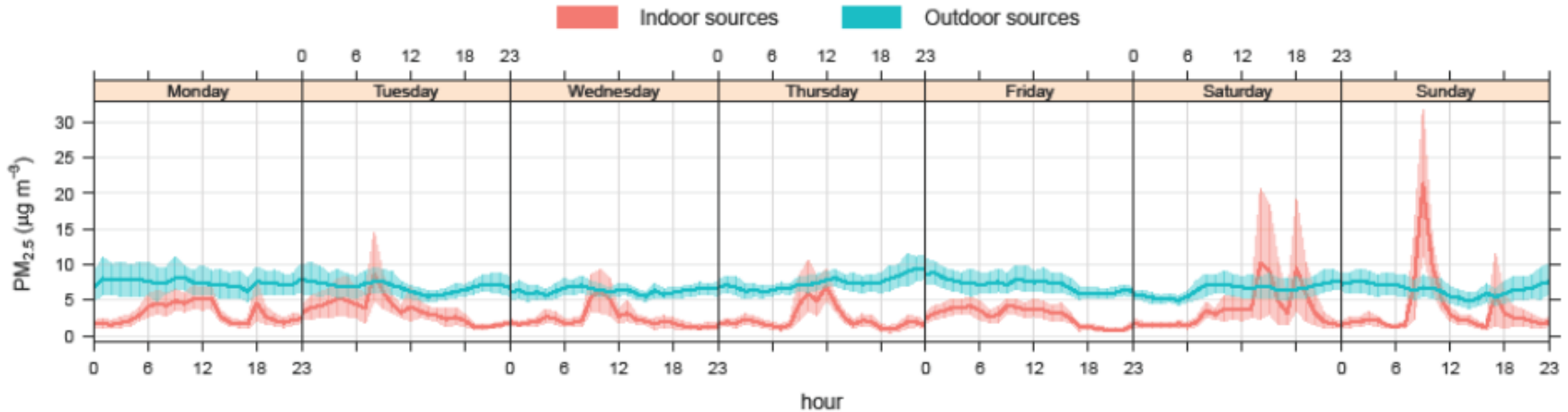
Challenge 3: What is harmful?

- Can ambient evidence of harm be translated?
- Sources, pollutants and mixtures are very different
- Indoor PM_{2.5} <> outdoor PM_{2.5} (no WHO IAQ Guideline)

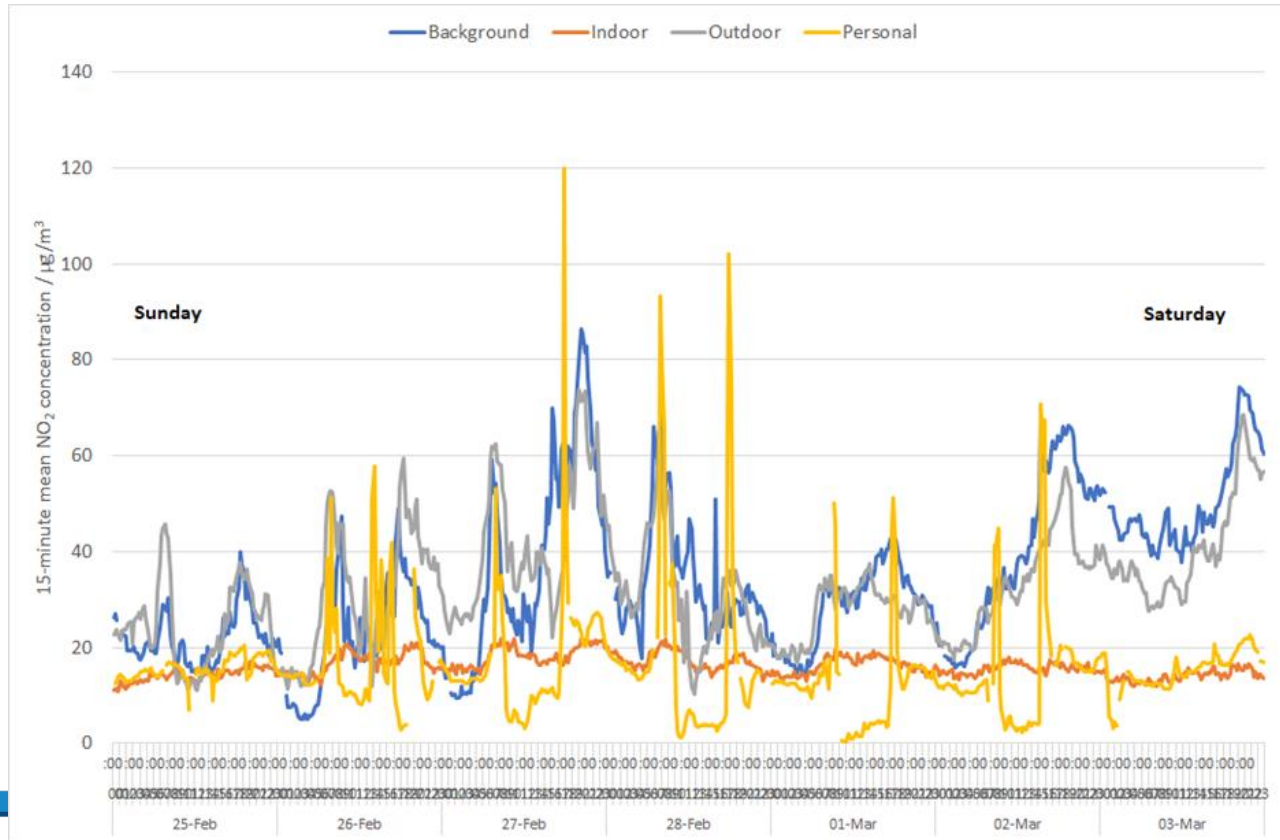


Challenge 4: How long is harmful?

- Indoor exposures can be extreme and transient
- Challenges both for assessment and health impact – chronic and acute



Challenge 5: Who's responsible?

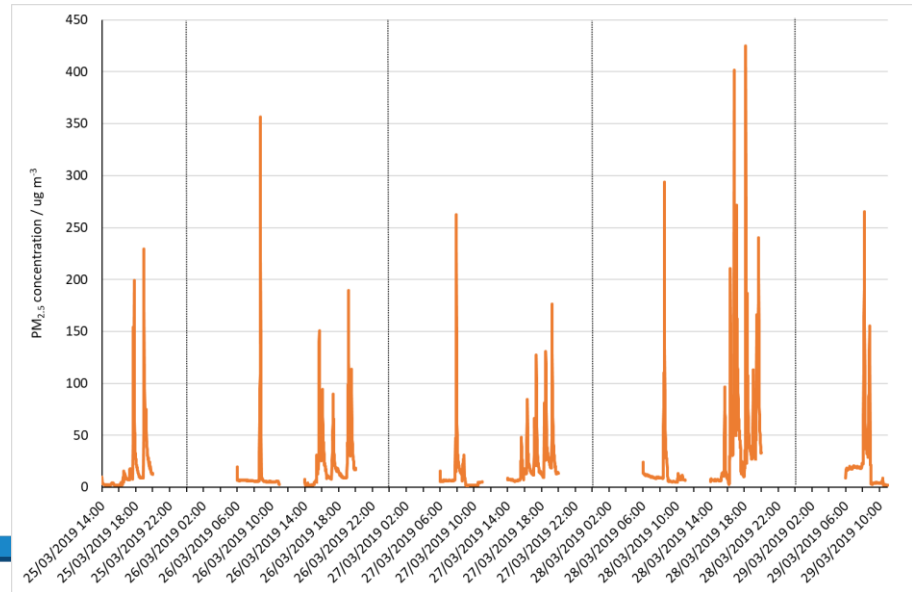
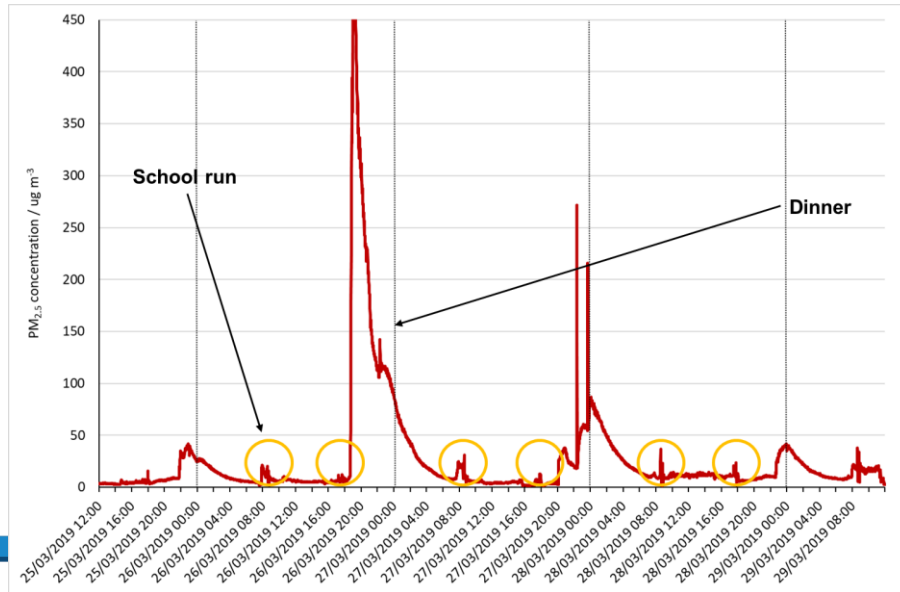


Challenge 6: How do you assess it?

- Real world, laboratory or theoretical?
 - Effective health protection requires a direct link to exposure
 - Metrics need to be measurable and practical
- Access to private spaces
 - Miniaturisation and sensors have data challenges
- Human behaviour has a disproportionately large influence
 - We're all different so how do you scale up results?
- Ambient is impersonal, indoor isn't
 - Ethics - how do you present very personal results?

Challenge 7: Who protects our health?

- Who polices and is responsible for assessing indoor AQ?
- Ambient largely devolved to LAs, indoor largely manufacturing and building industries



Opportunities and solutions

- More toxicological work to identify priority sources and pollutants
- Perfection isn't necessary – what's 'good enough' to inform and protect?
- Emphasis on intervention not observation
- The public is more engaged than ever, but they must feel empowered and not helpless or they will disengage
- SPF Wave 2 projects just starting are a big step forward, use them! (toxicology, behaviour, sources, NTAs, microplastics, bio PM etc)

Acknowledgements

- Thank you to the many collaborators and participants in the studies providing evidence.
- Email: b.barratt@imperial.ac.uk