



UK Health  
Security  
Agency

# *UKHSA towards IAQ solutions*

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# Exposure to indoor air pollution across socio-economic groups in high-income countries: A review of the literature and a modelling methodology

Ferguson L, Taylor J, Davies M, Shrubsole C, Phil Symonds, Dimitroulopoulou S (2020)

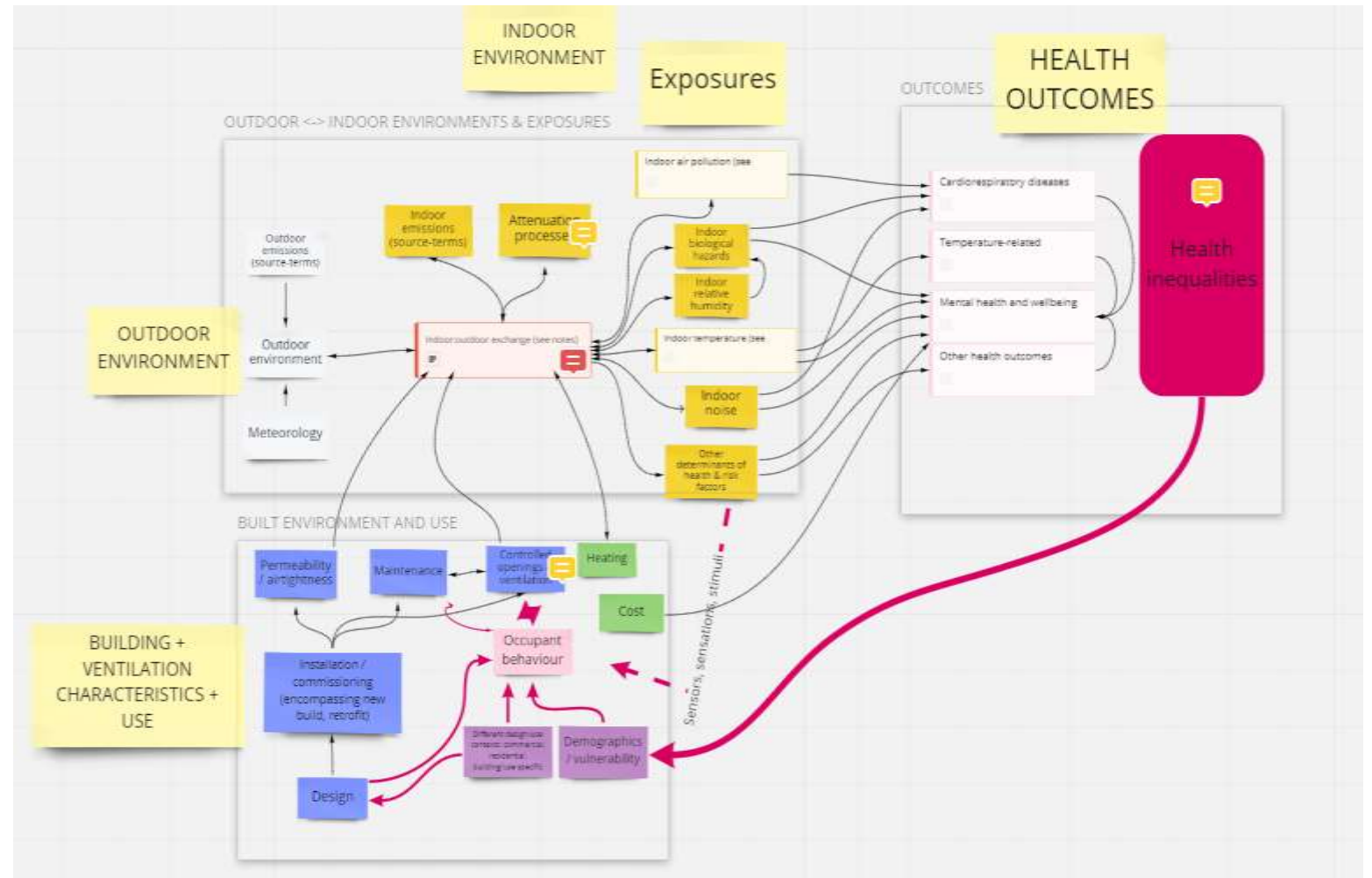


- Households of low socio-economic status experienced higher levels of indoor PM, NO<sub>2</sub>, VOCs and ETS
- Higher radon concentrations were found in homes with a greater material wealth
- Inequalities in exposures may arise via
  - Poor quality housing
  - A lack of education regarding the harm of indoor second-hand smoke
  - Location near congested roads
  - Higher occupant density resulting in greater re-suspension of particles
  - Radon in homes is principally explained by geological variables
- A holistic approach to improve indoor air quality (IAQ) is required by transforming existing cities through sustainable building design, clean household fuels and reduced dependency on cars

[10.1016/j.envint.2020.105748 \(doi.org\)](https://doi.org/10.1016/j.envint.2020.105748)

# FUVN system mapping

- Early FUVN activity
- Mapped
  - Health determinants
  - Inter-relationships
- Framed
  - Discussions
  - Ventilation survey
  - Webinar topics
- Health inequalities...
  - ...based on exposure
  - ...based on vulnerability



# Systemic inequalities in indoor air pollution exposure in London, UK

Ferguson L, Taylor J, Zhou K., Shrubsole C, Symonds P, Davies M, Dimitroulopoulou S (2021)



- Deprivation affects personal exposure to air pollution:
  - More time is spent indoors
  - More pollution-generating activities are undertaken indoors
  - Outdoor air pollution is higher in deprived areas
  - Poor quality housing can increase exposures
  - Underlying health issues increase adverse impacts
- Systems frameworks can highlight areas of systematic inequality
- **Low-income households have limited opportunities to improve their indoor air quality**
- Potential systematic interventions include improving outdoor environments, improving housing quality and urban form, and changing the behaviour of occupants
- Indoor air pollution exposure disparities are under-researched

<https://doi.org/10.5334/bc.100>

# UKHSA collaboration: *Sector guidance on the health impacts of damp and mould*

- Awaab Ishak, Prevention of future deaths report
  - Matter of concern: lack of health information for housing sector on risks of damp and mould
  - Contrast with legionnaires and gas safety campaigns
- OHID to lead on response in partnership with UKHSA and DLUHC
  - Review of existing guidance (UKHSA)
  - Engage with interested parties
  - Publish guidance for landlords – end of July 2023
- Inequalities: housing and indoor quality, structural (defining and resolving housing-related issues)
  - Action targets housing standards and practices



# Cross-sector opportunities to reduce exposures and health disparities

## Standards and guidelines: the current state of play

- Addressing specific pollutants
  - Volatile Organic Compounds, low level carbon dioxide (UKHSA)
  - Open database for international and national guidelines (ISIAQ) [www.ieqguidelines.org](http://www.ieqguidelines.org)
- Addressing building characteristics
  - Building regulations: Approved Document F – Ventilation / Appendix B: Performance-based ventilation
  - A Decent Home: Definition and Guidance for Implementation
- Addressing regulation and interventions
  - Housing Health and Safety Rating System (DLUHC)
  - Portable air purification: impacts on indoor air quality and health (UKHSA)