Roundtable 5: Evidence and data needed for conducting HIA

Chair: Odile Mekel, vice-president of EUPHA-HIA section, Head of Department at LGNW (Germany)
Co-Chair: Francesca Viliani, Health section of the International Association for Impact Assessment (IAIA), Director Fraviliconsult

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EUPHA HEALTH IMPACT ASSESSMENT
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Grant agreement number: 101152231 EUPHA-2024-OG

HIA relies on the use of multiple source of data and evidence. Therefore, HIA can adopt a different array of methodologies.

This session aims:

- To explore which kind of data and methods are used in HIA, and what have been the major recent developments.
- To discuss to what extent participation is used in HIA and how it is captured.
- To consider how to address distribution of effects across different population groups depending on data.

Speakers

Katie Hirono, *Principal Consultant, Health & Social Impact, RPS Consulting UK & Ireland*

Participation in HIA: more than just a 'nice thing to do'.

Natalie Muller, *Assistant Research Professor at ISGlobal (Barcelona, Spain)*

Quantitative health impact assessment and data needs

Alistair Hunt, *Senior Lecturer at the Department of Economics, Univ. of Bath (UK)*

Health impact assessment, Economics and Inequalities

Participant Questions

1. Which method have you used more often in HIA?

    a. Qualitative
    b. Quantitative
    c. Mix method
    d. Other, Please specify
    e. NA

Participant Questions

2. Which of the following health determinant have you most frequently addressed when conducting a HIA?
   (multiple answers possible)

   a. Biological
   b. Behavioural
   c. Environmental
   d. Socio Economic
   e. Commercial
   f. Legal
   g. Other, *Please specify*

Participant Questions

3. Have you used any forms of public engagement in HIA?

    a. Yes
    b. No in HIA, but yes in other assessments
    c. Not ever
    d. Not sure

Participation in HIA: more than just a ‘nice thing to do’.

Katie Hirono, PhD
Principal Consultant, Health & Social Impact, RPS Consulting UK & Ireland

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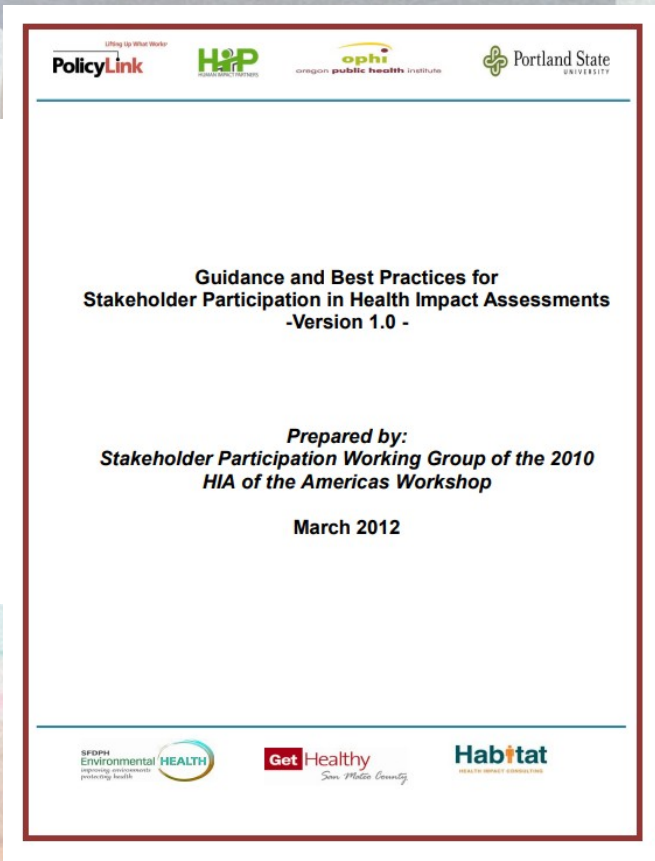
PARTICIPATION IN HIA: MORE THAN JUST A 'NICE THING TO DO'

- What do I mean by 'participation' in HIA?

- What is the rationale for doing participation?

- How do people participate in an HIA?

- How to do participation? See, e.g. www.hiasociety.org


Guidance and Best Practices for
Stakeholder Participation in Health Impact Assessments
-Version 1.0 -

Prepared by:
Stakeholder Participation Working Group of the 2010 HIA of the Americas Workshop

March 2012

EVIDENCE AND PROCESS BENEFITS OF PARTICIPATION IN HIA

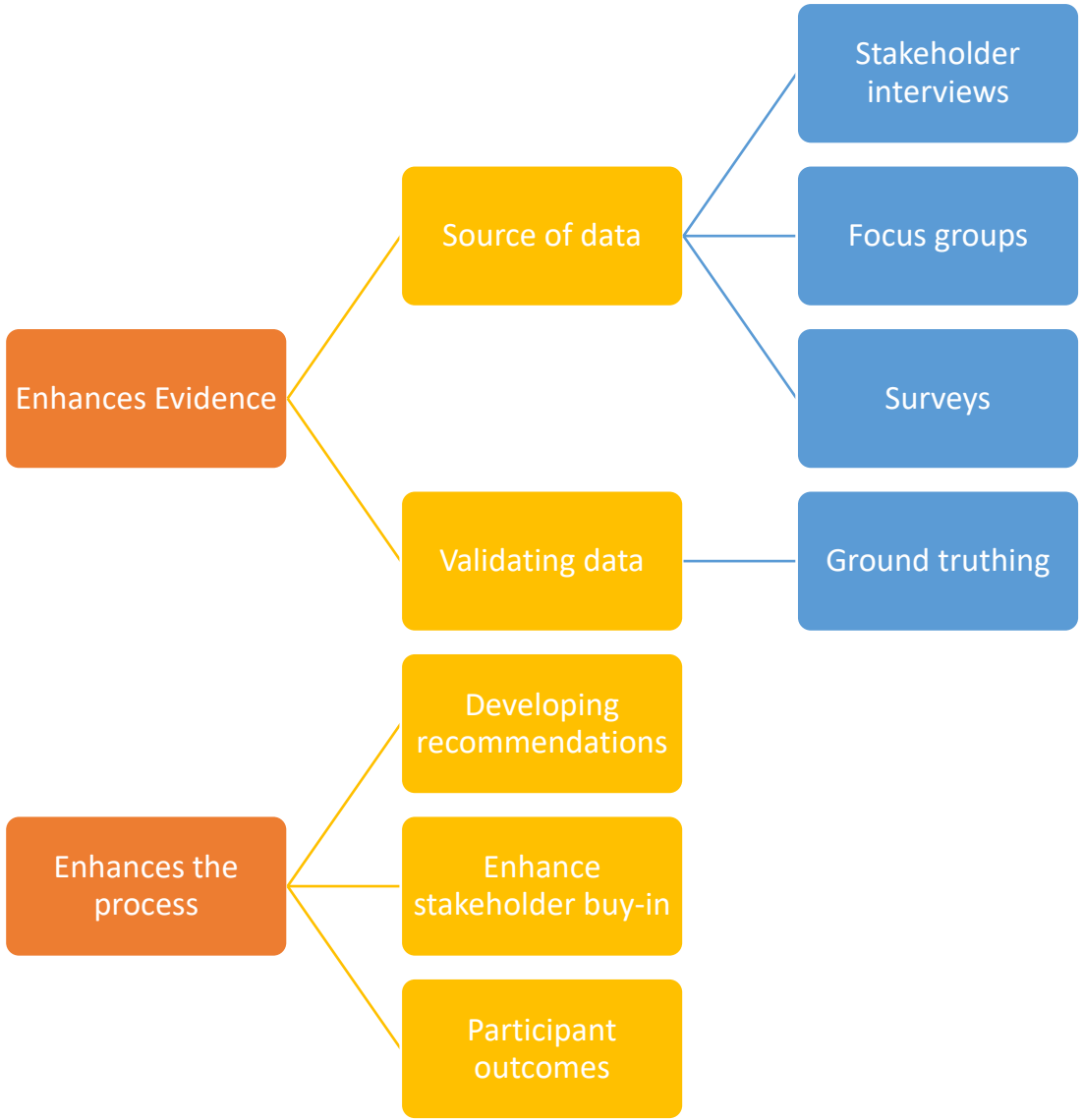
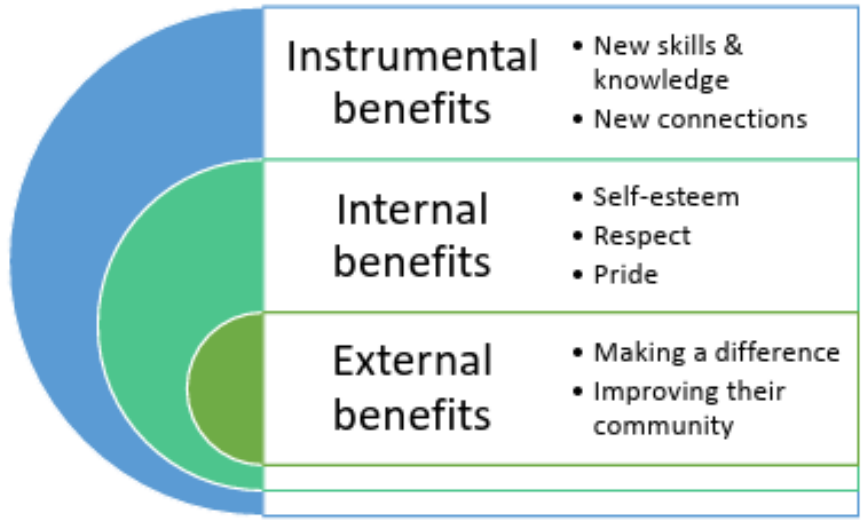


Fig 1. Reported benefits of participation

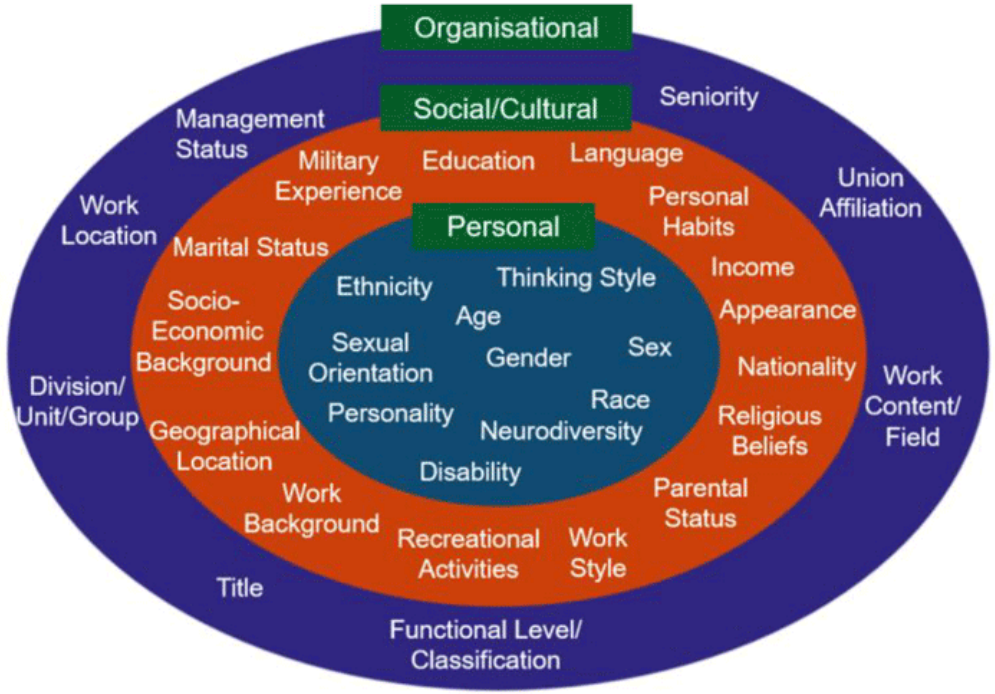


Source: Hirono K (2023) Participation for health equity: A comparison of citizens' juries of health impact assessment. PhD Thesis. University of Edinburgh.

A MECHANISM FOR IMPROVING CONSIDERATION OF HEALTH EQUITY

- Personal characteristics intersect with systems and structures to shape a person's experience.

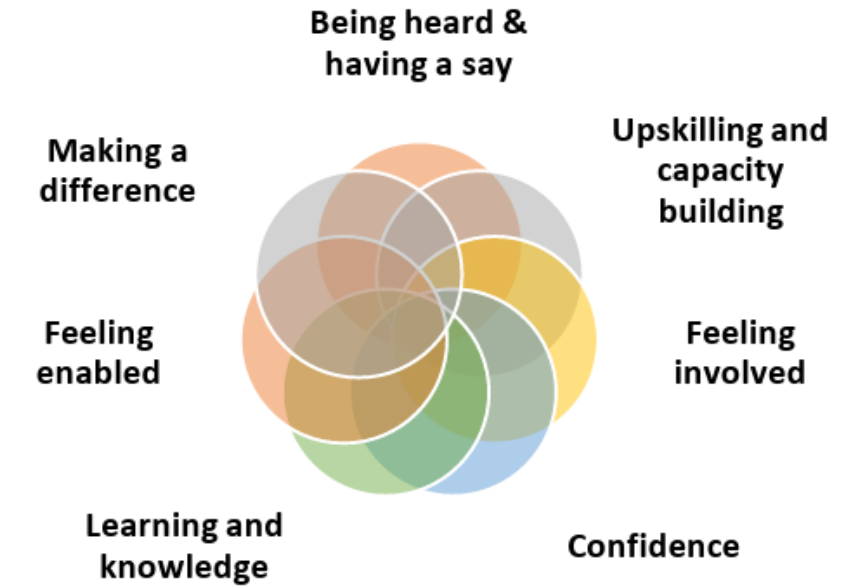
Fig 2. Diversity Wheel



Source: Scottish Government (2022). "Using intersectionality to understand structural inequality in Scotland: evidence synthesis". https://www.gov.scot/publications/using-intersectionality-understand-structural-inequality-scotland-evidence-synthesis/pages/1/ Accessed: 28 May 2025.

- Process outcomes of participation include: empowerment, civic skills & social capital

Fig 3. Reported empowering aspects of the process



Source: Hirono K (2023) Participation for health equity: A comparison of citizens' juries of health impact assessment. PhD Thesis. University of Edinburgh.

CHALLENGES AND OPPORTUNITIES

- Overcoming perceived challenges of participation
  - Resource & time constraints
  - Inability to access the right populations and/or legitimacy of those who do participate
  - Overtaxing communities without demonstrating benefit

- Evidence and communication about added value to the HIA process

- Integration within other quant./qual. methods used in HIA

- Community-led HIA or other rapid/digital approaches

Image source: https://www.cru.org/us/en/blog/life-and-relationships/your-community/why-a-diverse-community-is-better-for-your-growth.html

Quantitative HIA and data needs

Natalie Mueller, PhD
Assistant Research Professor at ISGlobal, Barcelona, Spain
natalie.mueller@isglobal.org

ISGlobal Instituto de Salud Global Barcelona

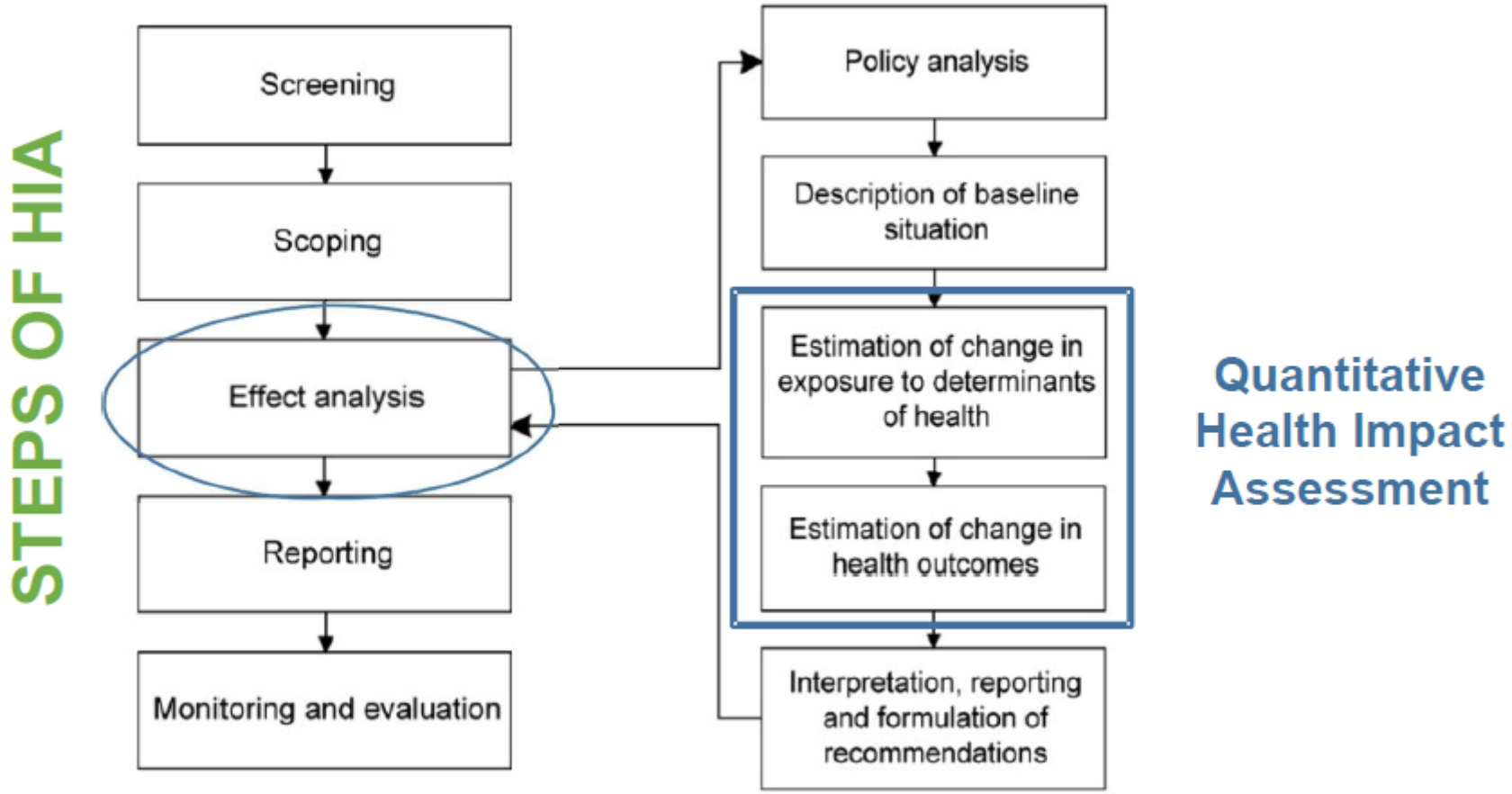
Health Impact Assessment is a **combination of procedures, methods and tools** by which a policy, program or project may be judged as to its potential effects on the health of a population, and the **distribution** of those effects within the population.

WHO 1999 HIA Gothenburg Consensus Paper

Quantitative HIA

Qualitative HIA	Quantitative HIA	Semi-quantitative HIA
Less technical and computational resource intensive	**More technical** and **computational resource intensive**	Semi technical and computational resource intensive
Greater stakeholder participation	**Data-driven**; stakeholder **participation reduced** given the complexity of methods and models	Some stakeholder participation, some data support
Participatory, discursive approach	**Expert assessment**; exposure pathway to health impact **modelling**	Semi-participatory, semi-quantitative
Influenced by subjective perceptions, societal notions	Based on best available **epidemiological evidence; statistical data**	Influenced by subjective perceptions, societal notions and supported by quantitative epidemiological/ statistical data
Contribution to characterization of exposure-health associations and direction of health impact	Objective and **measurable** health impact (**magnitude and size**)	Contribution to characterization of exposure-health associations and direction of health impact supported by quantitative data
Health impact trends without quantification	**Quantifiable health impacts**, allowing comparison of health risks with health benefits	Health impact trends, with quantified exposure or health data
Allows assessment of non-measurable health pathways (e.g. perceptions, subjective well-being). More holistic but less precise.	**Restricted to a few quantifiable/measurable health pathways**. Less holistic but more precise.	Quantitative data on exposure or health outcome available, but no quantitative risk function. More holistic but less precise.
Outputs ask for a stronger epidemiological evidence base	Outputs are **evidence-based** and can be translated into **economic impacts**	Outputs ask for a stronger epidemiological evidence base

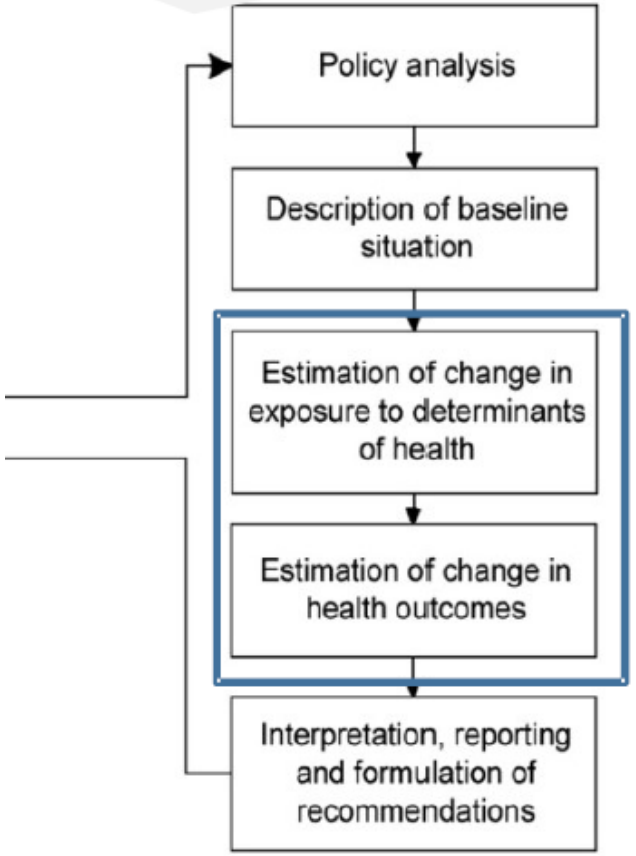
Health impact modelling



Slide courtesy of European Burden-EU of Disease Network Training School Risk factors, HIA and knowledge translation

Health impact modelling

Focus of today



This does not exclude the use of qualitative methods.

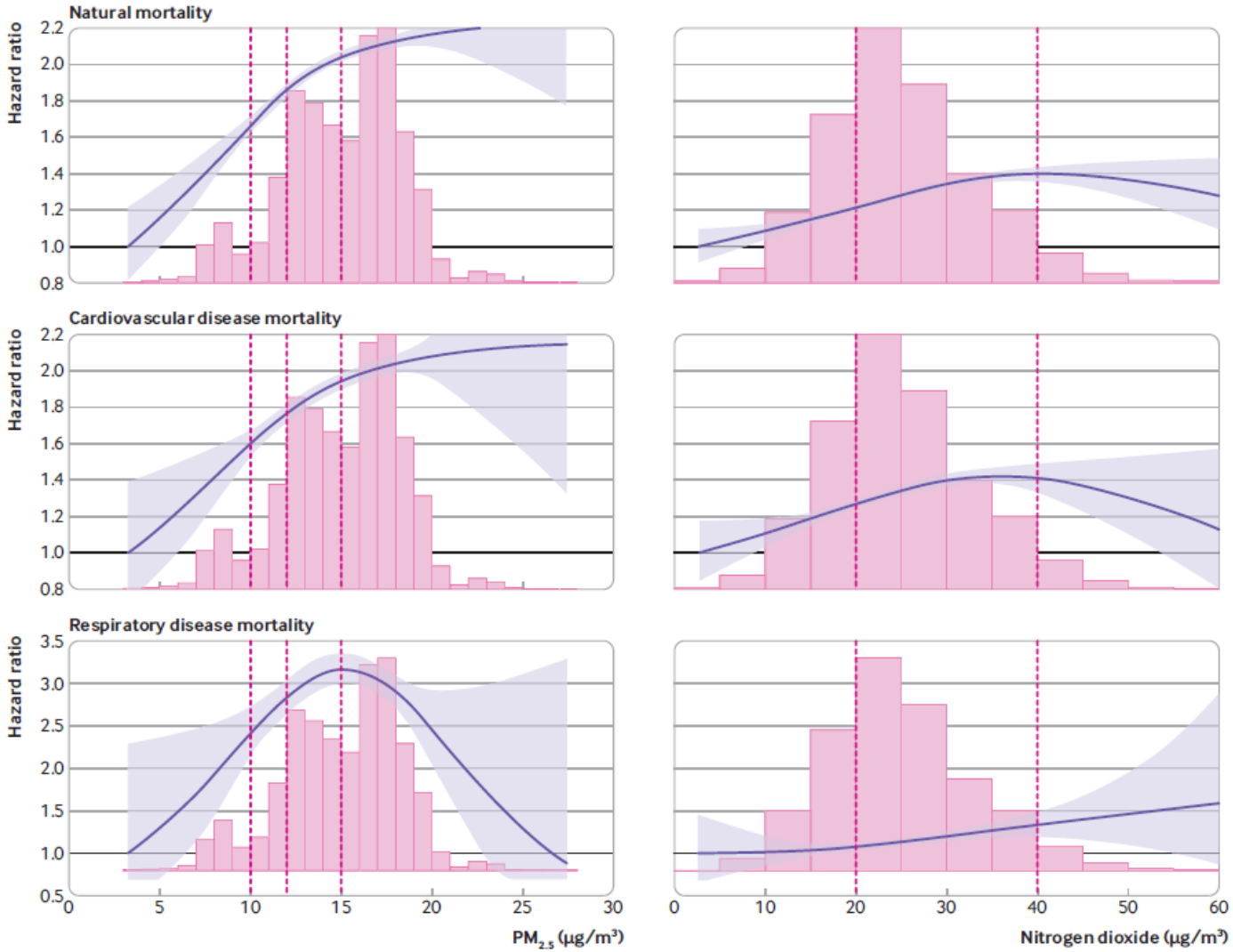
Quantitative Health Impact Assessment

Relationship between the (proposed) policy and the determinant of interest

Relationship between determinant(s) and health outcomes

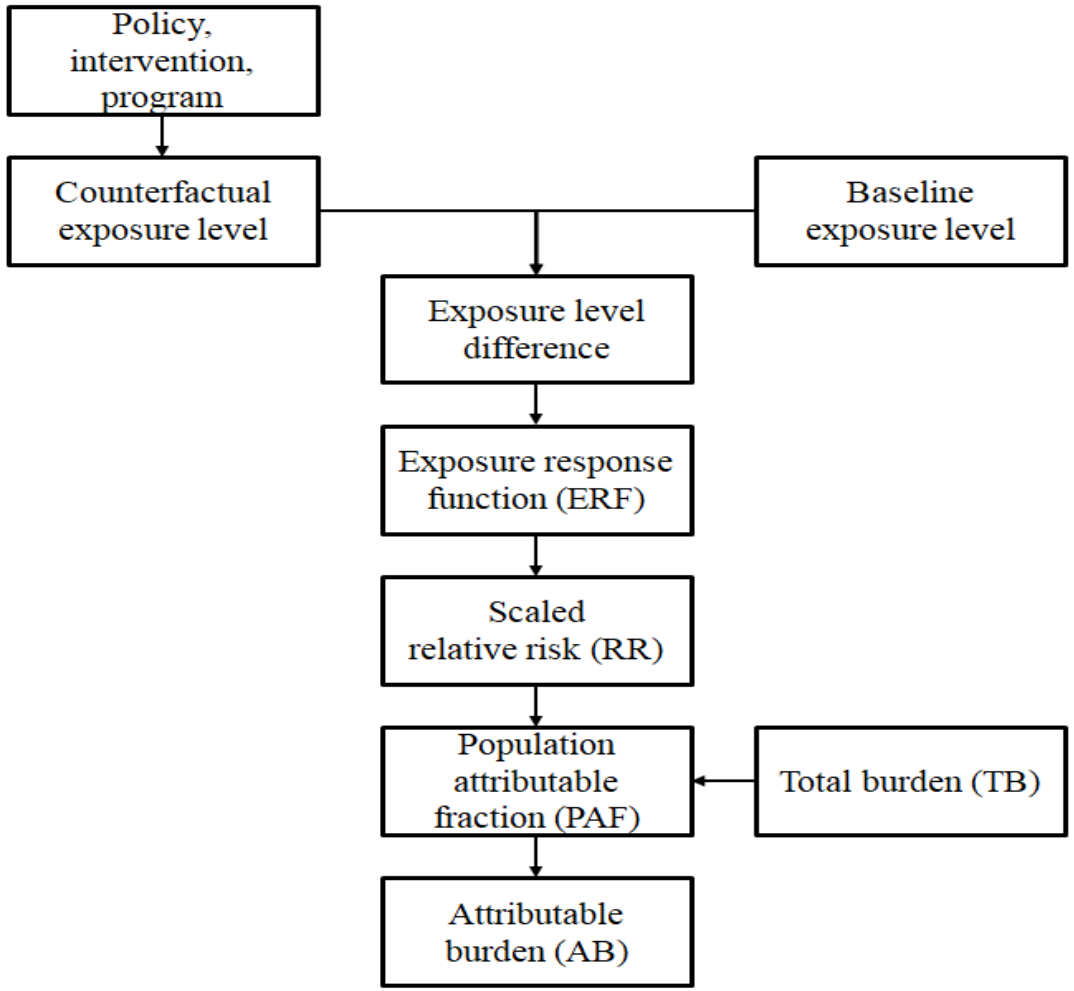
Slide courtesy of European Burden-EU of Disease Network Training School Risk factors, HIA and knowledge translation

Exposure-response functions



ISGlobal

Comparative risk assessment



Source: Mueller et al. 2017

Comparative risk assessment

How to estimate the effect on health?

Comparative risk assessment

What it does

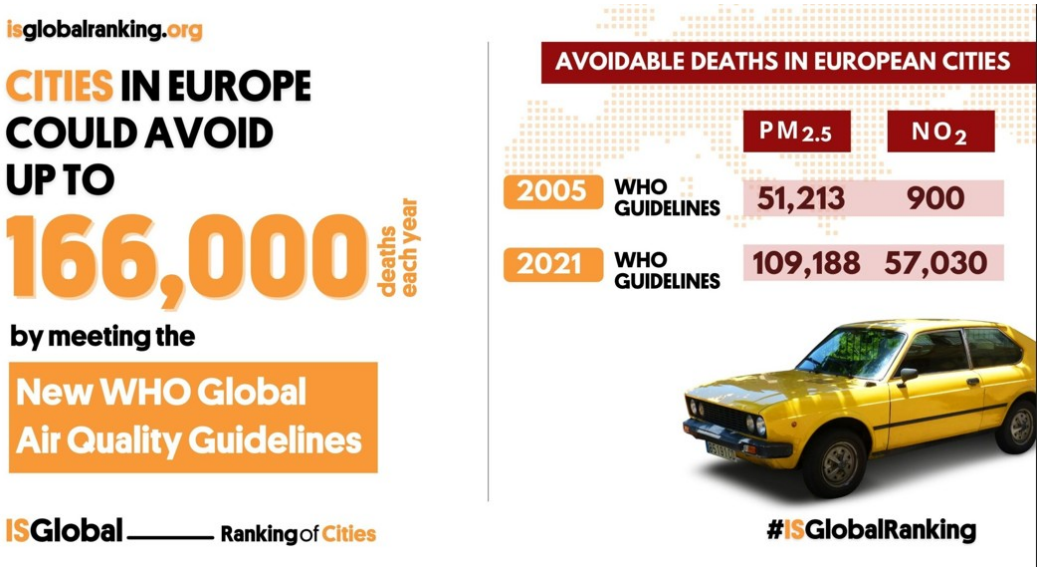
- Standardizes and compares health risks
- Provides net health impact of policy effect
- Provides a simple but robust model

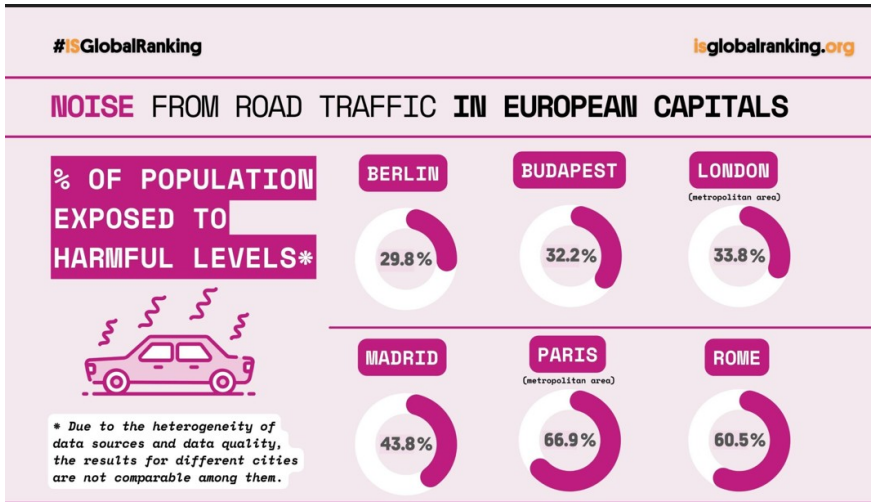
What it does not

- Creates outcomes that are generalizable across populations
- Accounts for demographic or disease burden changes over time
- Gives flexibility in the characterization of diseases and risks

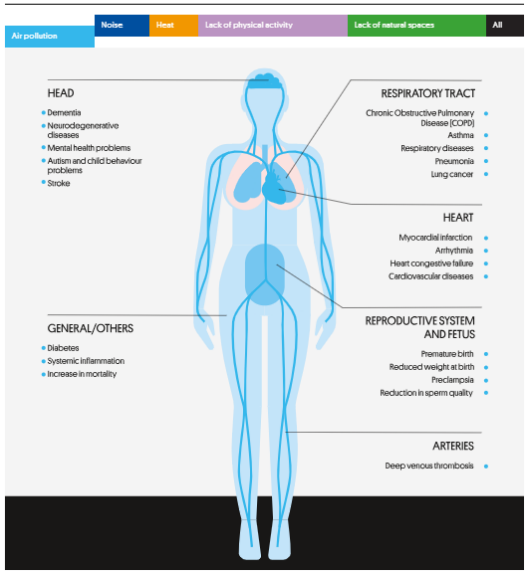
Slide courtesy of European Burden-EU of Disease Network Training School Risk factors, HIA and knowledge translation

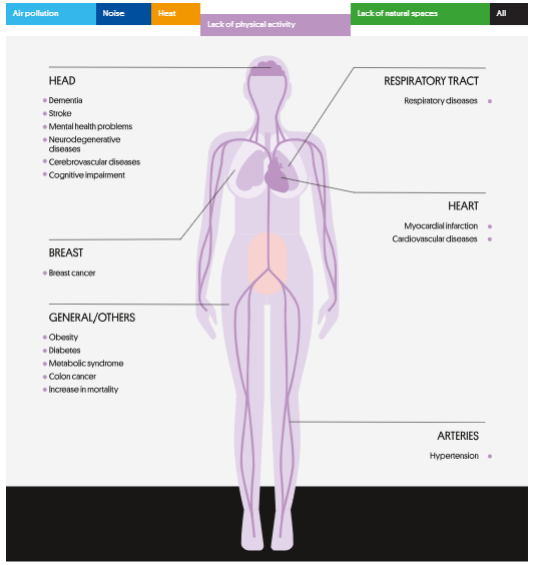
Data needs





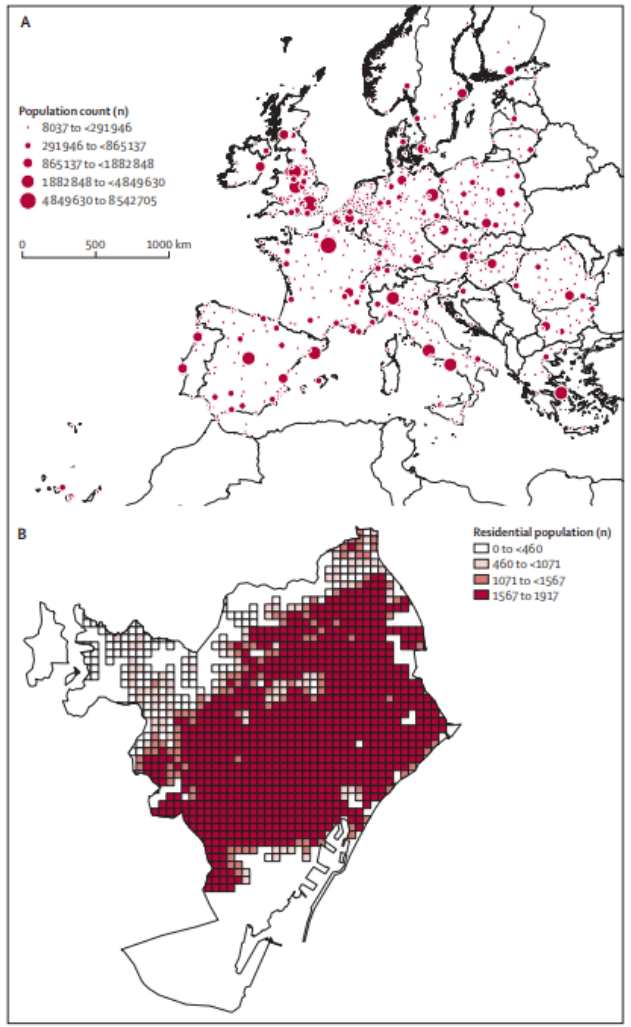
Health conditions associated with air pollution, noise and heat, and lack of physical activity and natural spaces

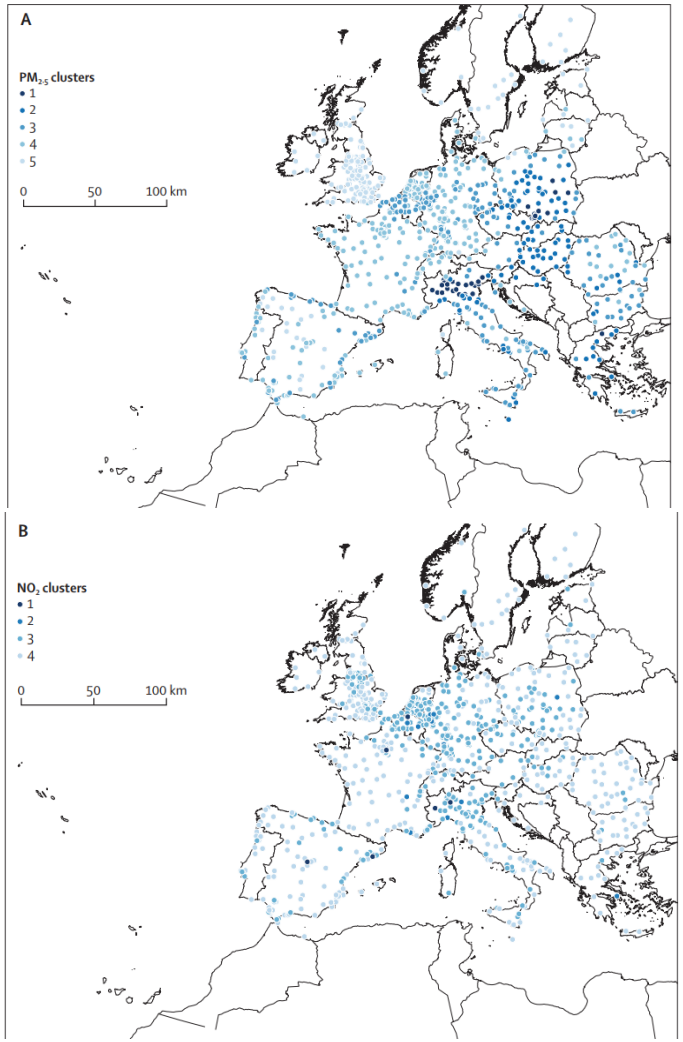


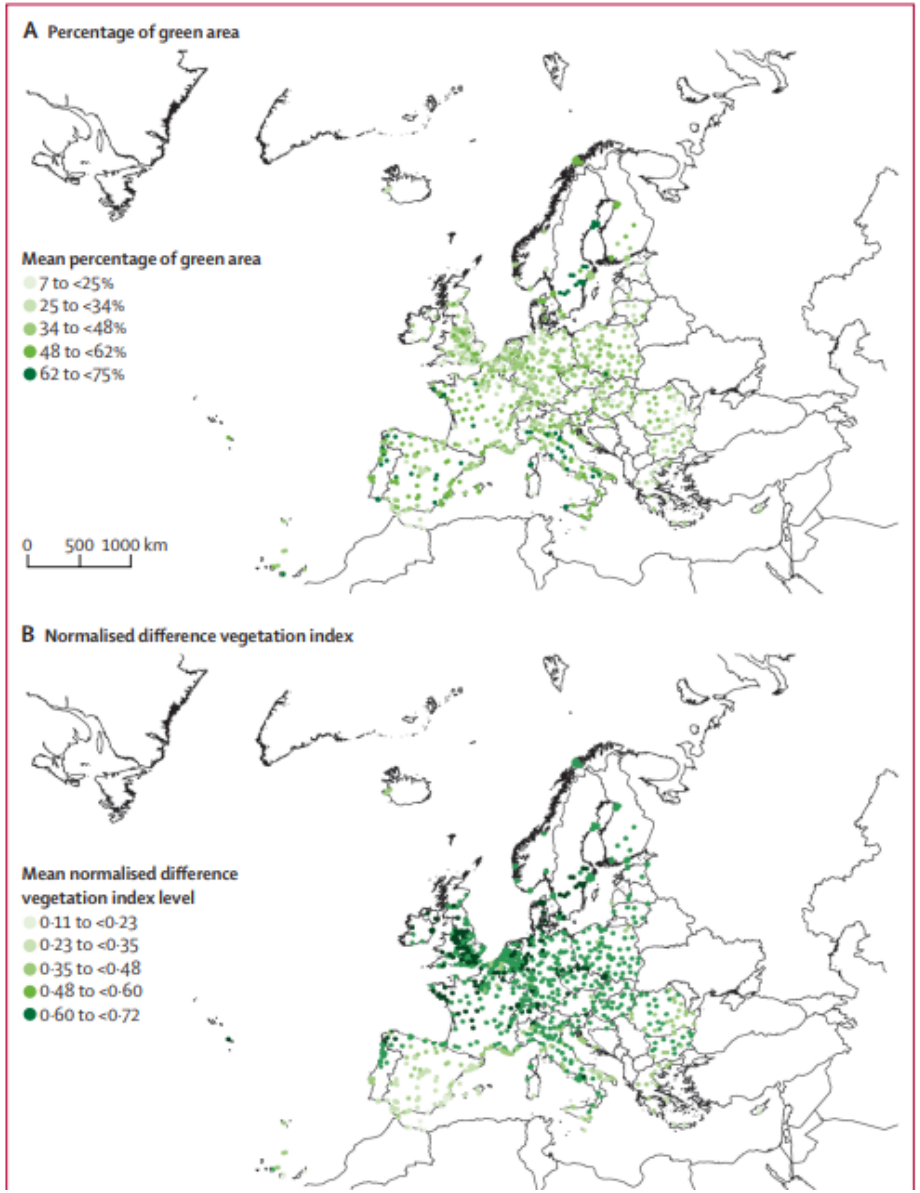


Data needs

Population and environmental data

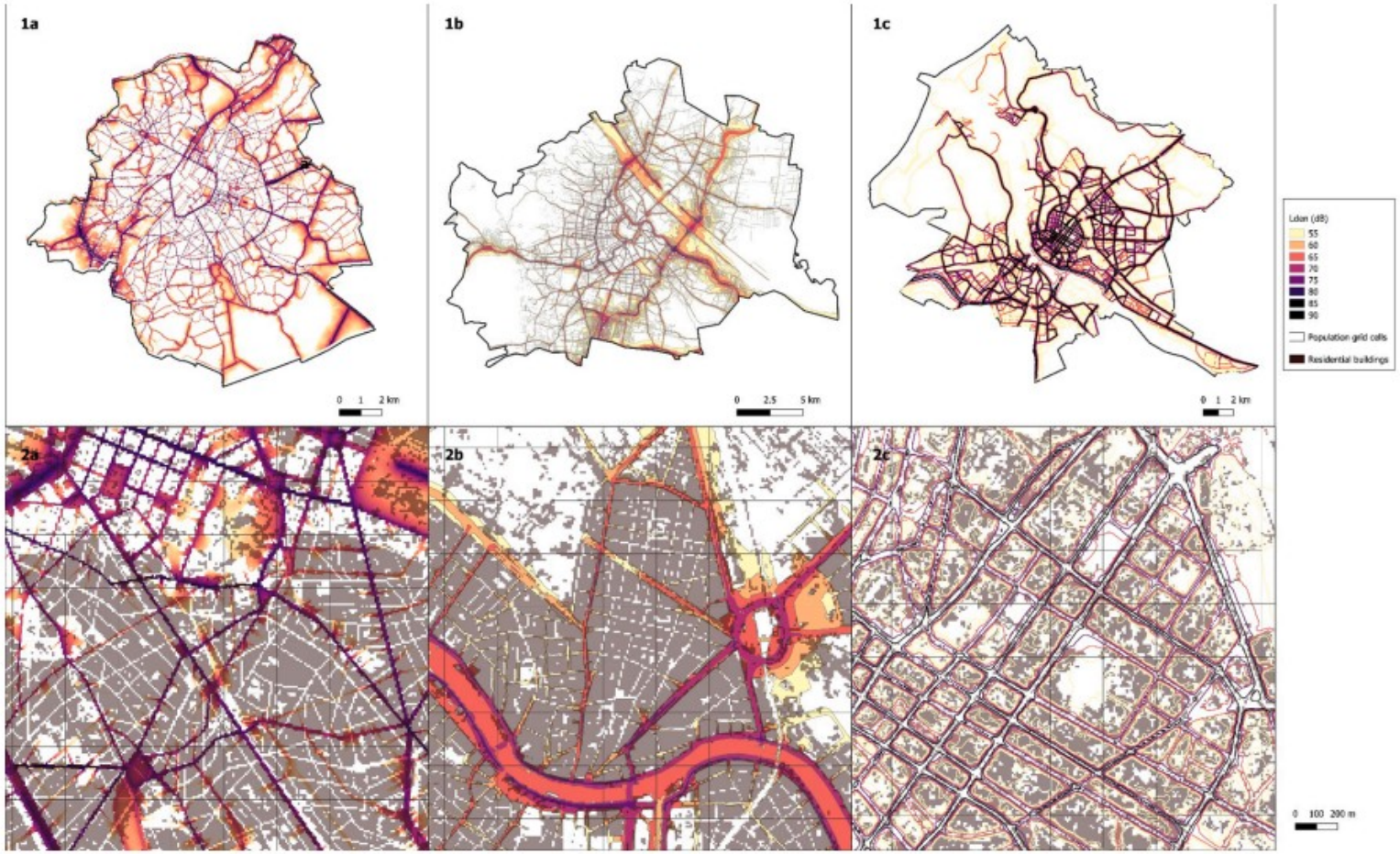




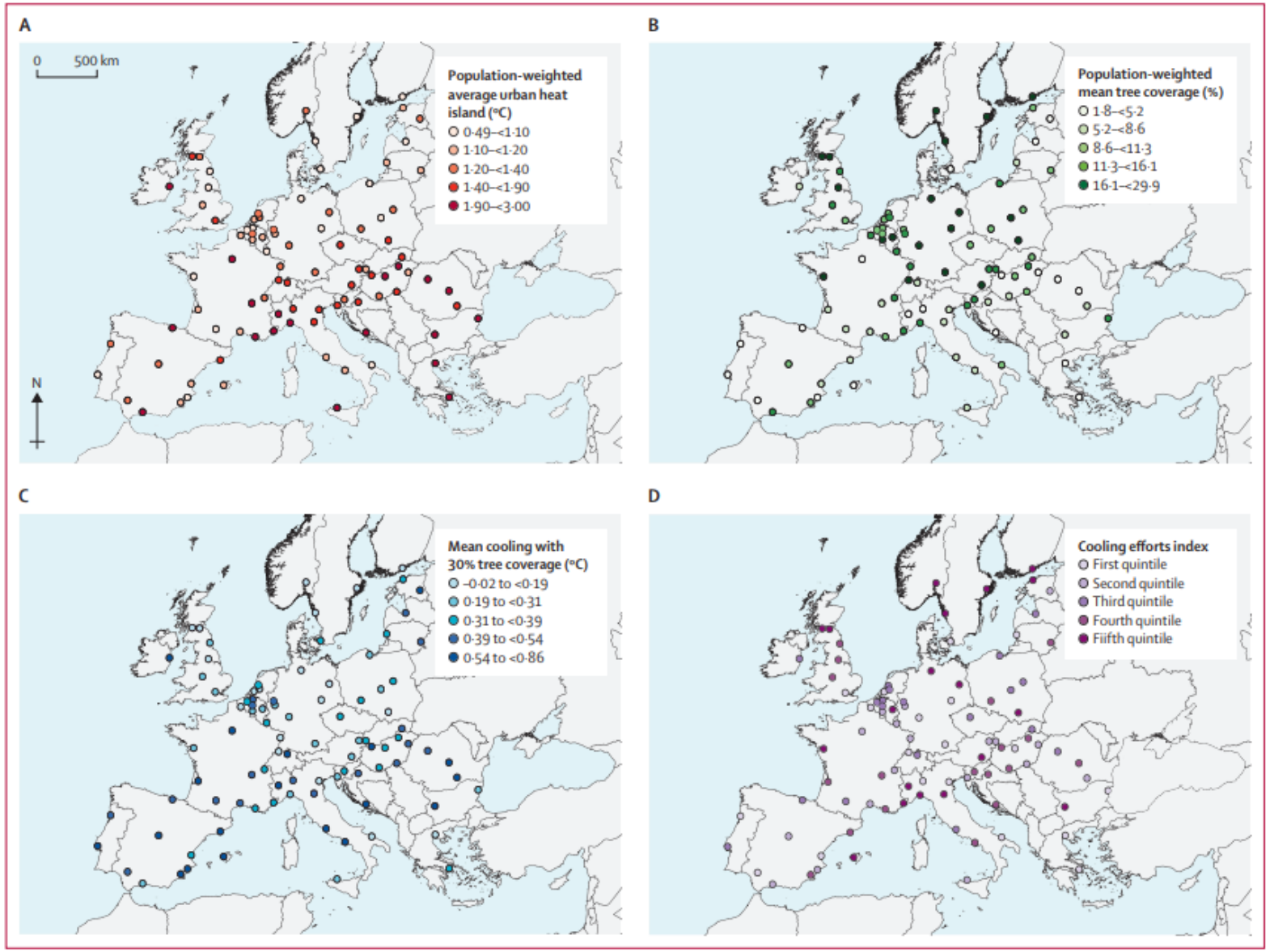


Sources: Khomenko et al. 2020, Pereira Barboza et al. 2021

Brussels - Raster
Vienna - Polygon
Riega - Polyline



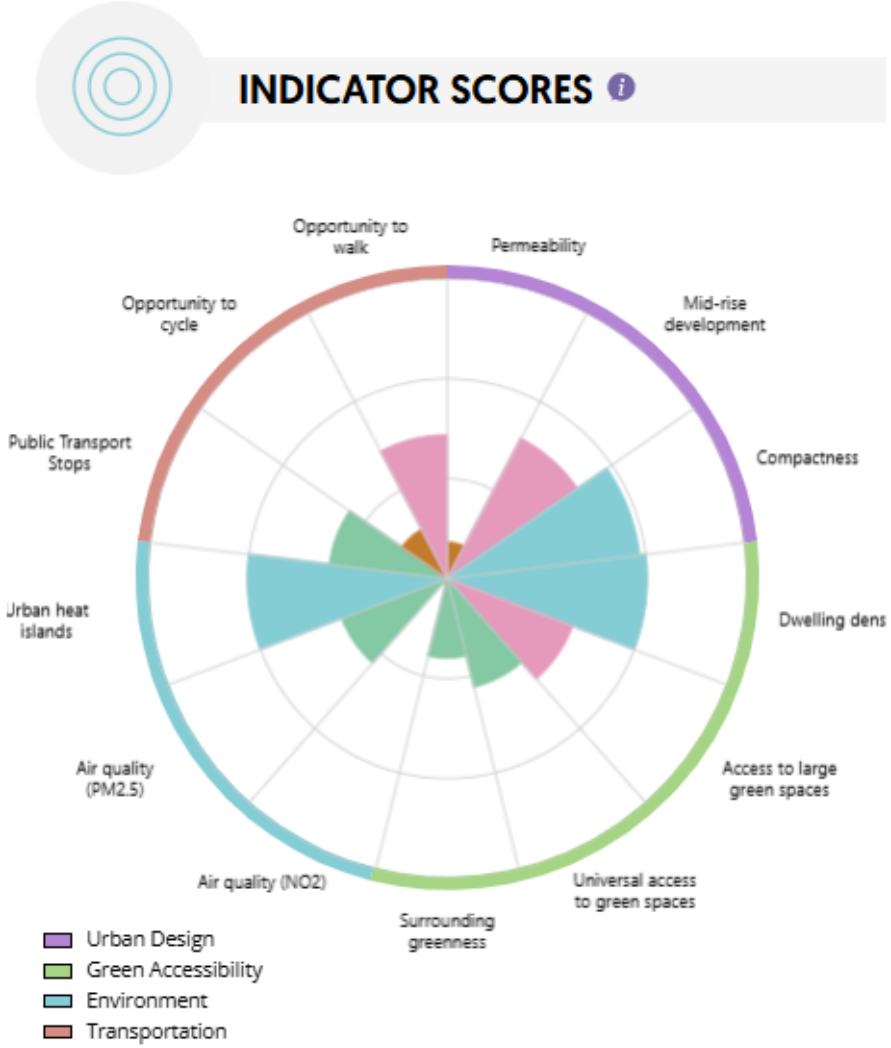
Source: Khomenko et al. 2022

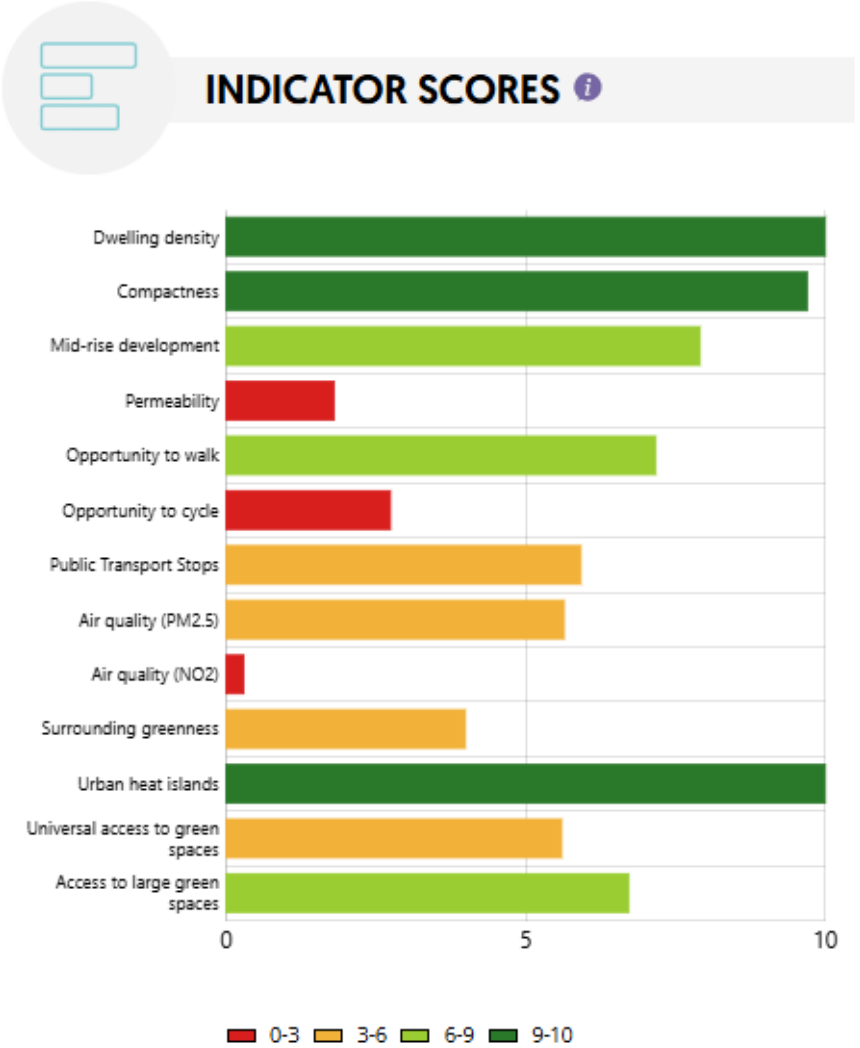


Source: Iungman et al. 2024

Data needs

Healthy Urban Design Index (HUDI)

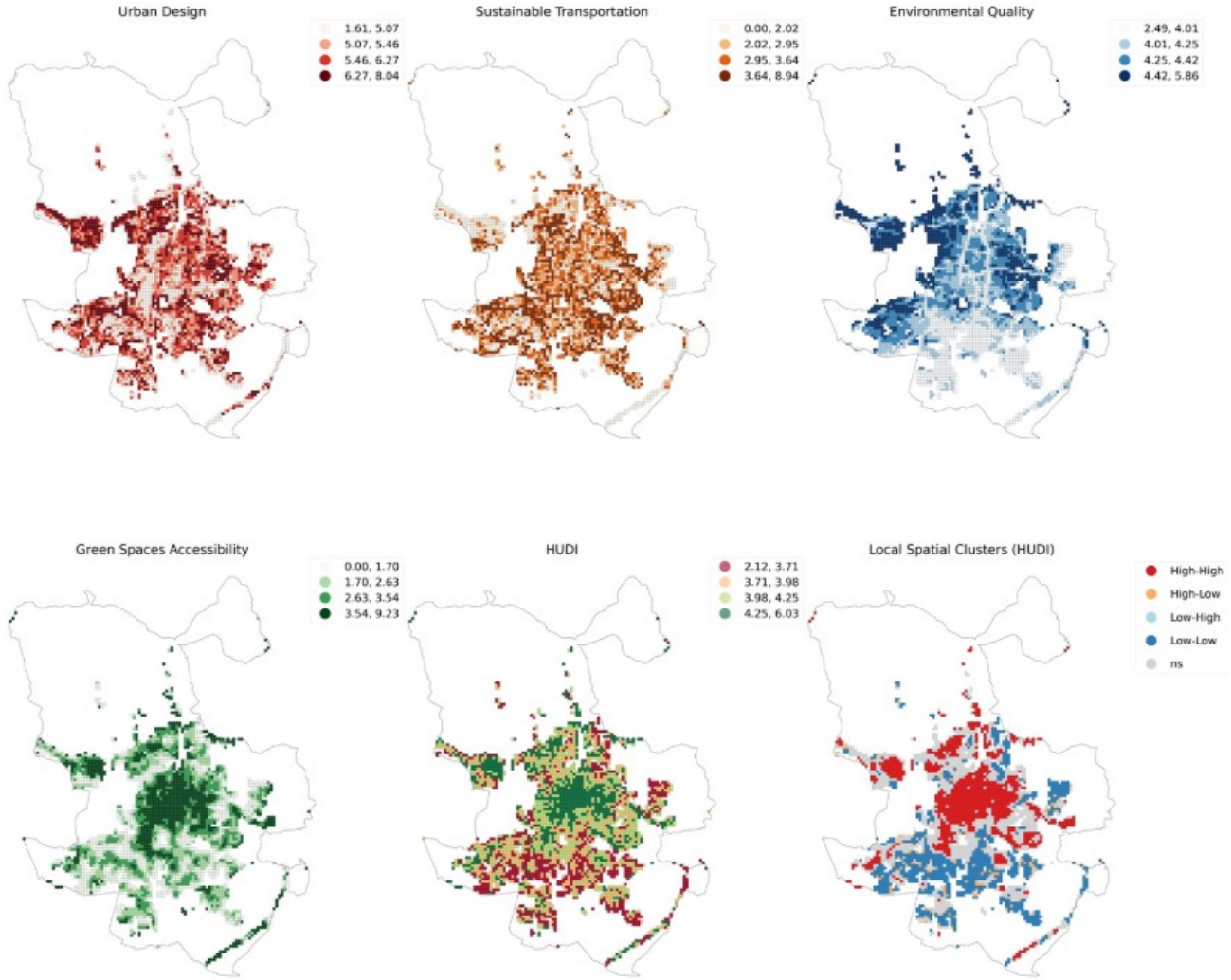




Source: Montana et al. forthcoming

Data needs

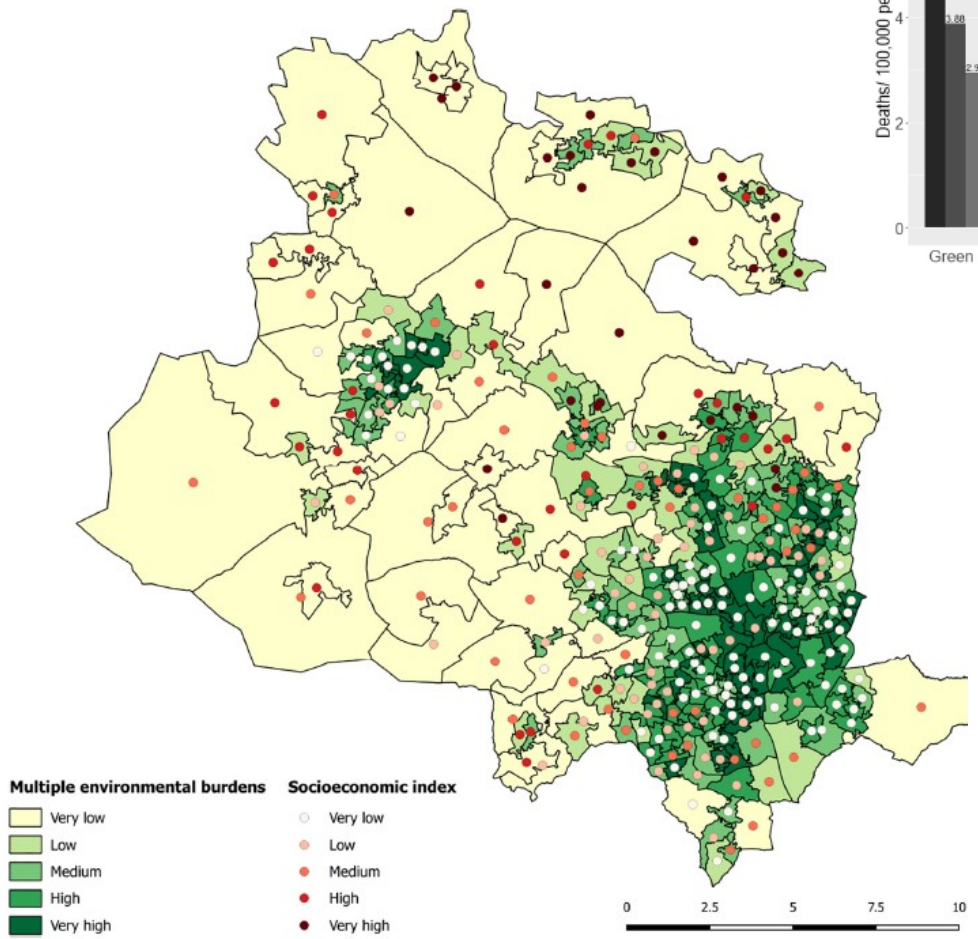
Healthy Urban Design Index (HUDI)

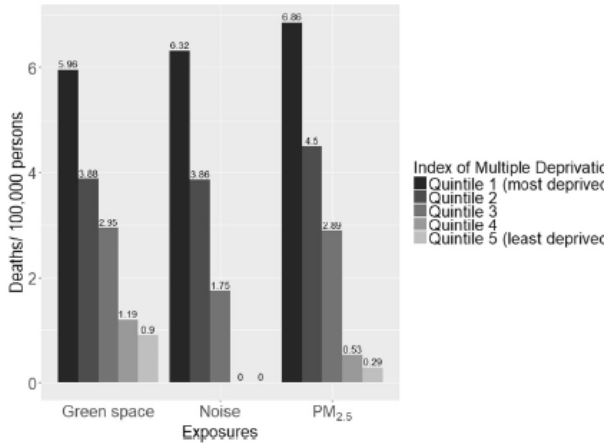


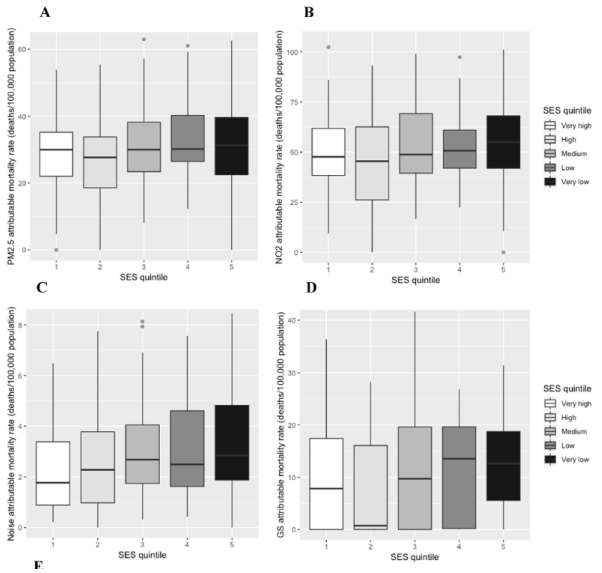
And almost 1,000 European cities more…

Source: Montana et al. forthcoming

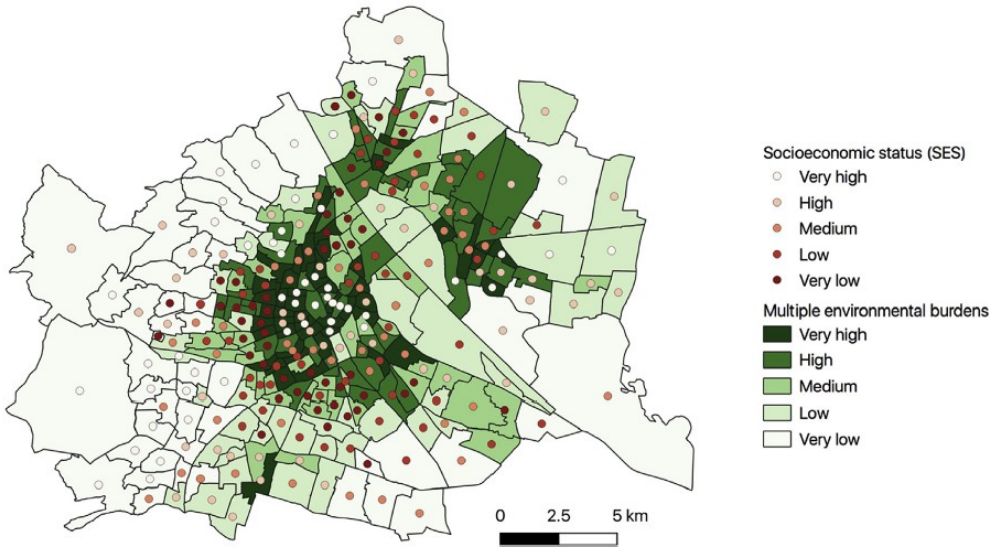
Health impact distributions







S. Khomenko, et al. Environmental Research 183 (2020) 109238



Source: Mueller et al. 2018, Khomenko et al. 2021

Health impact distributions

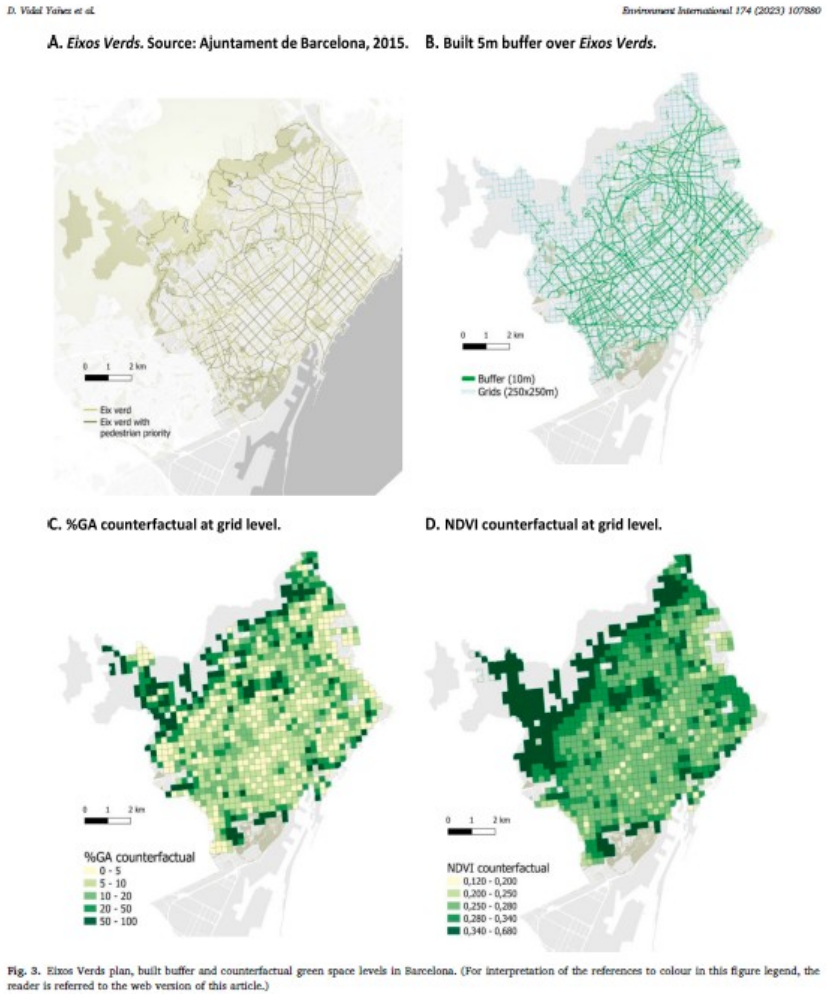


Fig. 3. Eixos Verds plan, built buffer and counterfactual green space levels in Barcelona. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

Source: Vidal Yañez et al. 2023

Further considerations

- **Health data and SES data are sensitive data** and often not openly available
- **Lack of standardized protocols** of how to collect environmental data across cities
- **Uneven evidence bases** across environmental risk factors, e.g. air pollution has long tradition
- Departments working in **silos**, lack of consensus on spatial units and data resolution

Way forward

- Efforts towards **complete and open data inventories**
- Enhanced collaboration and **harmonization of diverse data sources**
- Transparent methodologies
- **Fine-scale data** across agreed-upon units (also to study **distributional aspects**)
- Citizen-centric, participatory approaches to fill knowledge gaps and define interventions (focus on vulnerable groups)

- Resolving these issues can enhance the production of **reliable and comparable health impact estimates** across European (urban) populations.

Health impact assessment, Economics and Inequalities

Dr Alistair Hunt & Dr Eleanor Eaton, *University of Bath, UK*

- Use of Economic metrics
- Quantitative Monetary HIA:
- HAUS Model outline
- Local Application
- Treatment of Inequalities

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Co-funded by the European Union
Grant agreement number: 101075231 — EU PHA 2024 OG

Why value health impacts in monetary terms?

- Provides a common metric
  - Allows health impacts in an EHIA to be expressed in a common unit and so allows aggregation
  - Allows wide-ranging costs and benefits to be weighed up against each other: Cost-Benefit Analysis

    "…*CBA is designed to show whether the total benefits of a policy or project exceed the costs, including environmental benefits and costs*..." (Abelson, 1997)

    If B > C, increase welfare

    Important that health risks recognised and given sufficient weight in decision-making

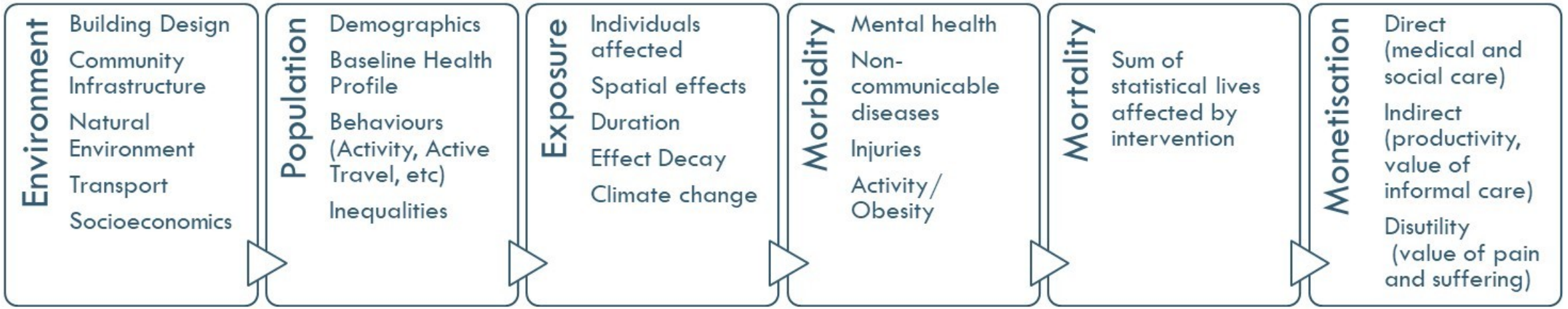
- Provides familiarity

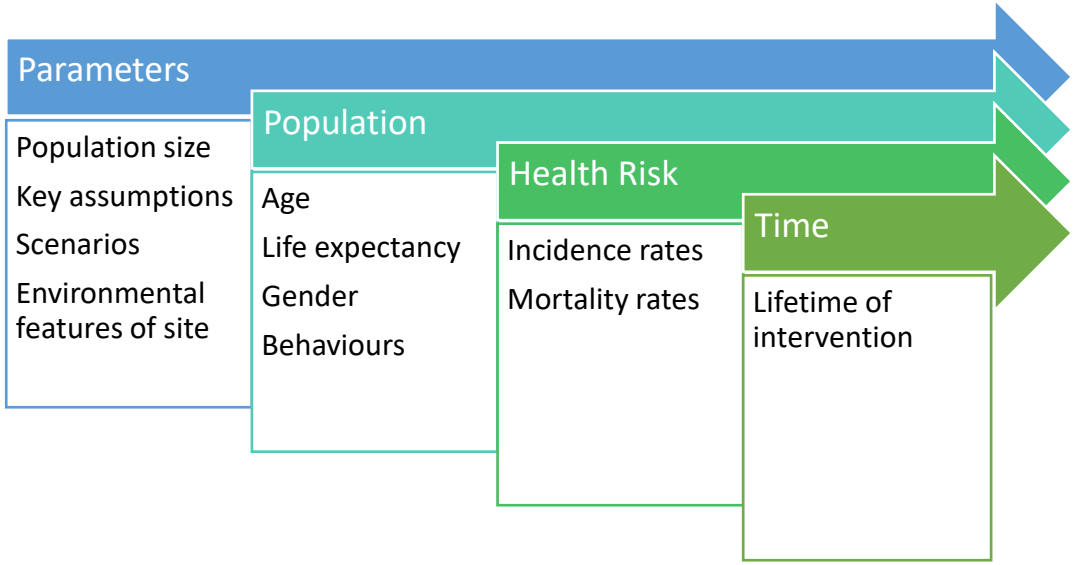
- Underlying principle of representation

  Individuals' preferences for their own welfare are expressed in their monetary willingness to pay – i.e. underlying democratic principle

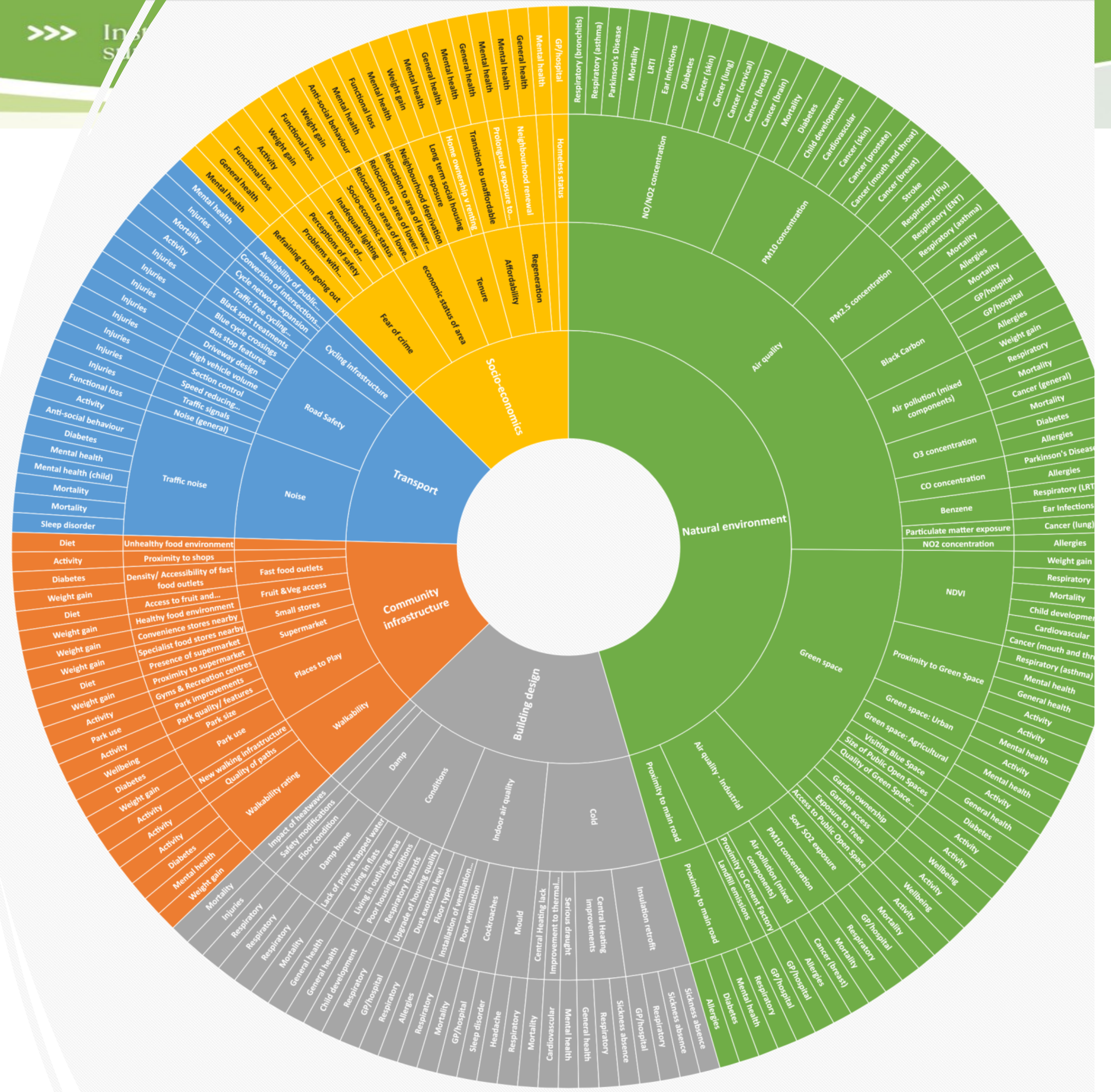
Health Appraisal of Urban Systems (HAUS) Model

Impact Pathway Quantification

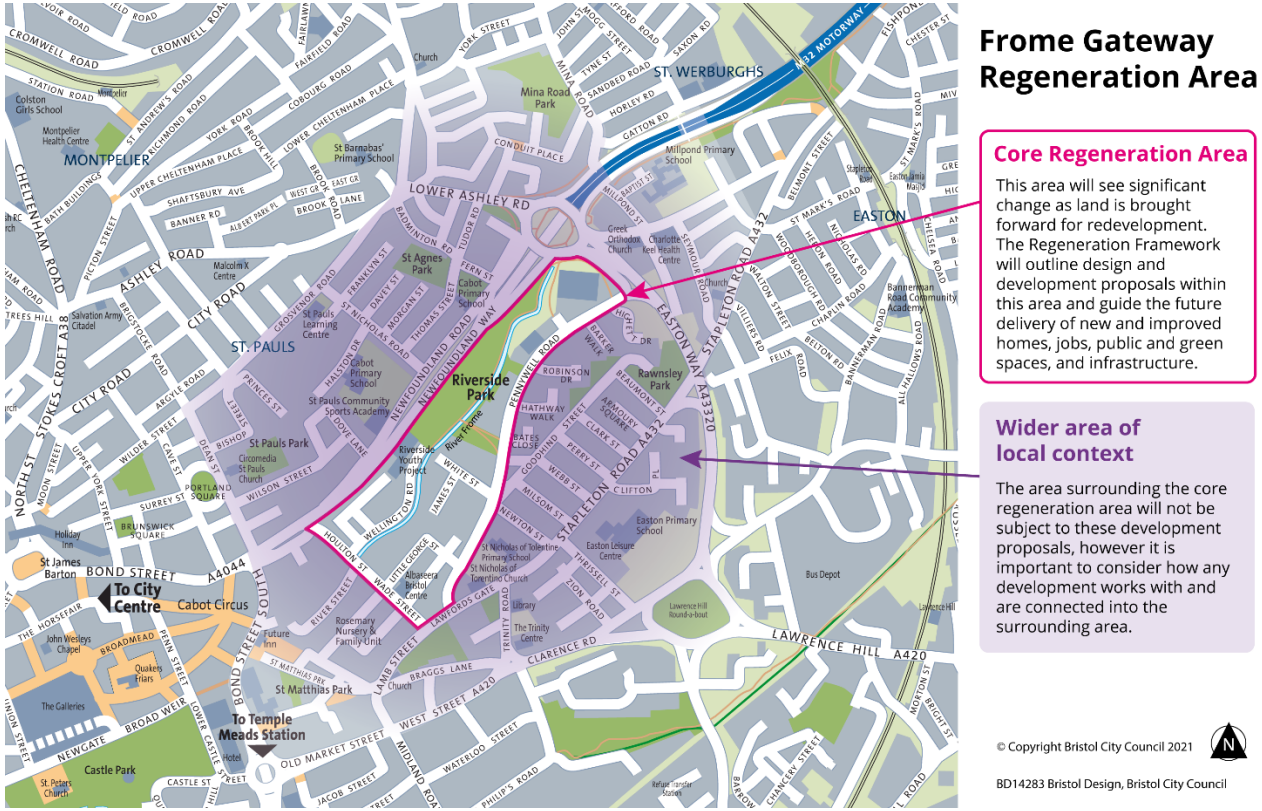




- Defining specific features of the environment which impact on health
- Who is affected by the change
- What is the effect size and range of uncertainty
- Defining each health outcome
- Relating these outcomes to economic valuation evidence



Application of HAUS: Bristol – Frome Gateway



Study provides input on the development of the Frome Gateway Strategic Regeneration Framework (SRF): detailed information on expected health outcomes related to possible land uses on the site

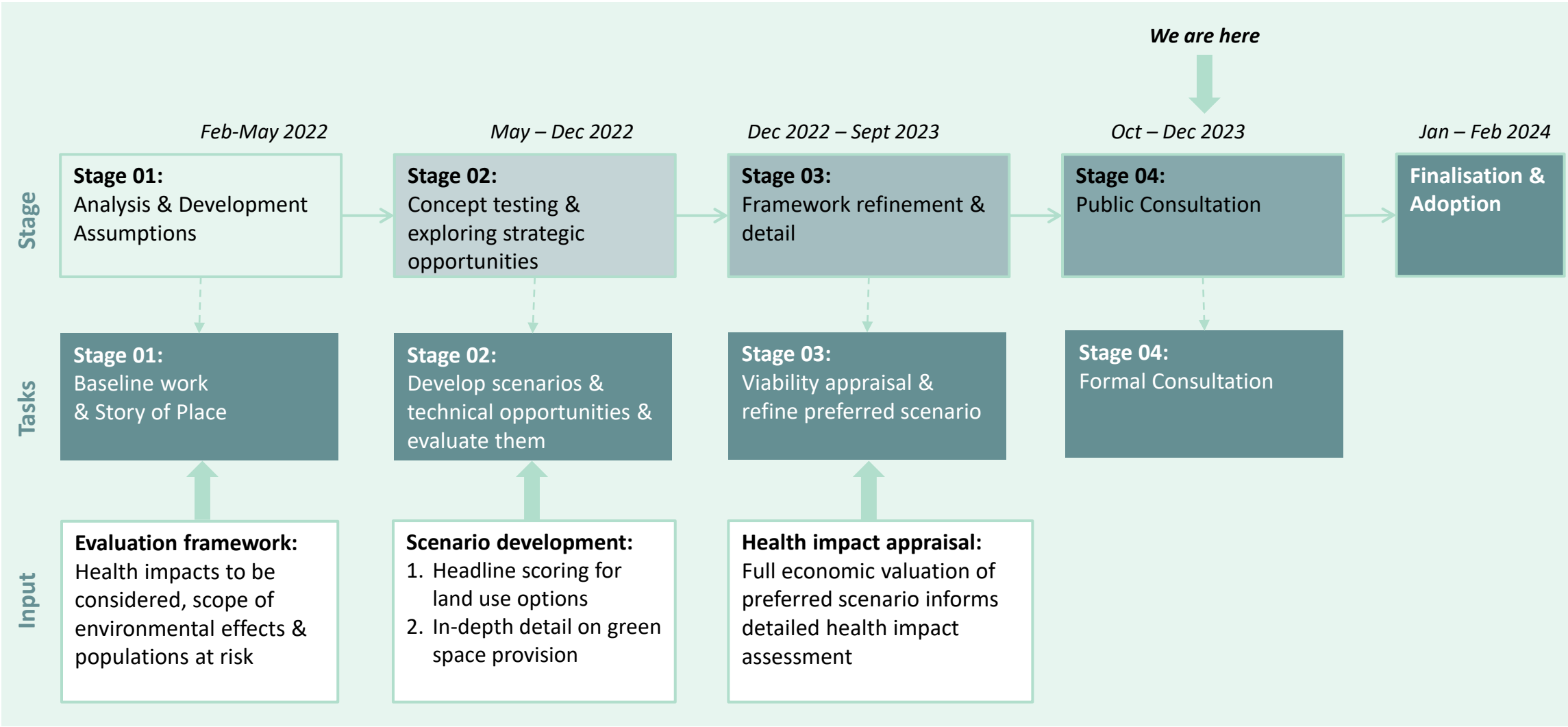
Development scenarios:

A: Baseline (Unmanaged Approach)

B: Minimum Policy Compliant: a new mixed-use neighbourhood

C: Strategic Approach: additional changes to public spaces – green space

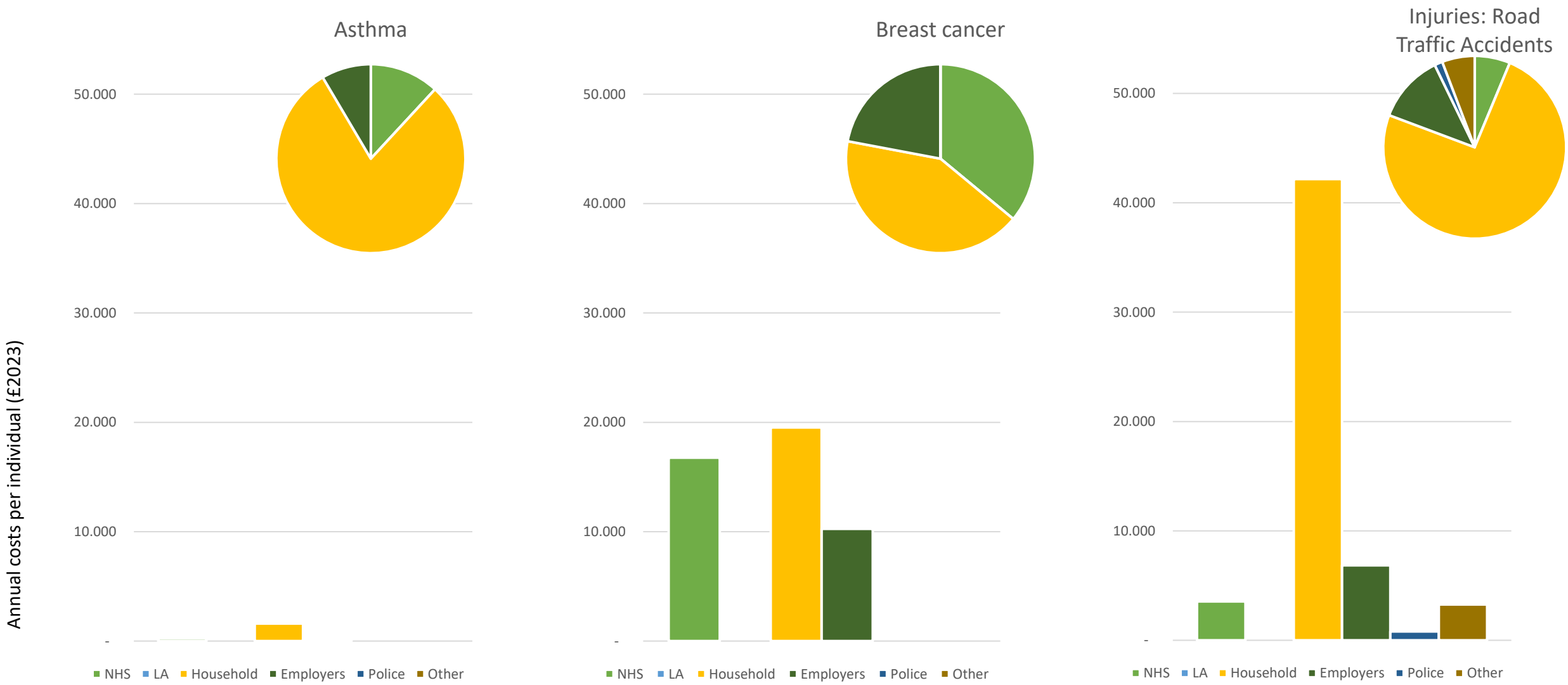
D: Ideal: down-grade of main road; Maximum provision of affordable homes


We are here
Feb-May 2022
May – Dec 2022
Dec 2022 – Sept 2023
Oct – Dec 2023
Jan – Feb 2024
Stage
Stage 01: Analysis & Development Assumptions
Stage 02: Concept testing & exploring strategic opportunities
Stage 03: Framework refinement & detail
Stage 04: Public Consultation
Finalisation & Adoption
Tasks
Stage 01: Baseline work & Story of Place
Stage 02: Develop scenarios & technical opportunities & evaluate them
Stage 03: Viability appraisal & refine preferred scenario
Stage 04: Formal Consultation
Input
Evaluation framework: Health impacts to be considered, scope of environmental effects & populations at risk
Scenario development:
1. Headline scoring for land use options
2. In-depth detail on green space provision
Health impact appraisal: Full economic valuation of preferred scenario informs detailed health impact assessment

HUDU Category	Value of attributable health outcomes over project lifetime				
	A: Unmanaged Approach	B: Minimum Policy Compliant	C1: Strategic Approach	C2: Strategic Approach	D: Ideal
Housing design and affordability	0.00	0.00	0.00	0.00	0.00
Access to open space and nature	-30.49	-30.49	-59.67	-79.59	-181.91
Air quality, noise and neighbourhood amenity					
Air Pollution	135.59	135.59	135.59	135.59	17.80
Noise Pollution	12.23	12.23	11.00	11.00	0.00
Accessibility and active travel					
Walking and cycling	0.00	-37.91	-37.91	-37.91	-37.91
Traffic calming measures	13.26	13.26	-12.91	-12.91	-20.74
Crime reduction and community safety	21.28	21.17	20.73	20.73	20.28
Access to healthy food	-1.48	-1.48	-1.48	-1.48	-3.21
Climate change					
Overheating	1.25	1.25	1.25	1.25	1.12
Flooding	2.51	0.00	0.00	0.00	0.00
ADJUSTED TOTAL	**154.15**	**113.62**	**56.59**	**36.67**	**-204.57**
NET PRESENT VALUE	**101.27**	**73.88**	**36.42**	**21.64**	**-135.01**
NET CHANGE FROM BASELINE	-	**-40.53**	**-97.56**	**-117.48**	**-358.72**
NPV OF CHANGE	-	**-27.39**	**-64.86**	**-79.63**	**-236.29**

Summary of estimated value of health outcomes over 25 years: 8,500 people within 300m of Frome Gateway Site

(Negative values (in green) indicate reductions in health costs, positive values (in red), indicate potential additional health costs)
Values in Million £2023, NPV (Net present value of health changes) adjusted for 3.5% discount rate

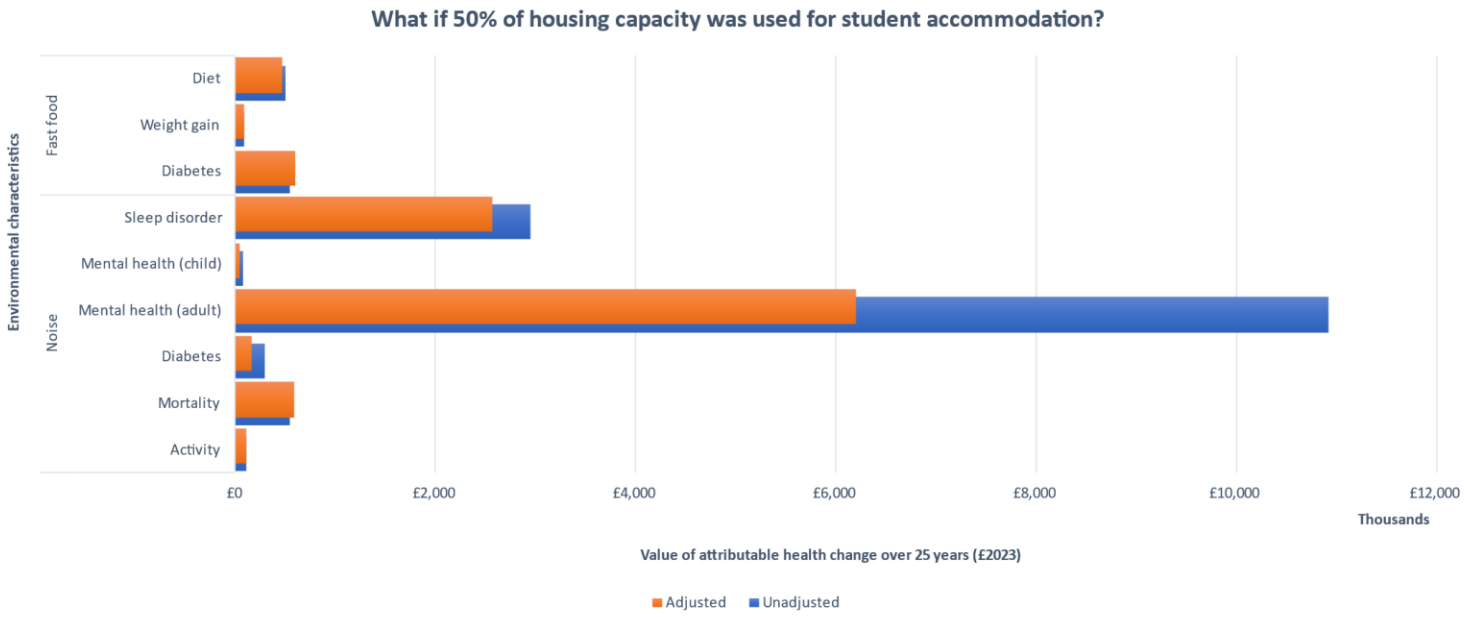


Inequalities: Who bears the cost of illness?

Composition of societal costs for different health outcomes

Demographic change

Tackling Root causes Upstream of Unhealthy Urban Development
TRUUD



It is possible to model how risks are altered i**the demographics of the population changes**

14

Can use model to reflect on populations with different ages
→ tested what happened if we replaced 50% of the standard LSOA population with students aged 18-21
It shows how projected benefits might change: students might be less vulnerable to many of the environmental hazards on site but have increased risks from fast food!

- Combining quantitative epidemiological and economic data is resource-intensive

→ Models can be useful if available & cheap, and not “black box”

→ Unit Costs can be used: Bad → Average → Good
(HAUS is intending to classify such unit costs for 20 urban characteristics)

- Inequalities may be captured in measures of:
  - Who (which stakeholder groups) bears the burdens of health from an economic development
  - Socio-economic & demographic profiles of neighbourhoods impacted by development
  - Weighting monetary values to reflect social aversion to income inequalities

- Extent of stakeholder engagement may depend on our ability to construct clear storylines from the data.