

# The state of the evidence: What we know, and don't know, about the interaction of environment and health

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Presentation at *Building health into the urban environment: Evidence and opportunities*

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# Presentation Outline

- Context
- Aim of review
- Systematic review methods
- Findings
- Gaps and future challenges

# Context

# UPSTREAM

## Moving health upstream in urban development planning

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Estimating cost of poor quality  
urban environment

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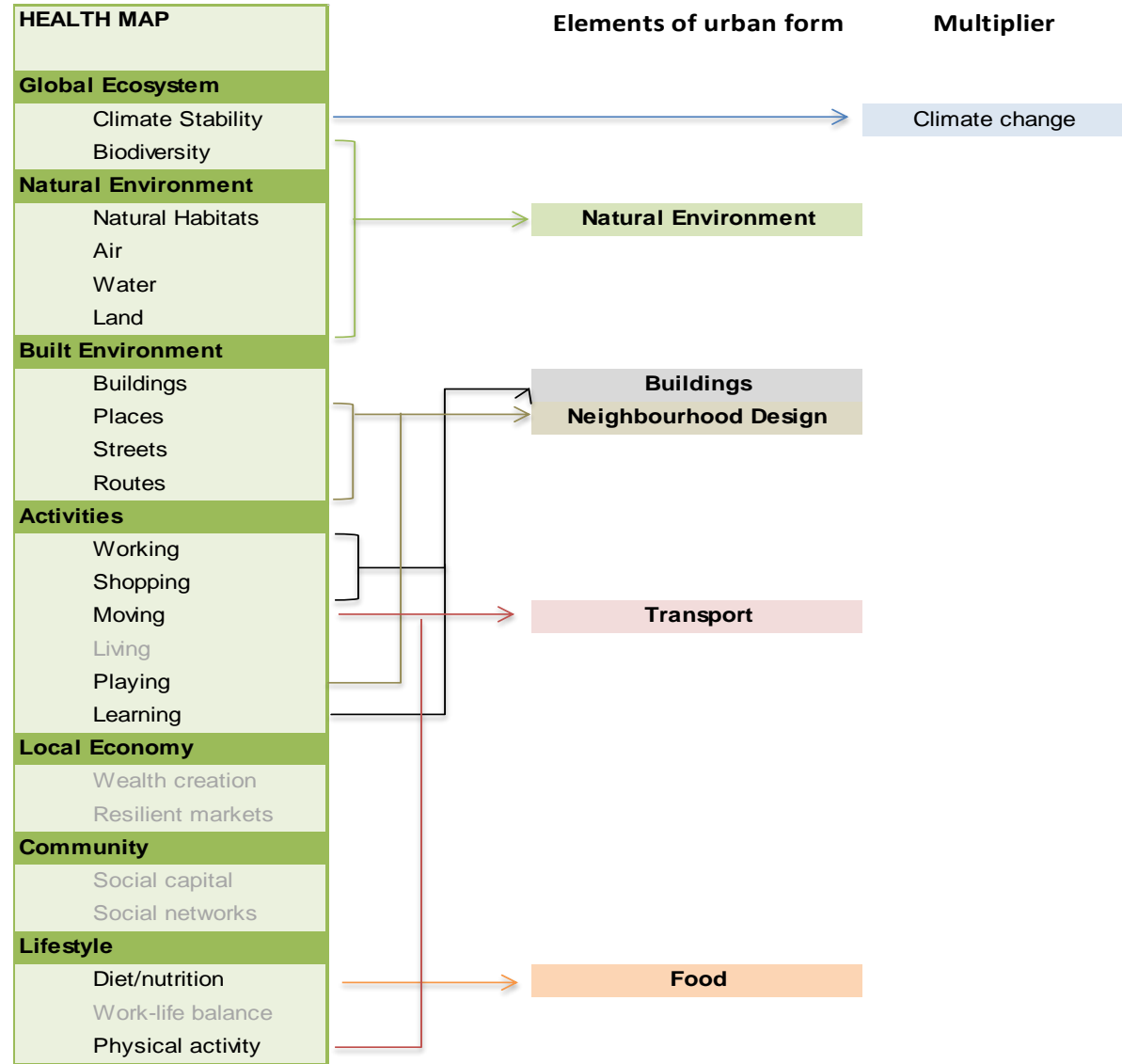
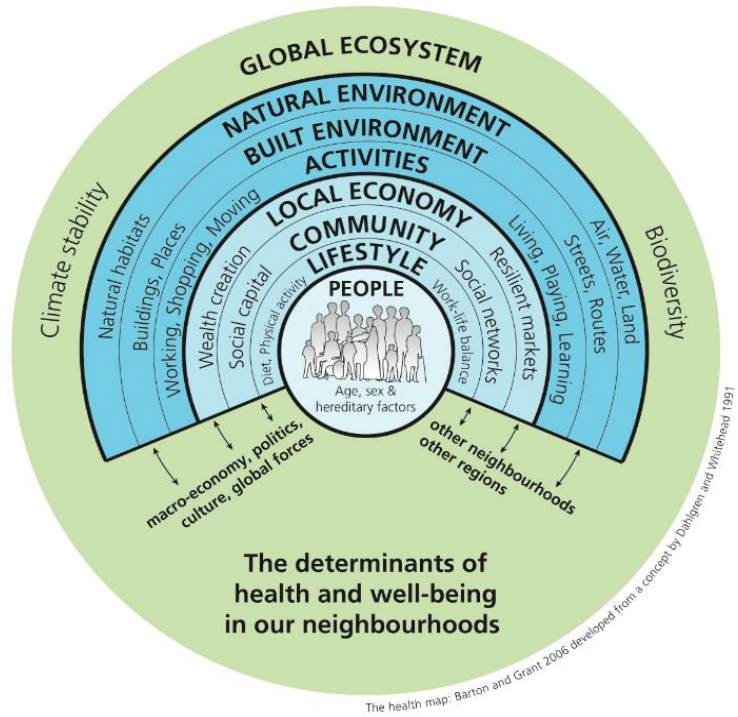
Exploring barriers and opportunities  
for creating healthy urban  
environments



# Aim of review

- To systematically review the health outcomes associated with urban developments and linked interventions:
  - Buildings
  - Neighbourhood Design
  - Transport
  - Food environment
  - Natural environment

# Systematic Review Methods



PHE Spatial Planning for Health tool

Vancouver Healthy toolkit

BREEAM Communities

HUDU Rapid HIA

Egan Review



# Quality Appraisal

- Conducted using the Quality Assessment Tool for Quantitative Studies
- Studies were rated High, Moderate or Low

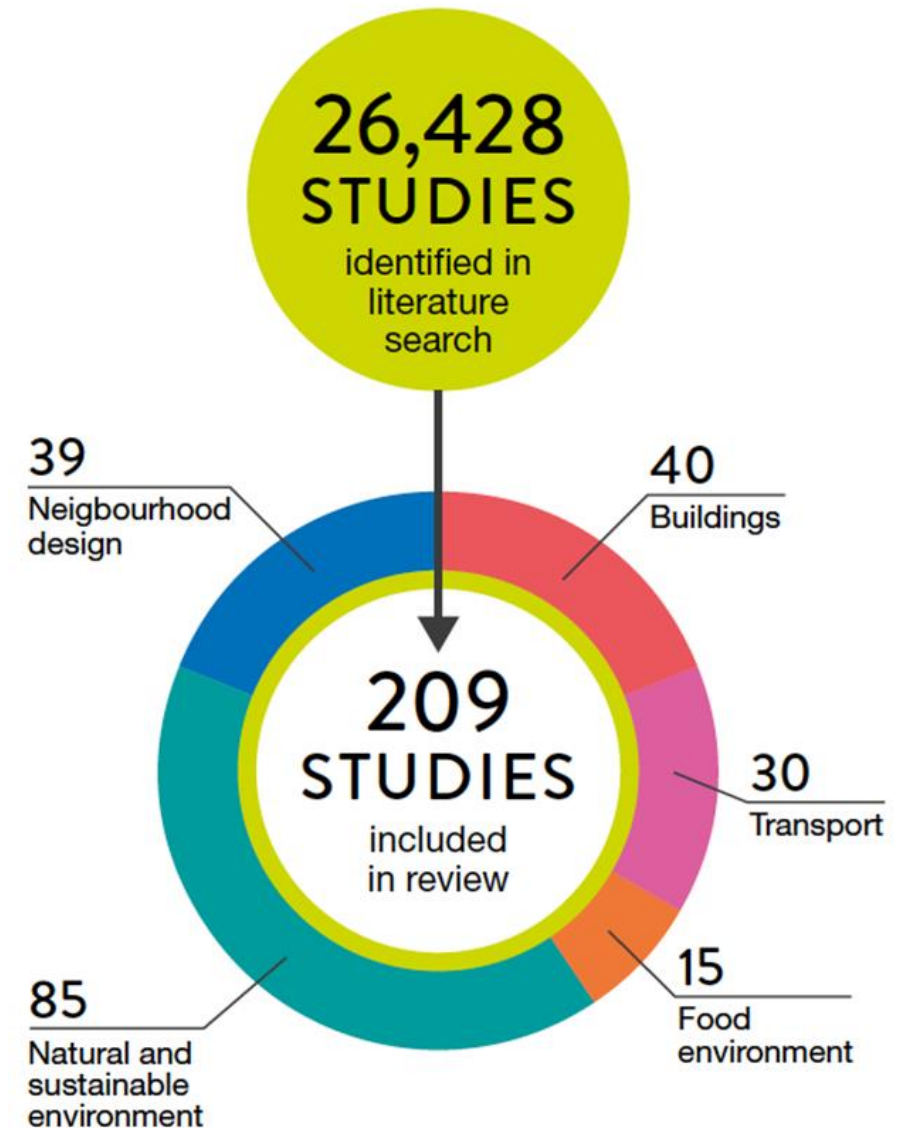
## Six Quality Domains:

1. Selection bias
2. Design of the study
3. Control of confounders
4. Blinding
5. Reliability and validity of data collection
6. Reporting of dropout rate

# Findings

# Results

- 26,428 studies retrieved from a range of electronic databases
- Review of studies for suitability
- Followed by quality appraisal
- 209 studies remaining



## Action areas

## + Outcome



### Neighbourhood design

#### Quality of evidence

- High quality
- Moderate quality
- Low quality

Improve walkability

- Reduced risk of hypertension
- Improved mental health
- Reduced risk of prediabetes and diabetes

Access to facilities

- Increased physical activity levels
- Improved mental health

Enhance neighbourhood connectivity

- Reduced risk of obesity among women
- Reduced limitation in performing ADL among men

Improve access to open green space

- Improved mental health
- Increased physical activity levels
- Reduced cardiovascular risk factors
- Reduced risk of non-accidental mortality
- Reduced risk of asthma
- Reduced risk of prediabetes and diabetes



## Action areas

## + Outcome



### Buildings

### Quality of evidence

- High quality
- Moderate quality
- Low quality

Improve thermal quality and ventilation

- Improve general health and respiratory outcomes
- Reduced blood pressure
- Reduced cost associated with heating
- Improved school attendance among children
- Reduced mould contamination

Improve quality of housing

- Reduced falls and fall related injuries among older adults
- Improved mental health

Inadequate quality of housing

- Increased risk of mortality from coronary heart disease

Increase access/relocation to affordable homes or social housing

- Improved general health among previously homeless people
- Improved mental health among adults and children
- Improved educational achievement among young boys

Action areas

+ Outcome



Transport

Quality of evidence

- High quality
- Moderate quality
- Low quality

Improve infrastructure for walking and cycling

- Increased physical activity levels ●
- Reduced risk of pedestrian motor vehicle collision ●
- Reduced amount of car use ●
- Increased levels of walking and cycling ●

Improve road safety

- Reduced risk of pedestrian motor vehicle collision ●
- Reduced risk of pedestrian injury ●

Improve infrastructure for public transport

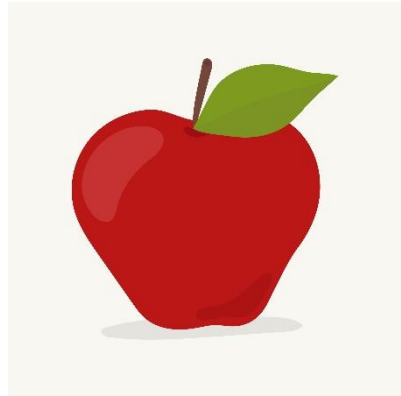
- Increased active transport ●
- Reduced exposure to road traffic collision ●

Exposure to transportation noise

- Increased risk of pre/post menopausal breast cancer ●
- Increased systolic blood pressure levels ●

## Action areas

## + Outcome



### Food

Quality of evidence

- High quality
- Moderate quality
- Low quality

Increase access  
supermarkets and  
healthy food outlets

- Reduced BMI levels
- Reduced odds of obesity among girls
- Reduced odds of obesity among general population



Higher density of and  
proximity to fast-food  
restaurants

- Increased risk of diabetes
- Increased risk of obesity
- Increased childhood obesity and overweight



Proximity of full-service  
restaurants

- Increased BMI levels



Living far away from  
super-markets ( $\geq 4$  miles)

- Reduced diet quality index among pregnant women



Action areas

+ Outcome



Natural environment

Quality of evidence

- High quality
- Moderate quality
- Low quality

Exposure to environmental hazards

- Increased risk of cervical cancer
- Increased risk of brain cancer
- Increased risk of dementia and Alzheimer’s disease
- Increased risk of Type II diabetes
- Increased risk of lung cancer

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Exposure to traffic noise

- Increased risk of myocardial infarction among males
- Poor academic performance among children
- Increased risk of Type II diabetes
- Worsened mental health
- Reduced quality of life among women
- Increased blood pressure

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Reduce exposure to traffic noise

- Increased average life expectancy
- Result in high economic savings

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Improve access to open green space

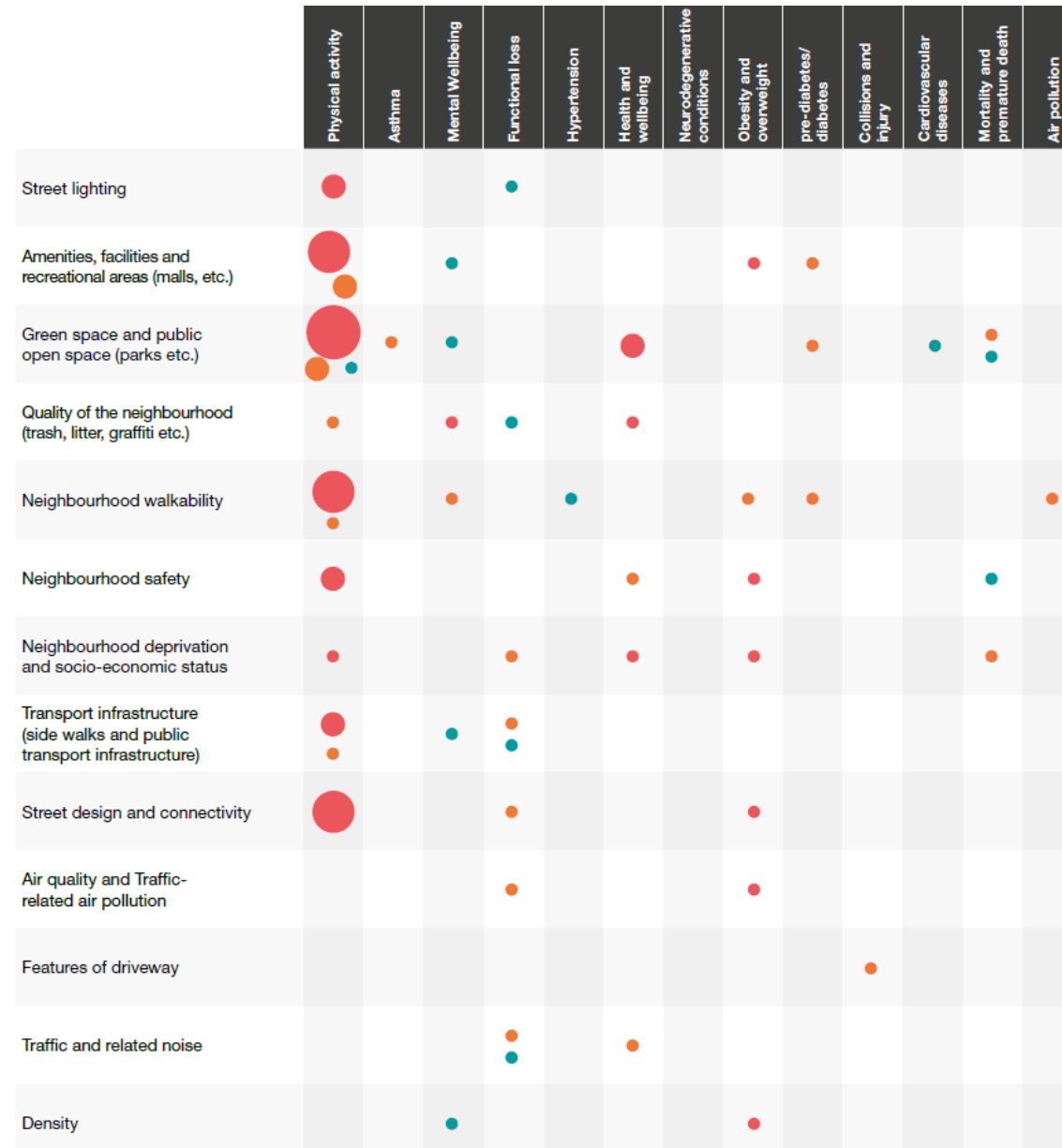
- Improved respiratory outcomes
- Increased physical activity levels

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# Gaps and future challenges

# Gap analysis: Neighbourhood design





# UPSTREAM



## PROJECT REPORT

Moving health upstream  
in urban development  
planning - a three-year  
pilot research project

