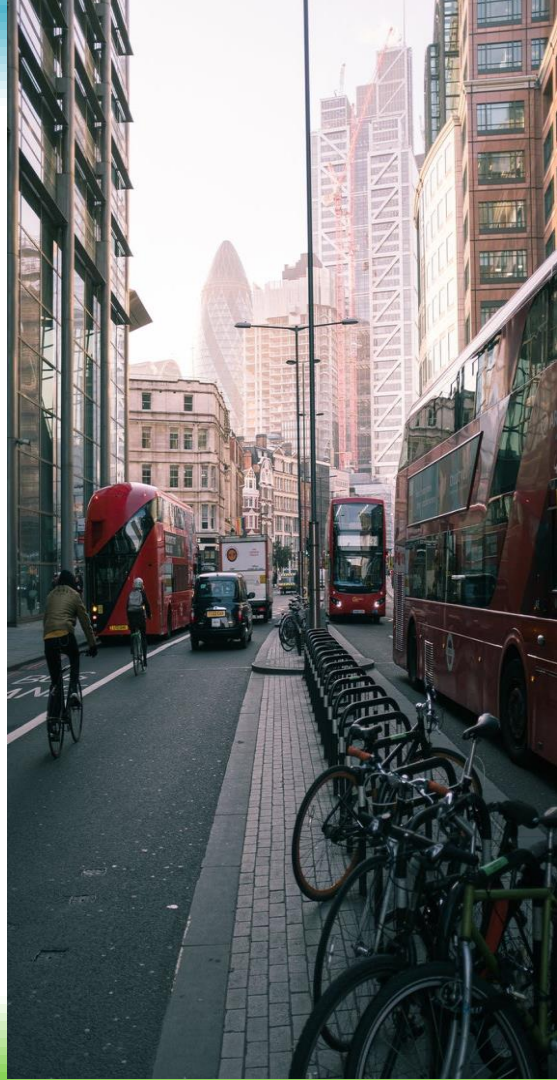
There and back again

A tale of travel footprints

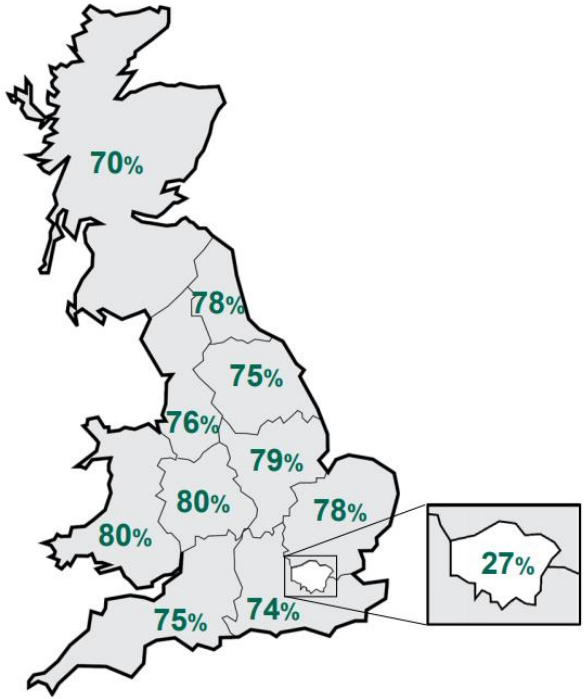
Dr Matt Sawyer
SEE Sustainability



Travel

How we travel to work

Percentage of workers usually travelling to work by car
by region of workplace, Great Britain, 2018

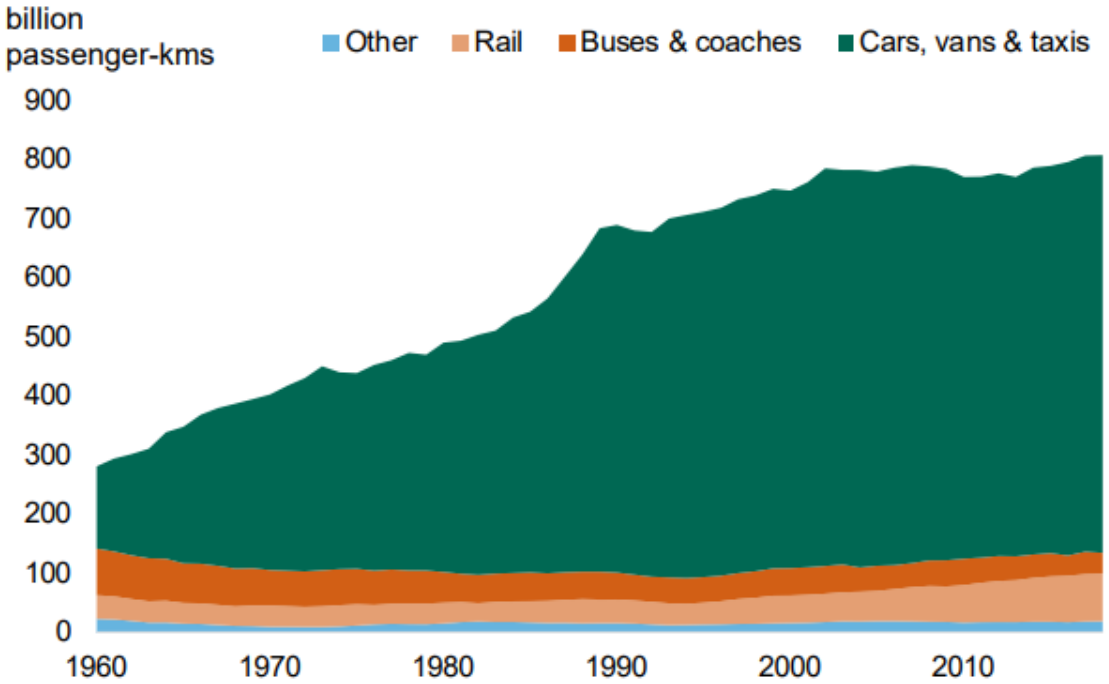


Department for Transport

Transport Statistics
Great Britain 2019

How much do we travel?

Passenger kilometres by mode, Great Britain,1960-2018



Department for Transport

Transport Statistics Great Britain 2019

Does car travel cause damage?

PNAS Proceedings of the National Academy of Sciences of the United States of America

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RESEARCH ARTICLE

The impact of exposure to air pollution on cognitive performance

Conclusions

This paper estimates the contemporaneous and cumulative impacts of air pollution on cognition by matching the scores of verbal and math tests given to people age 10 and above in a nationally representative survey with local air quality data according to the exact dates and locations of the interviews. We find that accumulative exposure to air pollution impedes verbal test scores. As people age, the negative effect becomes more pronounced, especially for men. The gender gap is particularly large for the less educated.

Our findings about the damaging effect of air pollution on cognition, particularly on the aging brain, imply that the indirect effect on social welfare could be much larger than previously thought. A narrow focus on the negative effect on health may underestimate the total cost of air pollution.

THE LANCET

ARTICLES | VOLUME 389, ISSUE 10070, P718-726, FEBRUARY 18, 2017

Living near major roads and the incidence of dementia, Parkinson's disease, and multiple sclerosis: a population-based cohort study

Original Paper | Open Access | Published: 24 October 2020

Mental health consequences of urban air pollution: prospective population-based longitudinal survey

Ioannis Bakolis, Ryan Hammoud, Robert Stewart, Sean Beevers, David Dajnak, Shirlee MacCrimmon, Matthew Broadbent, Megan Pritchard, Narushige Shiode, Daniela Fecht, John Gulliver, Matthew Hotopf, Stephani L. Hatch & Ian S. Mudway

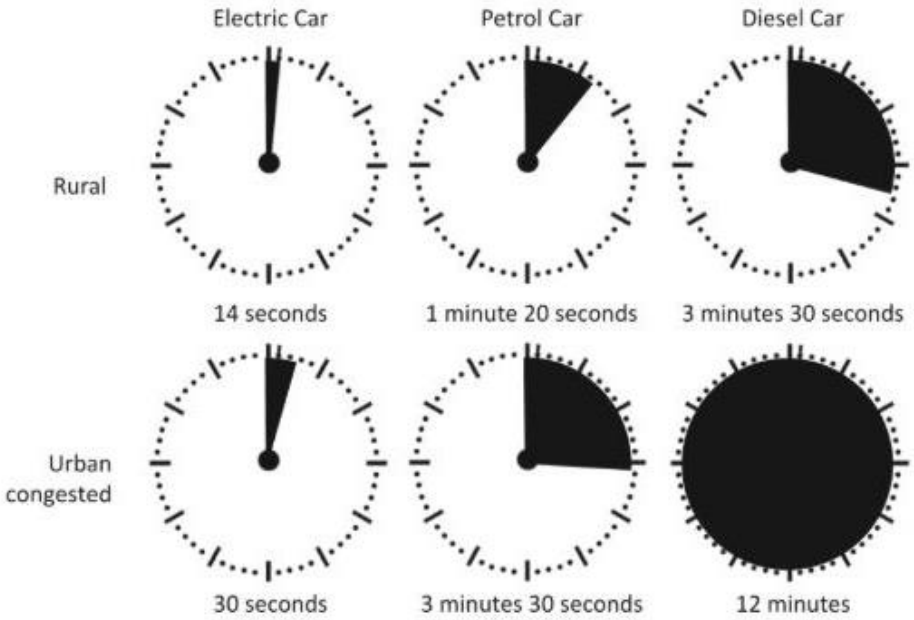
Social Psychiatry and Psychiatric Epidemiology (2020) | Cite this article

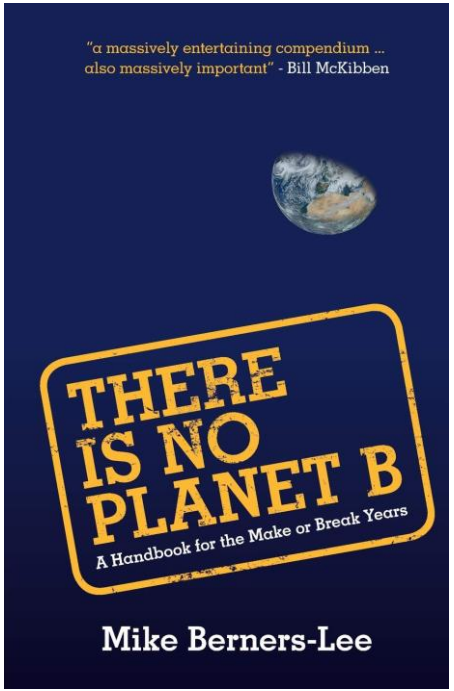
560 Accesses | **70** Altmetric | Metrics

Conclusions

The findings suggest that traffic-related air pollution is adversely affecting mental health. Whilst causation cannot be proved, this work suggests substantial morbidity from mental disorders could be avoided with improved air quality.

Impact


Electric Car
Petrol Car
Diesel Car
Rural
14 seconds
1 minute 20 seconds
3 minutes 30 seconds
Urban congested
30 seconds
3 minutes 30 seconds
12 minutes

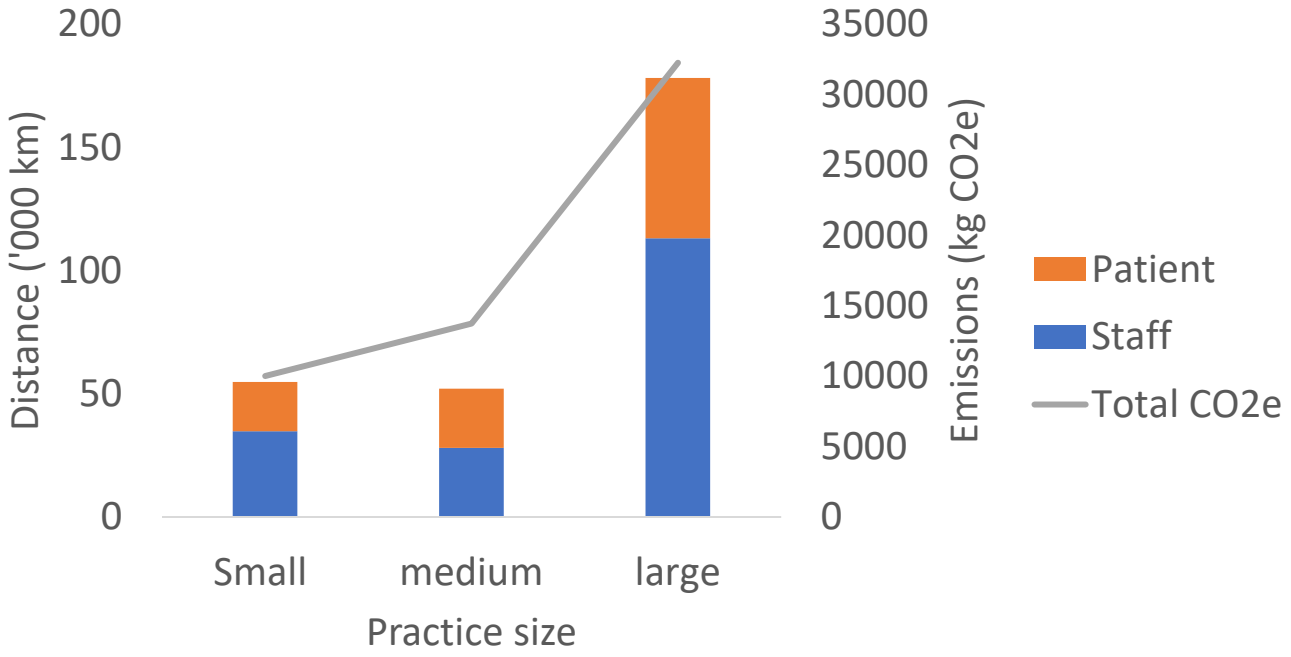

"a massively entertaining compendium ... also massively important" - Bill McKibben
THERE IS NO PLANET B
A Handbook for the Make or Break Years
Mike Berners-Lee

Damage done

Average diesel car driving round town (urban)

5 miles round trip	= 1 hour of life lost
1,000 miles	= 200 hours of life lost

Cumulative Distance Travelled



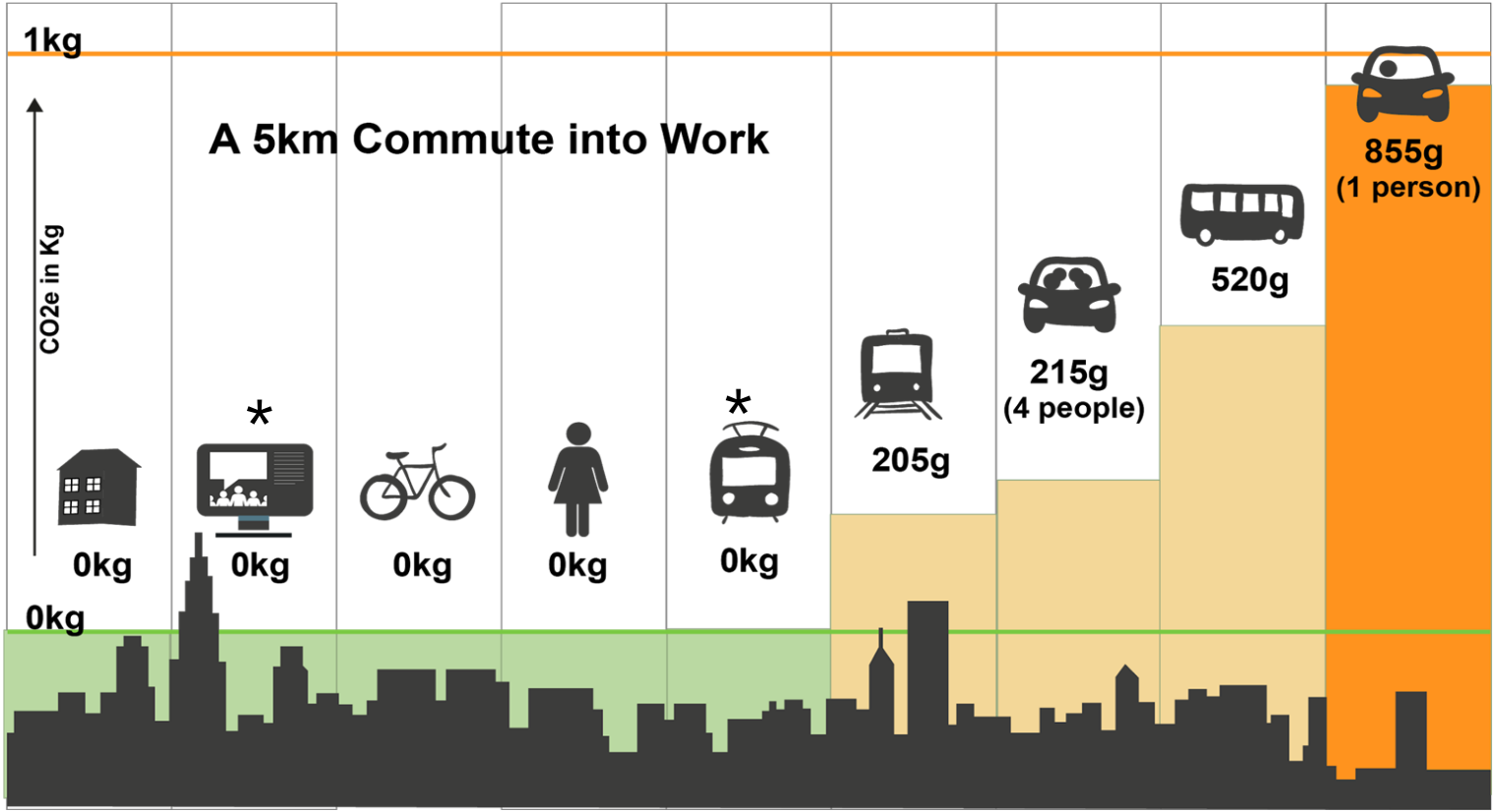
Damage done per practice

- Urban practice
- 100,000 cumulative miles
- Average car ownership by fuel type

  diesel: petrol is 30:62*

*rest are electric

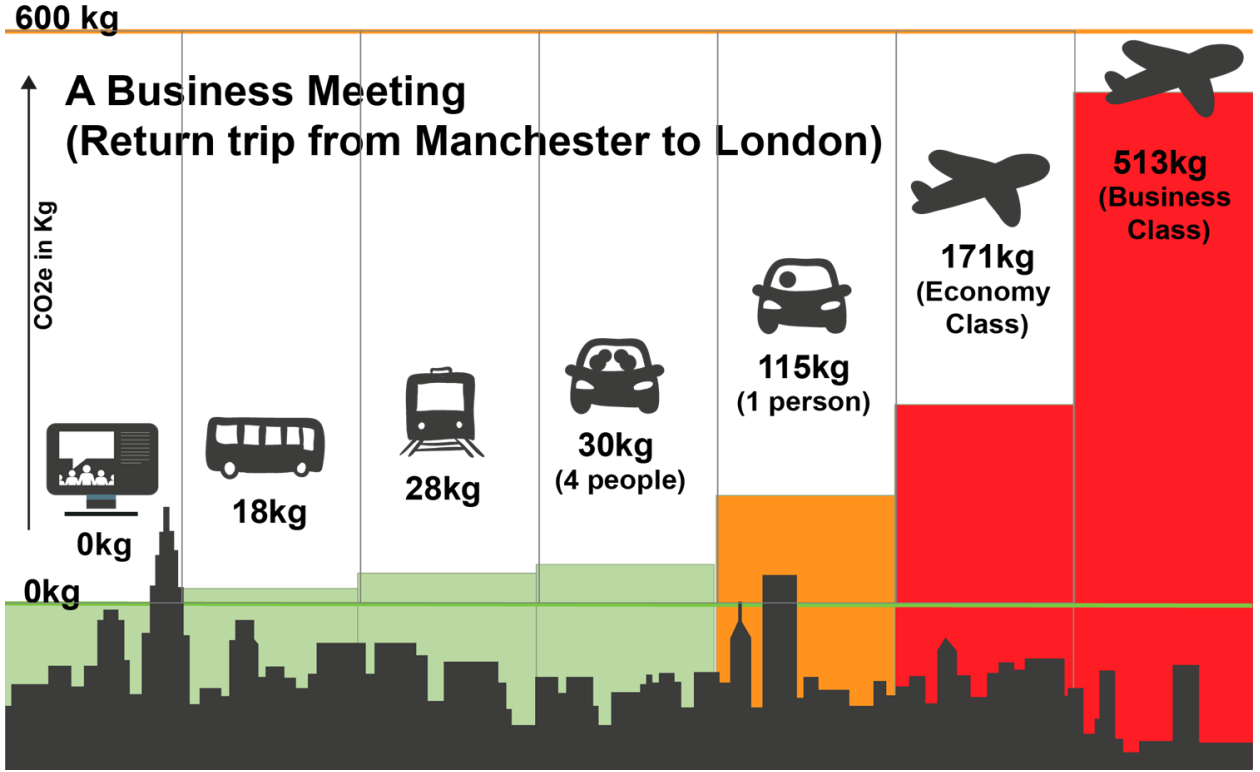
The Carbon Footprint of the commute



Graphic from the Carbon Literacy Project

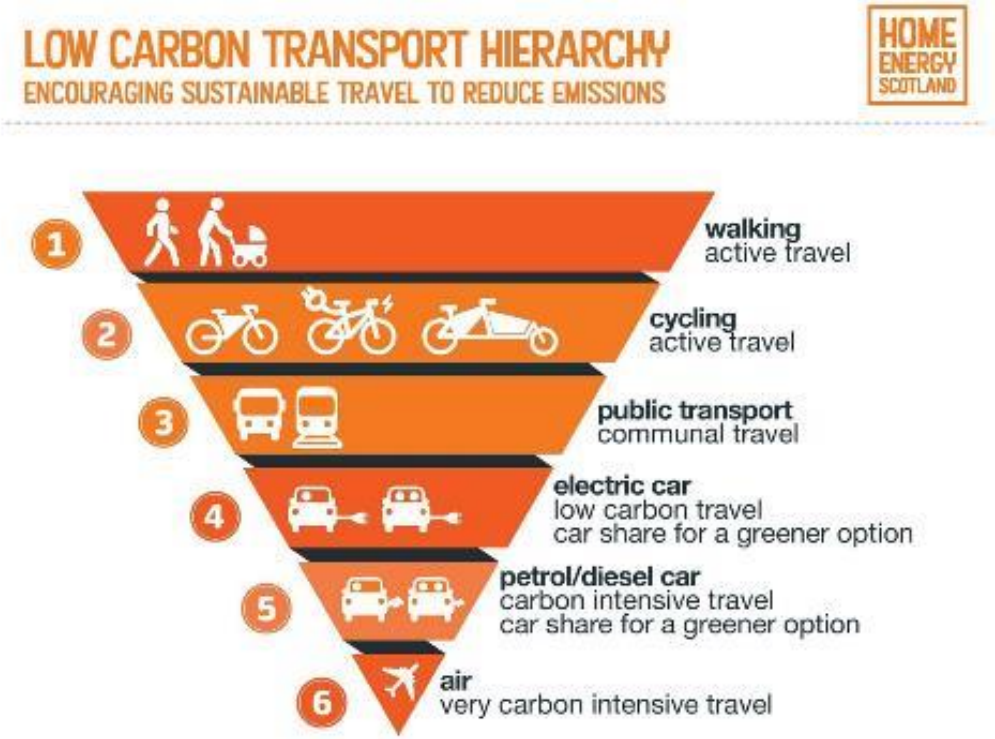
** Dependent on energy source*

The Carbon Footprint of a meeting



Graphic from the Carbon Literacy Project

What can I do?


LOW CARBON TRANSPORT HIERARCHY
ENCOURAGING SUSTAINABLE TRAVEL TO REDUCE EMISSIONS
HOME ENERGY SCOTLAND
1
walking
active travel
2
cycling
active travel
3
public transport
communal travel
4
electric car
low carbon travel
car share for a greener option
5
petrol/diesel car
carbon intensive travel
car share for a greener option
6
air
very carbon intensive travel

Individual and business level

Low footprint

- Work from home
- Online meetings
- Promoting walking to work
- Cycle to work scheme
- Personalised travel plans
- Plan journeys/ calendar to car share
- Install an EV charging point at work

Individual and business level

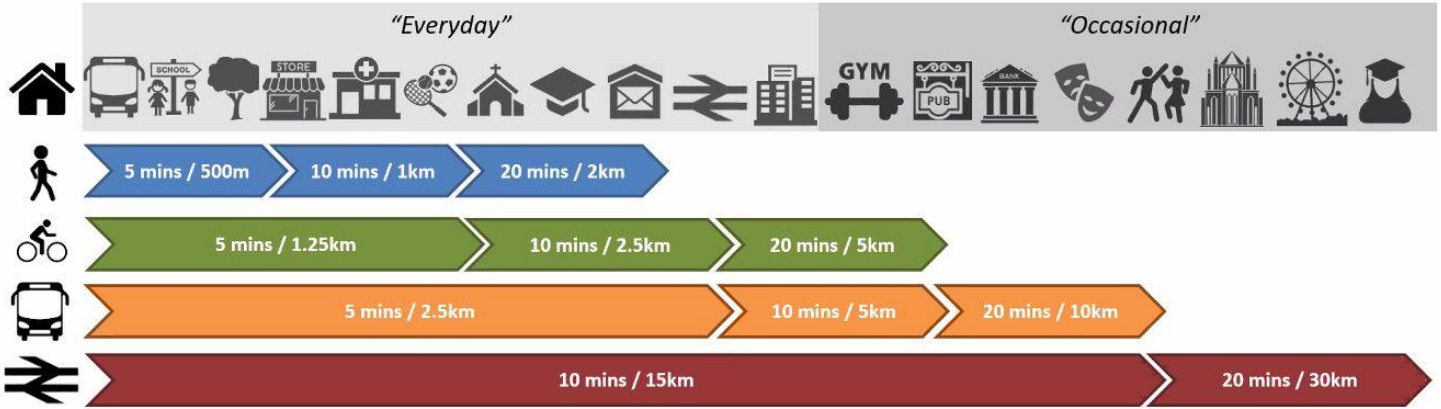
Medium footprint

- Free/subsidised public transport for staff
- Have rail as a default for domestic journeys
- Incentivise car sharing e.g. for trips to Head Office
- Only have full electric vehicles available for the fleet
- ‘No air travel’ policy
- Have economy class as preference for all grades of staff

Location, location, location

The 20-minute town

What facilities are typically within 20 mins by sustainable travel modes?



Benefits of taking action

- You and your staff
- Your customers and patients
- Community
- Society

Walking

Improves your physical health

Regular walks can reduce the risk of major health conditions by up to 50%, such as:

- Heart Disease by 35%
- Stroke by 35%
- Type 2 Diabetes by 50%
- Some Cancers by 20-50%

A brisk 20-25 minute walk every day can add 7 years to your life

Walking boosts your immune system, helping to keep colds and flu at bay.

Walking ONE mile in 20 mins burns 100 calories

Walking keeps your Heart and Lungs and circulation healthy and improves your flexibility.

Supports your mental wellbeing

zZZ

Walking helps you sleep better, giving you more energy throughout the day.

Walking can be enjoyed as a social activity and increases our sense of connectedness.

Daily walks can improve your memory and the way your mind processes, **cutting the risk of Alzheimer's by 45%**

Walking can make you happier by releasing endorphins into your body, which can improve your mood.

Walking can be an effective way of reducing depression. It can also reduce stress and anxiety levels.

Transport for Greater Manchester

Helps the local environment

Every mile WALKED instead of DRIVEN cuts out 0.2kg of CO_2

Swapping five car journeys a week to walking could reduce your carbon footprint by 86kg a year.

Choosing to walk instead of drive will reduce air pollution, which improves your physical health as well as the environment.

If everyone walked one day a week instead of driving, **traffic would be reduced by at least 10%.**

Enhances community

Improved neighbourhoods

Teaching children to walk safely to school improves their road safety and awareness skills and will stand them in good stead for the rest of their lives.

Residents of streets with less traffic tend to have more local friends

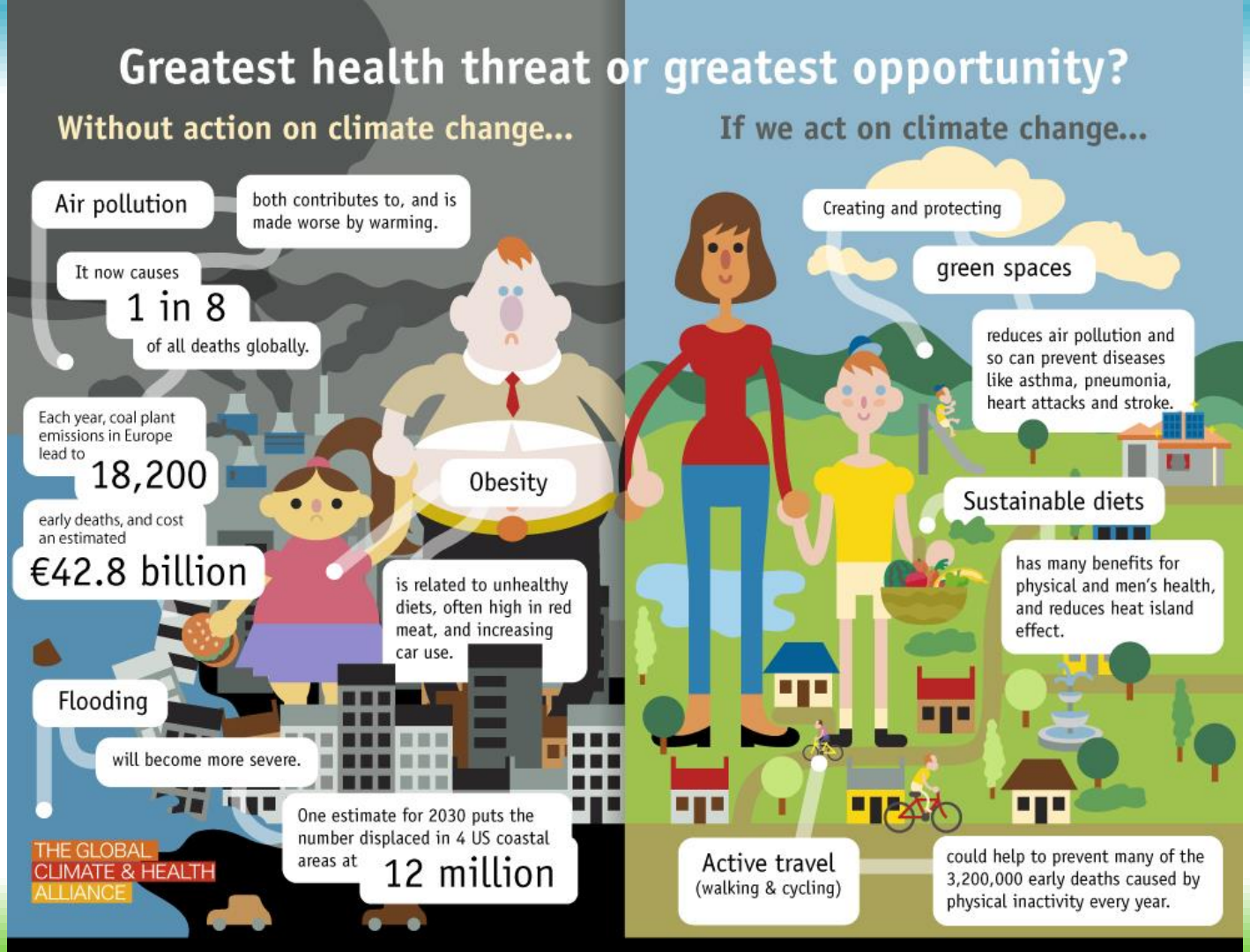
Over 60% of Greater Manchester is green space. Taking a walk can help you to explore local parks and woodlands.

Walking allows the opportunity to stop and chat with a neighbour...

...and enjoy the environment around you.

More walkers on the street can reduce traffic speeds, noise levels and the need for street surveillance.

Greatest health threat or greatest opportunity?



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