

Setting the scene

KING'S
College
LONDON

1

Clear air – a prerequisite for healthy cities and healthy citizens

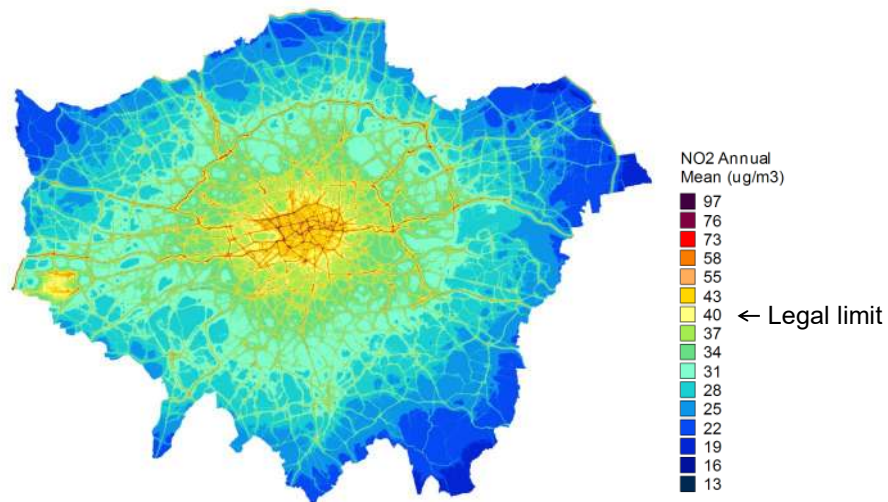
Professor Frank Kelly, Kings College London

London Living Streets, 11th October 2018

Electric vehicles – Infrastructure and Impact



LONDON'S NO₂ CHALLENGE



Short term
health effects



Long term
health effects

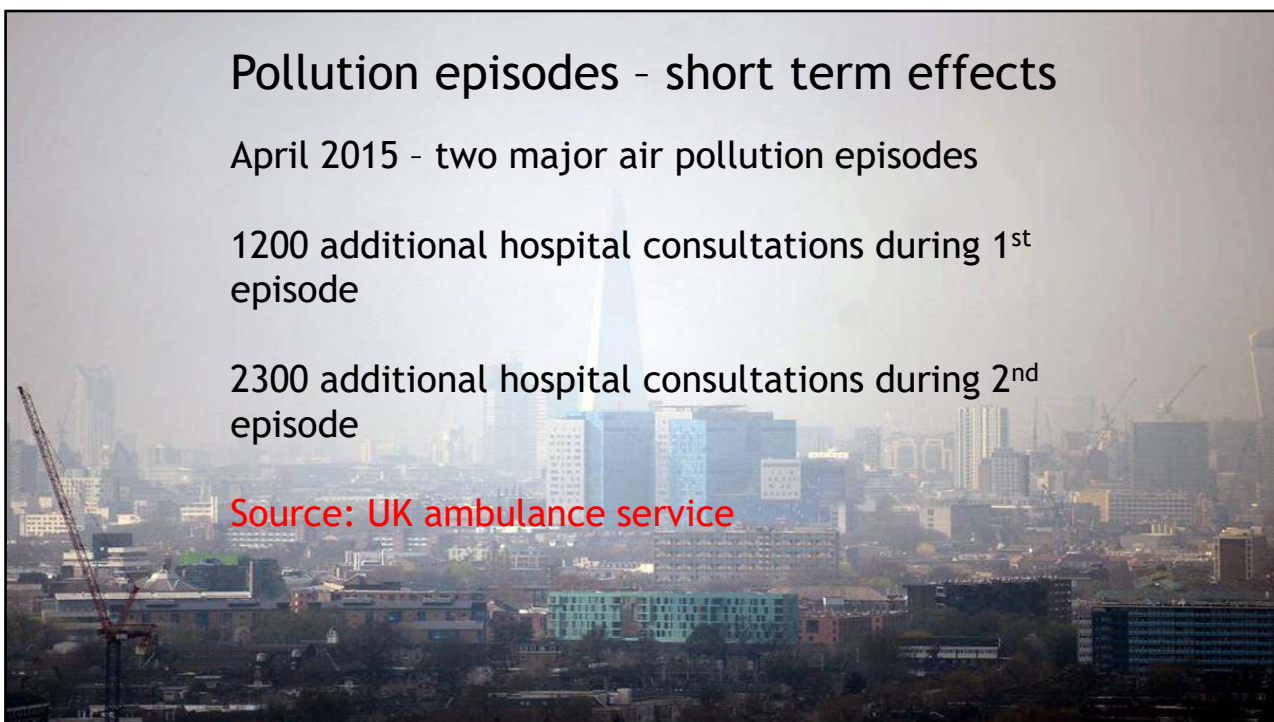
Pollution episodes - short term effects

April 2015 - two major air pollution episodes

1200 additional hospital consultations during 1st episode

2300 additional hospital consultations during 2nd episode

Source: UK ambulance service



RESEARCH

Impact of London's road traffic air and noise pollution on birth weight: retrospective population based cohort study

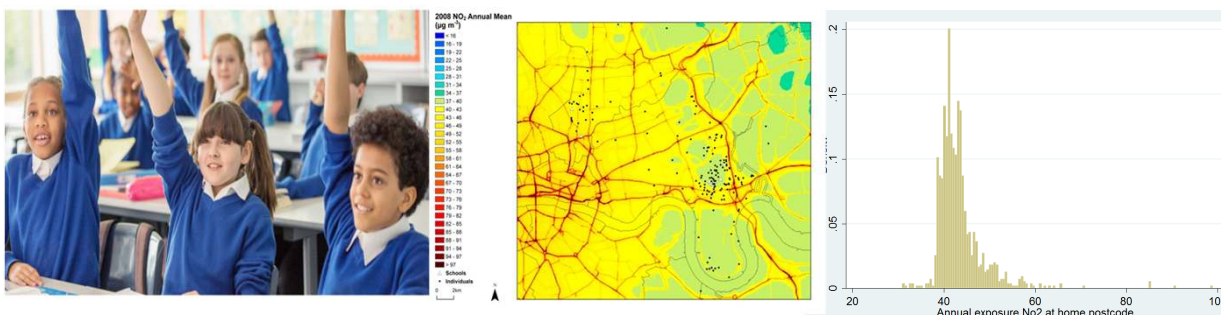


‘Air pollution from road traffic in London is adversely affecting fetal growth ‘

The lancet Public Health

Reduced lung volumes in children exposed to air pollution living in the London Low Emission Zone

Ian S Mudway, PhD; Isobel Dundas, PhD; Jeenath B Jamaludin, PhD; Helen E Wood, DPhil; Nadine Marlin, MSc; Stephen A Bremner, PhD; Louise Cross, RSN; Andrew Grieve, MSc; Alex Nanzer, PhD; Ben M Barratt, PhD; Sean Beevers, PhD; David Dajnak, PhD; Aziz Sheikh, MD; Robert Walton, MD; Jonathan Grigg, MD; Frank J Kelly, PhD; Tak Lee, ScD; Chris J Griffiths, DPhil



Respiratory and cardiovascular responses to walking down a traffic-polluted road compared with walking in a traffic-free area in participants aged 60 years and older with chronic lung or heart disease and age-matched healthy controls: a randomised, crossover study



Rudy Sinharay*, Jicheng Gong*, Benjamin Barratt, Pamela Ohman-Strickland, Sabine Ernst, Frank J Kelly, Junfeng (Jim) Zhang, Peter Collins, Paul Cullinan, Kian Fan Chung



‘Exposure to traffic pollution prevents the beneficial cardiopulmonary of walking in those with COPD or ischemic heart disease’

Open access

Research

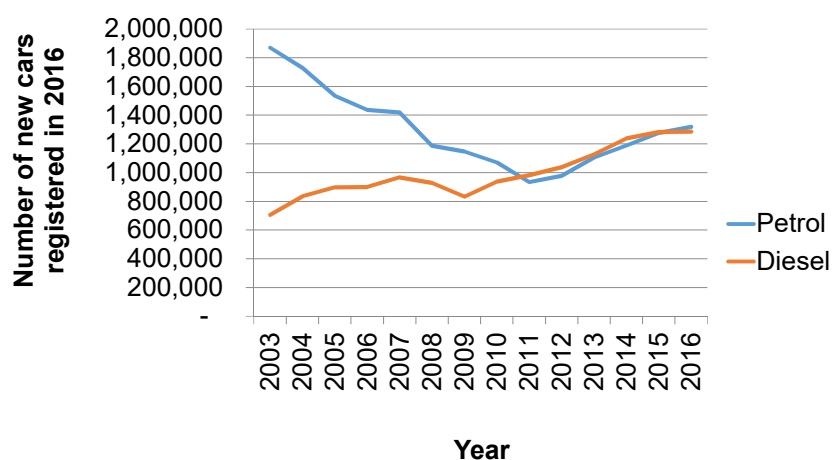
BMJ Open Are noise and air pollution related to the incidence of dementia? A cohort study in London, England

Iain M Carey,¹ H Ross Anderson,^{1,2} Richard W Atkinson,¹ Sean D Beevers,²
Derek G Cook,¹ David P Strachan,¹ David Dajnak,² John Gulliver,³ Frank J Kelly^{2,4}



‘We found evidence of a positive association between residential levels of air pollution across London and the risk of dementia’

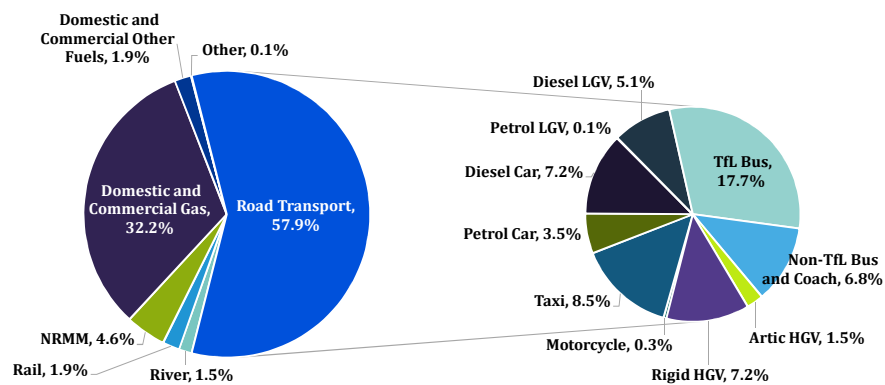
DIESELISATION





Photograph: Justin Kase/Alamy

Potential solutions: 1 (ambient urban environments)



Nitrogen Dioxide (NO₂) Source Composition (2013)

Reference: LAEI, 2016



New double decks will be hybrid, hydrogen or electric from 2018; all single decks will be zero emission at tailpipe in central in 2020

ULEZ PROPOSALS



Central London ULEZ in 2019 (all vehicles)

Motorcycle, Car, Van: £12.50 per day

Bus, Truck, Heavy Vehicle: £100 per day



London-wide ULEZ in 2020 (heavy vehicles)

Bus, Truck, Heavy Vehicle: Up to £100 per day



Inner London ULEZ in 2021 (all vehicles)

Bus, Truck, Heavy Vehicle: Up to £100 per day

Motorcycle, Car, Van: Up to £12.50 per day

ULEZ standards

- Petrol: Euro 4
- Diesel: Euro 6
- Motorcycle and L-Cat: Euro 3

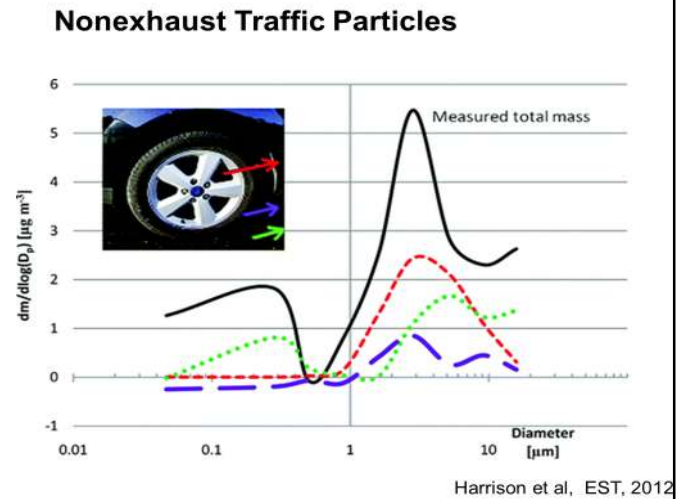
Zero emission vehicles are the future....



Warning !!!!

Zero emission vehicle terminology is a misnomer

It should be zero tail-pipe emissions, as brakes, tyres, road wear and road dust re-suspension still all take place



Thanks for listening – questions?

