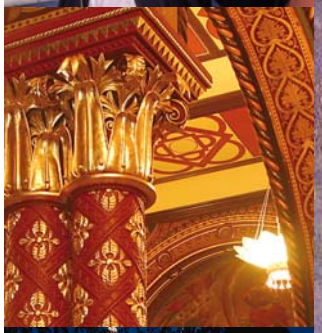


Is traffic pollution bad for our health?

Dr Ian S Mudway

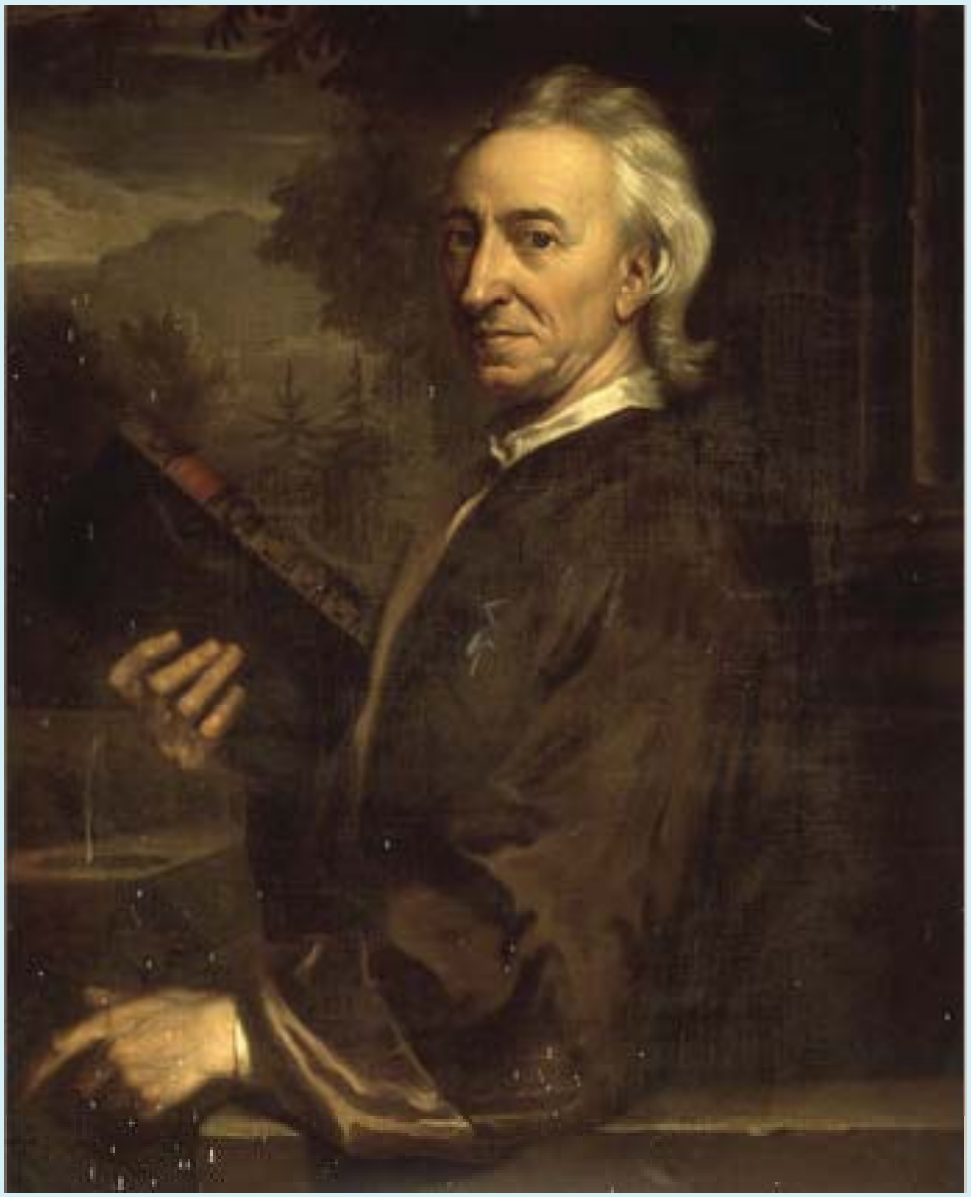
MRC-HPA Centre for Environment & Health, King's College London

MRC Medical Research Council

KING'S College LONDON

Imperial College London

Health Protection Agency



FUMIFUGIUM:

OR

The Inconveniencie of the AER

AND

SMOAK of LONDON

DISSIPATED.

TOGETHER

With ſome REMEDIES humbly

PROPOSED

By *J. E.* Eſq;

To His Sacred MAJESTIE,

AND

To the PARLIAMENT now Aſſembled.

Publiſhed by His Majeſties Command.

Lucret. l. 5.

Carbonúmque gravis vis, atque odor inſinuatur
Quam facile in cerebrum? ——

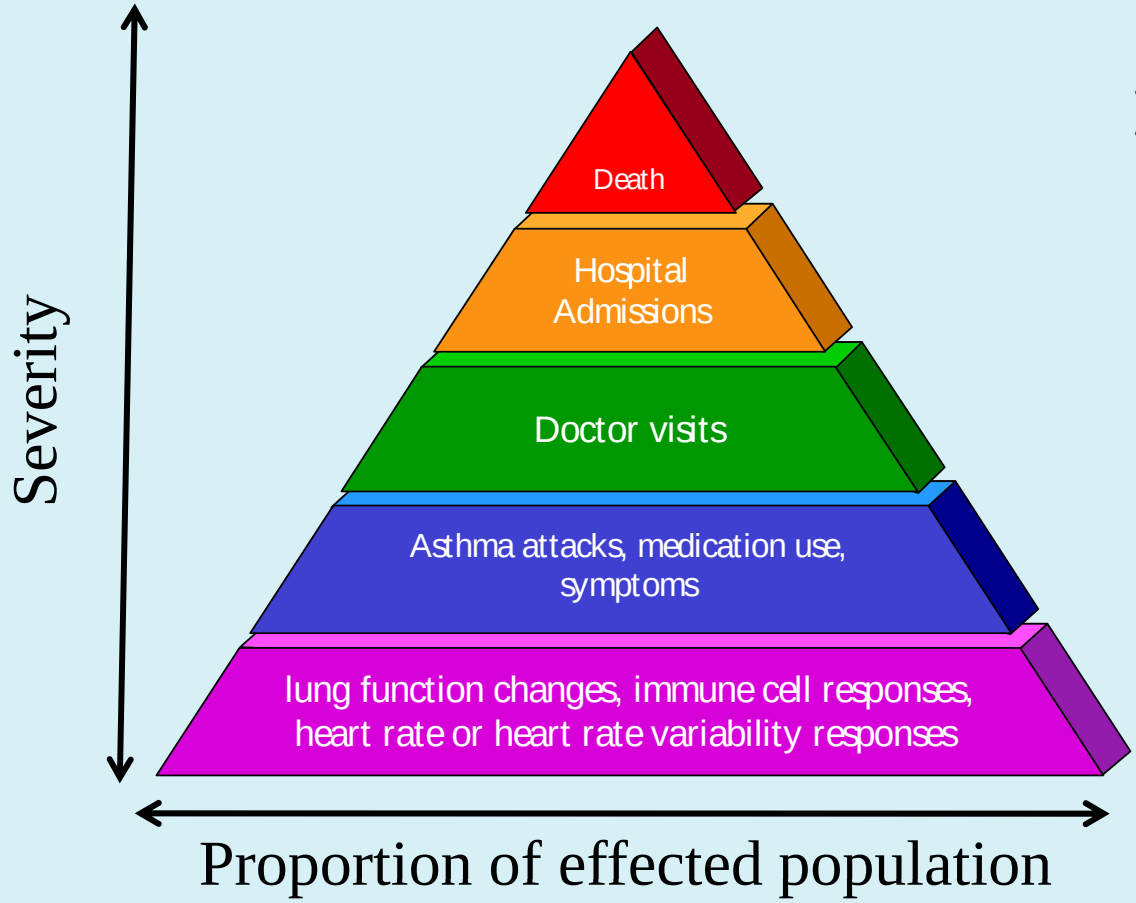
LONDON,
Printed by *W. Godbid* for *Gabriel Bedel*, and *Thomas Collins*,
and are to be ſold at their Shop at the *Middle Temple* Gate
neer *Temple-Bar*. *M. DC. LXI.*

Who died?

Deaths Registered in London Administrative County Classified by Age (Bates, 1995)							
	< 1 Month of Age	1-12 Mo. Old	1-14 Years of Age	15-44 Years of Age	45-64 Years of Age	65-74 Years of Age	75+ Years of Age
Week Before the Episode	16	12	10	61	237	254	335
Week After the Episode	28	26	13	99	652	717	949
Before/ After Episode Ratio	1.75	2.17	1.3	1.62	2.75	2.82	2.83

The greatest relative increase in mortality was from bronchitis, which rose nine-fold

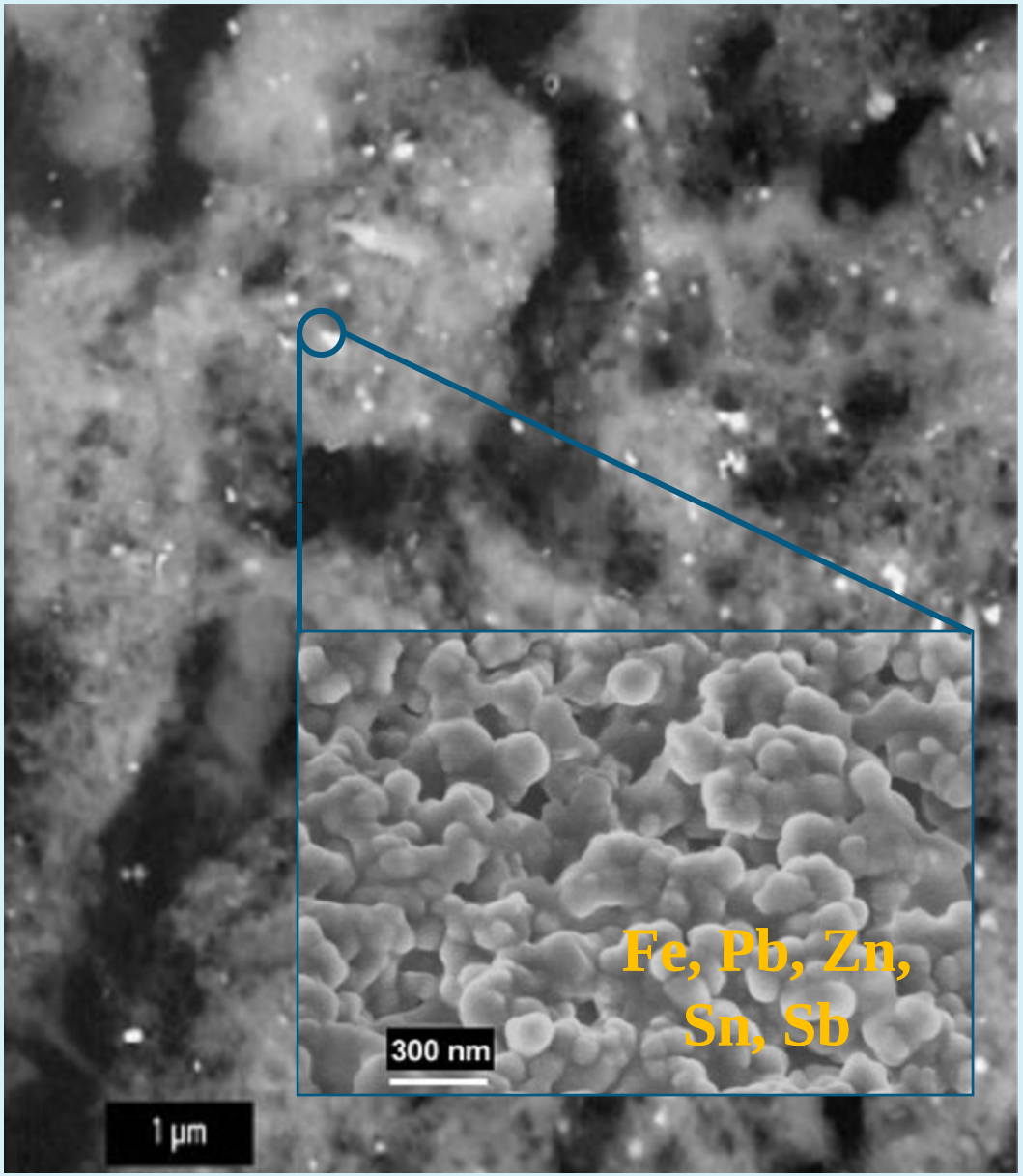
Health Effects of Ambient Pollution

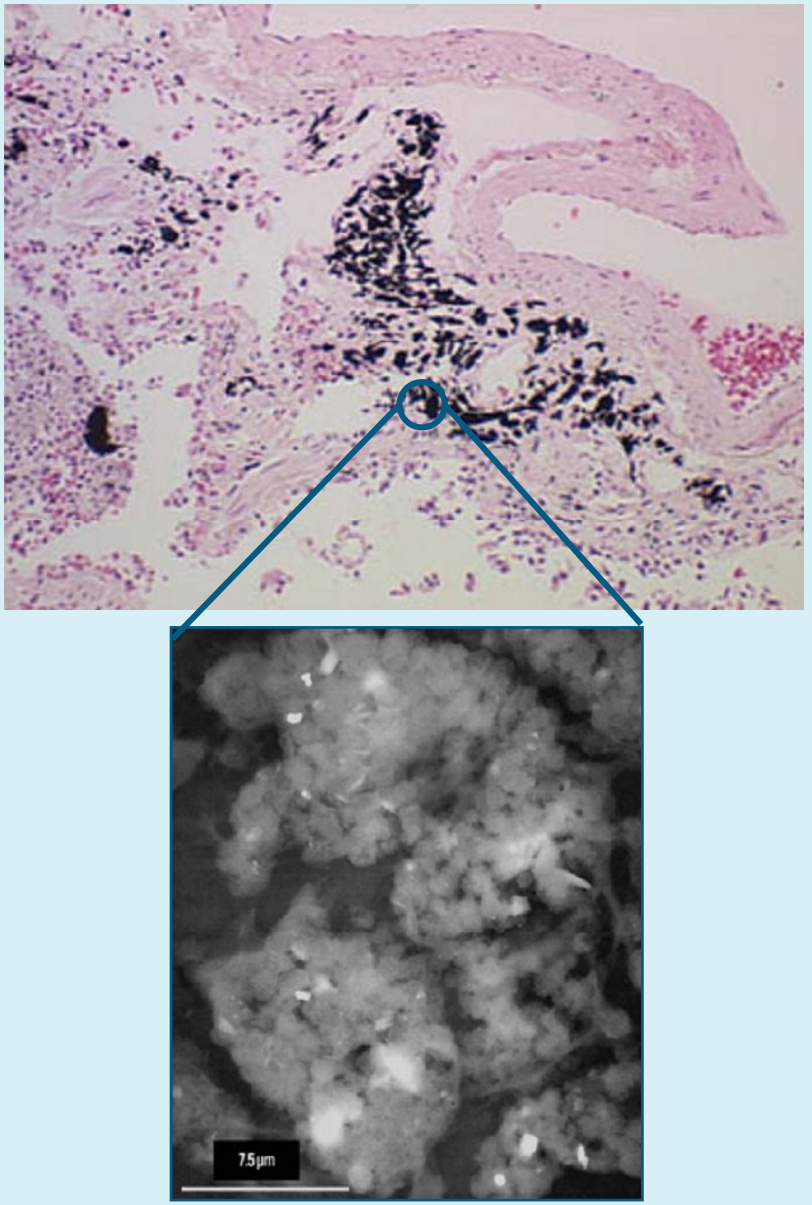


1952 London Fog

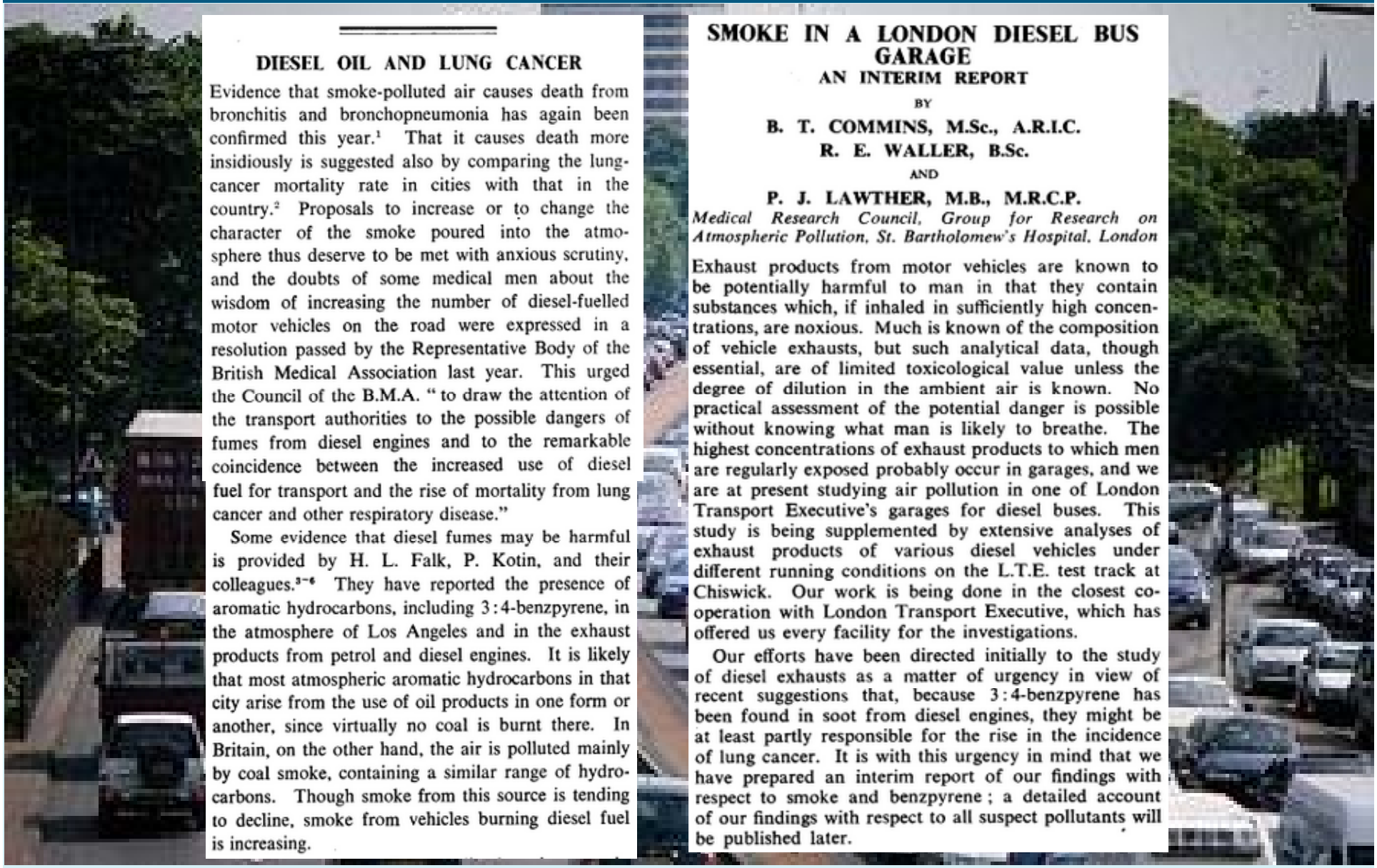
- Hospital admissions rose by 50%
- Respiratory admissions by 160%

Quality of life
Increased vulnerability





Hunt A et al. EHP, 111:1209-1214, 2003.



DIESEL OIL AND LUNG CANCER

Evidence that smoke-polluted air causes death from bronchitis and bronchopneumonia has again been confirmed this year.[1] That it causes death more insidiously is suggested also by comparing the lung-cancer mortality rate in cities with that in the country.[2] Proposals to increase or to change the character of the smoke poured into the atmosphere thus deserve to be met with anxious scrutiny, and the doubts of some medical men about the wisdom of increasing the number of diesel-fuelled motor vehicles on the road were expressed in a resolution passed by the Representative Body of the British Medical Association last year. This urged the Council of the B.M.A. "to draw the attention of the transport authorities to the possible dangers of fumes from diesel engines and to the remarkable coincidence between the increased use of diesel fuel for transport and the rise of mortality from lung cancer and other respiratory disease."

Some evidence that diesel fumes may be harmful is provided by H. L. Falk, P. Kotin, and their colleagues.[3–6] They have reported the presence of aromatic hydrocarbons, including 3:4-benzpyrene, in the atmosphere of Los Angeles and in the exhaust products from petrol and diesel engines. It is likely that most atmospheric aromatic hydrocarbons in that city arise from the use of oil products in one form or another, since virtually no coal is burnt there. In Britain, on the other hand, the air is polluted mainly by coal smoke, containing a similar range of hydrocarbons. Though smoke from this source is tending to decline, smoke from vehicles burning diesel fuel is increasing.

Br Med J. 1956 May 12; 1(4975): 1092–1094.

SMOKE IN A LONDON DIESEL BUS GARAGE

AN INTERIM REPORT

BY

B. T. COMMINS, M.Sc., A.R.I.C.
R. E. WALLER, B.Sc.
AND
P. J. LAWTHER, M.B., M.R.C.P.

Medical Research Council, Group for Research on Atmospheric Pollution, St. Bartholomew's Hospital, London

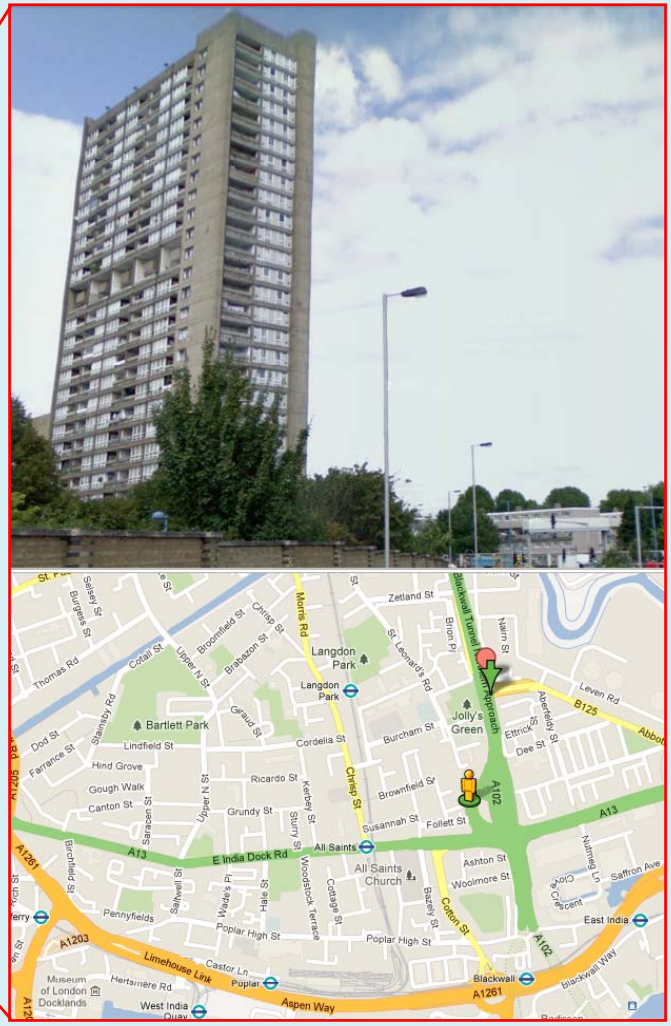
Exhaust products from motor vehicles are known to be potentially harmful to man in that they contain substances which, if inhaled in sufficiently high concentrations, are noxious. Much is known of the composition of vehicle exhausts, but such analytical data, though essential, are of limited toxicological value unless the degree of dilution in the ambient air is known. No practical assessment of the potential danger is possible without knowing what man is likely to breathe. The highest concentrations of exhaust products to which men are regularly exposed probably occur in garages, and we are at present studying air pollution in one of London Transport Executive's garages for diesel buses. This study is being supplemented by extensive analyses of exhaust products of various diesel vehicles under different running conditions on the L.T.E. test track at Chiswick. Our work is being done in the closest co-operation with London Transport Executive, which has offered us every facility for the investigations.

Our efforts have been directed initially to the study of diesel exhausts as a matter of urgency in view of recent suggestions that, because 3:4-benzpyrene has been found in soot from diesel engines, they might be at least partly responsible for the rise in the incidence of lung cancer. It is with this urgency in mind that we have prepared an interim report of our findings with respect to smoke and benzpyrene; a detailed account of our findings with respect to all suspect pollutants will be published later.

Br Med J. 1956 September 29; 2(4995): 753–754.
Br J Ind Med. 1957 October; 14(4): 232–239.

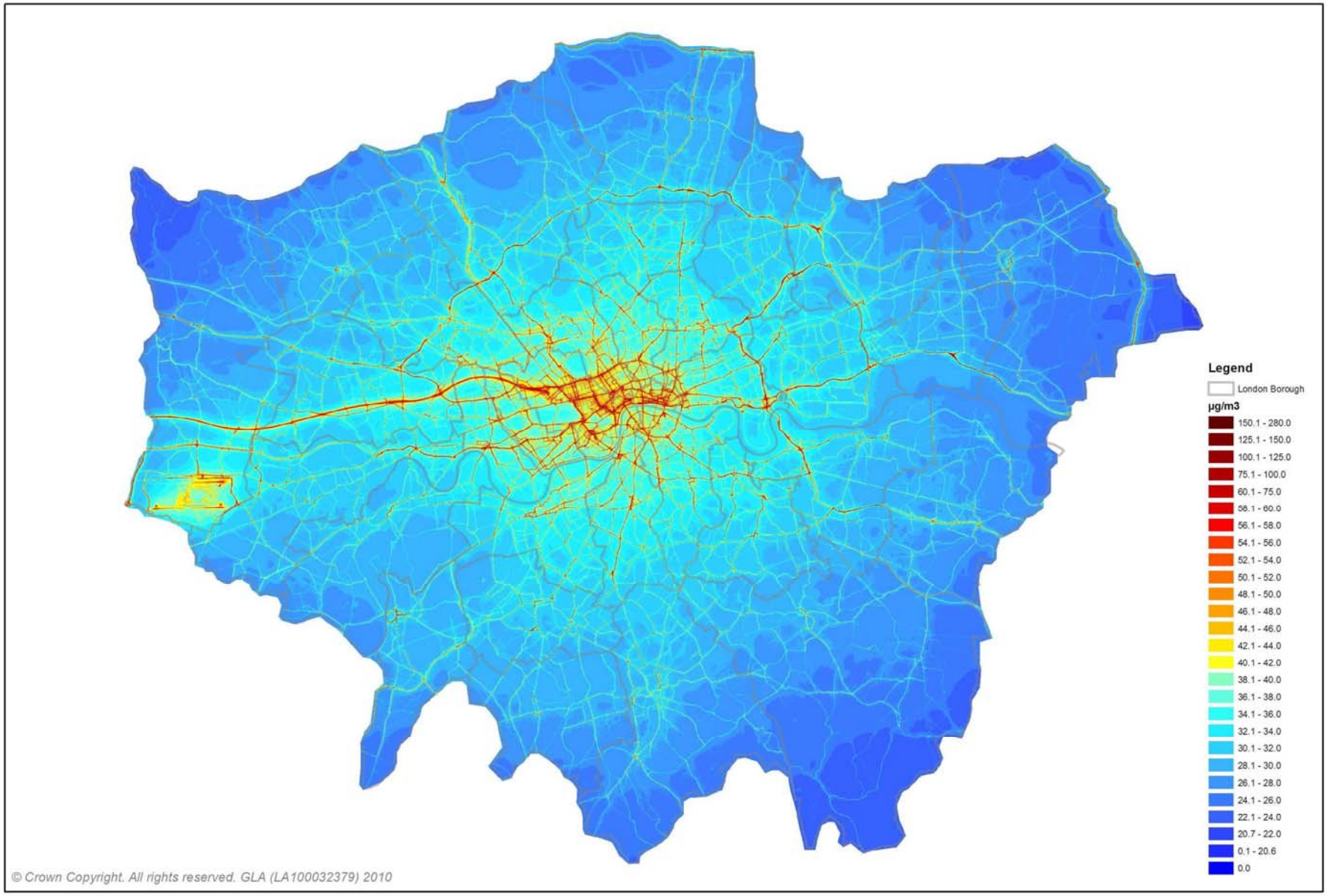
2nd October 2011

Postcodes in the Tower Hamlets area within 100 m of major road



LAEI 2008: NO2 Annual Mean - 2011

GREATERLONDONAUTHORITY



London Air

KING'S College LONDON

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GO

You are on this page: Statistics Maps » Tower Hamlets - Blackwall

LAQN Monitoring Statistics

Enter postcode or area: Find

Select a monitoring site to view:

Change objective: all objectives

Include closed sites:

Show Authorities (OS Data):

Switch to Static Map

Achieved | Achieved but raised | Exceeeded | No Data | Closed

Bulletins | Site Details | Statistics | Pollution Episodes

Your selected monitoring site » ***Tower Hamlets - Blackwall***

Air Quality Statistics: 2013 (to date) Go

The table below shows whether pollution levels recorded at the site you have selected remained within the Government's Air Quality Strategy Objectives in *2013 (to date)*. For further basic statistics click on the button below, or for more precise statistics, use the **Statistics Calculator**.

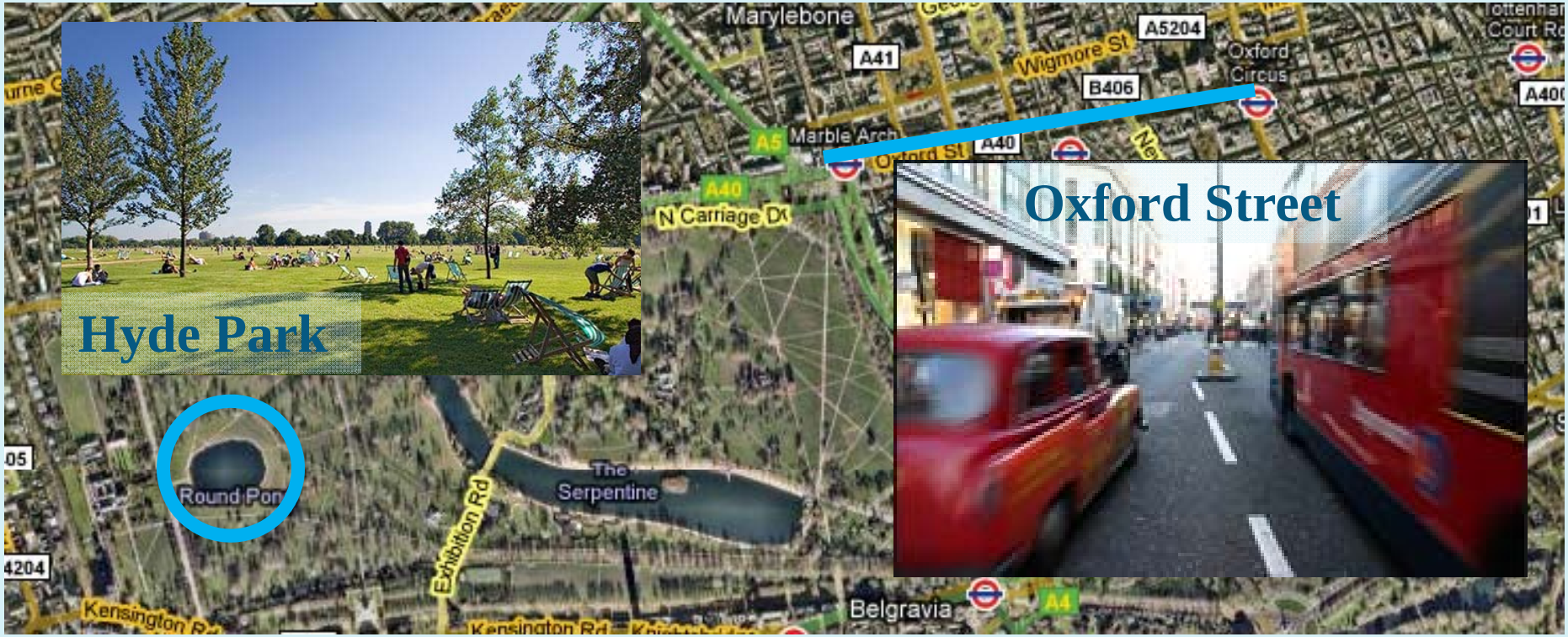
Pollutant	Objective	Was it achieved?	Value
PM10 Particulate	Annual Mean (ug/m3)	YES	30
PM10 Particulate	No. days 24hr mean >50ug/m3	YES	1
Ozone	No. days max rolling 8hr mean >100ug/m3	YES	0
Nitrogen Dioxide	Annual Mean (ug/m3)	NO	64
Nitrogen Dioxide	No. hours hourly mean >200ug/m3	YES	0

** Note that these results cover from the start of the year to now, and are still subject to change until the end of the year.*

Basic Stats **Reports** **Wind Plot**

Responses to PM in the Real World

Does short term exposure to real world atmospheres (diesel traffic and background) cause respiratory effects in asthmatics?



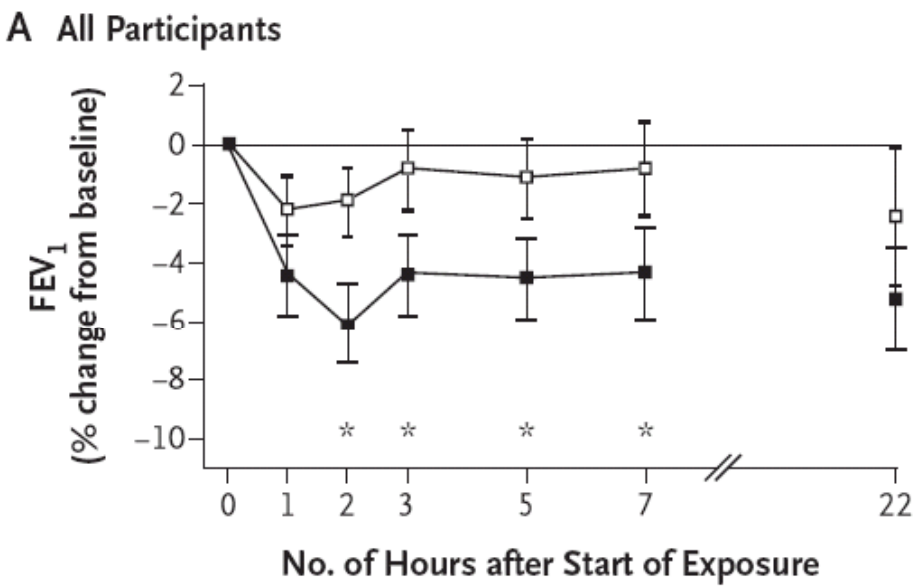
PM_{10} =72 µg m^{-3}, $PM_{2.5}$ =11.2 µg m^{-3}, 11.7 ppb NO_2 18,300 particles cm^{-3}

PM_{10} =125 µg m^{-3}, $PM_{2.5}$ =28.3 µg m^{-3}, 76.5 ppb NO_2 63,700 particles cm^{-3}

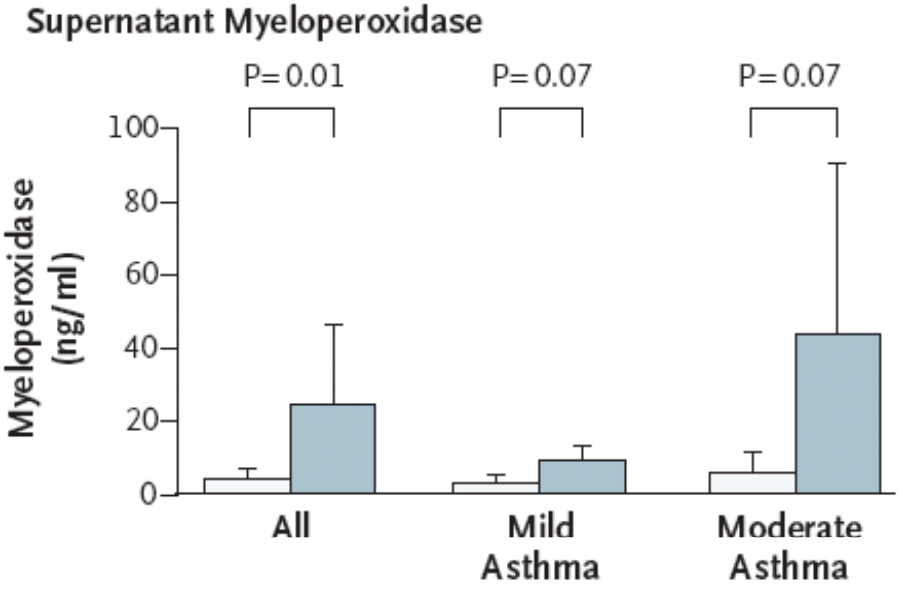
McCreanor al. (2007) New Eng J Med 357: 2348-2358.

Responses to PM in the Real World

Impaired lung function



Inflammation



Hyde Park exposure Oxford Street exposure

McCreanor J et al. N Engl J Med. 2007 Dec 6;357(23):2348-58

Kulkarni et al, 2006 (NEJM); Leicester, UK

64 healthy school children, 8-15 yr

Association between carbon content of airway macrophages, lung function and PM_{10} at home address

Gauderman et al, 2004 (NEJM); southern California

1,759 10-yr old children, 12 communities, 8-yr follow up

Lung function growth significantly reduced in areas with higher levels of traffic-related pollutants (NO_2, $PM_{2.5}$, EC)

- reduction in growth of FEV_1 of ~80 to 100 mL
- clinically low FEV_1 at age 18

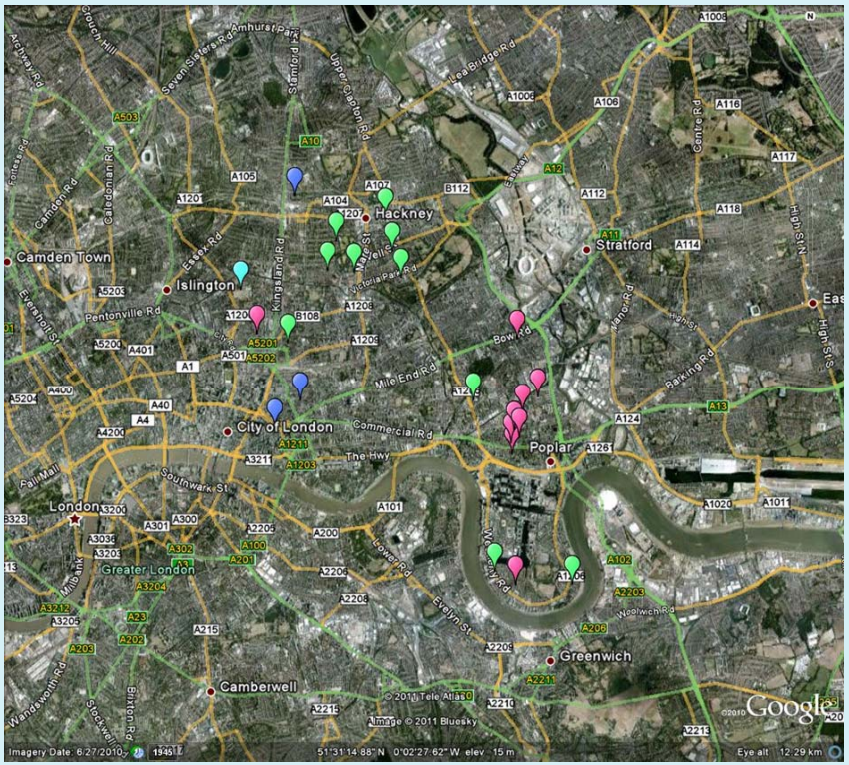
Gauderman et al, 2007 (Lancet); southern California

Same study, local vs. regional pollutant levels

Living <500m from freeway associated with reduction in FEV_1 growth of ~80mL significantly lower attained FEV_1 by 18 yrs

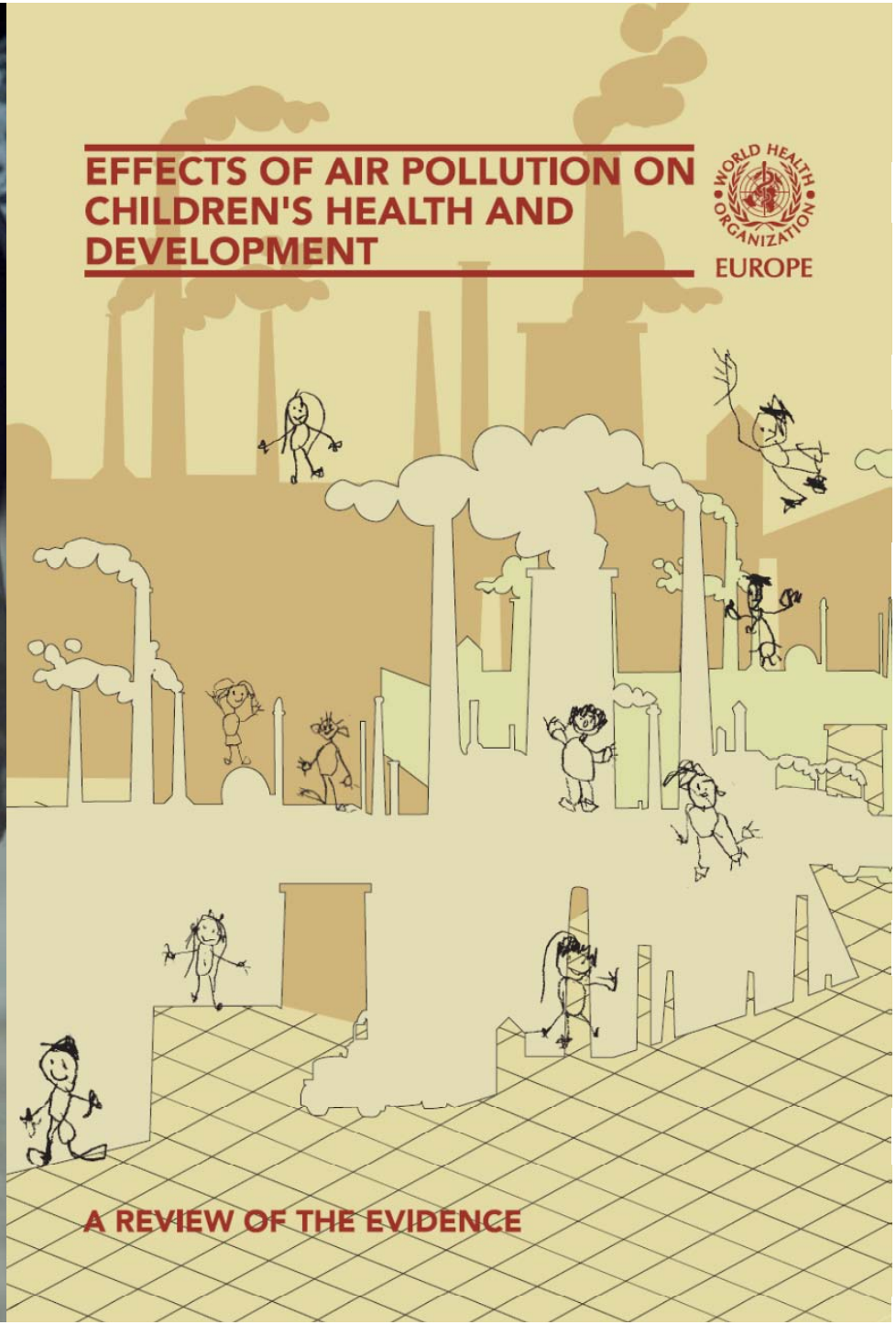
EXHALE study

Children's respiratory health in Hackney and Tower Hamlets



EFFECTS OF AIR POLLUTION ON CHILDREN'S HEALTH AND DEVELOPMENT

WORLD HEALTH ORGANIZATION
EUROPE



A REVIEW OF THE EVIDENCE

LAQN Monitoring Statistics

Enter postcode or area: Find

Select a monitoring site to view:

Change objective: all objectives

Include closed sites:

Show Authorities (OS Data):

Switch to Static Map

Achieved | Achieved but raised | Exceeded | No Data | Closed

Bulletins | Site Details | Statistics | Pollution Episodes

Your selected monitoring site » ***Greenwich - Trafalgar Road***

Air Quality Statistics: 2012 Go

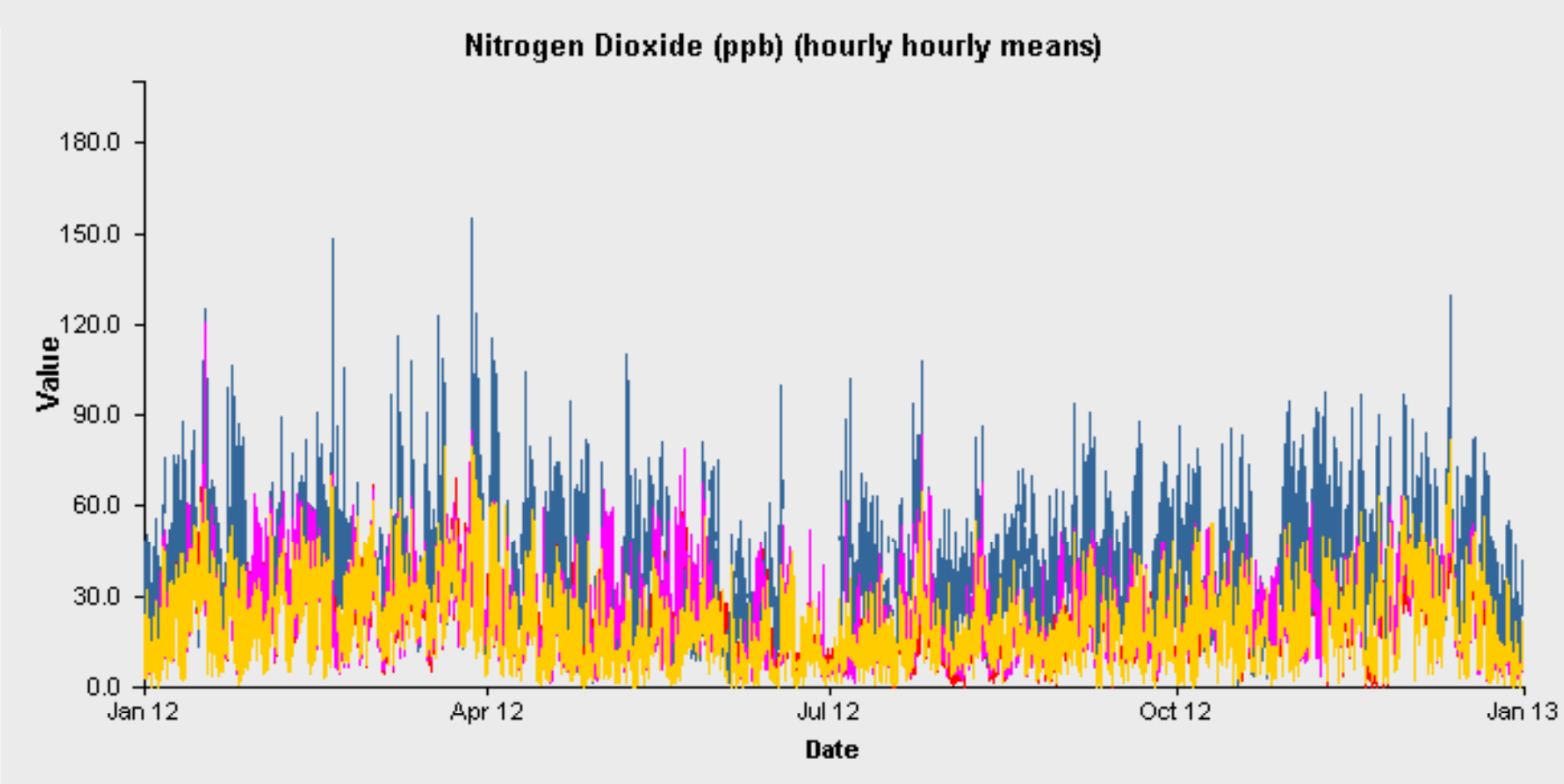
The table below shows whether pollution levels recorded at the site you have selected remained within the Government's Air Quality Strategy Objectives in *2012*. For further basic statistics click on the button below, or for more precise statistics, use the **Statistics Calculator**.

Pollutant	Objective	Was it achieved?	Value
PM10 Particulate	Annual Mean (ug/m3)	YES	22
PM10 Particulate	No. days 24hr mean >50ug/m3	YES	14
PM10 (redundant method)	Annual Mean (ug/m3)	YES	22
PM10 (redundant method)	No. days 24hr mean >50ug/m3	YES	7
Nitrogen Dioxide	Annual Mean (ug/m3)	NO	44
Nitrogen Dioxide	No. hours hourly mean >200ug/m3	YES	0

** Note that results are excluded where analysers have not returned valid data for at least 90% of the year, unless a short-term objective was exceeded.*

** Note - all results from TEOM PM10 analysers from 2004 onward are now converted to reference equivalence using the volatile correction method. Results using the old 'TEOM*1.3' method are also shown for comparison where relevant.* **More information.**

Basic Stats **Reports** **Wind Plot**



Key: Greenwich - Trafalgar Road Greenwich - Woolwich Flyover Greenwich - A206 Burrage Grove Greenwich - Plumstead High Street


SPECIAL REPORT 17
HEALTH EFFECTS INSTITUTE
January 2010
Traffic-Related Air Pollution: A Critical Review of the Literature on Emissions, Exposure, and Health Effects
HEI Panel on the Health Effects of Traffic-Related Air Pollution
www.kcl.ac.uk

Summary of Air Pollution Related Health Effects-
Epidemiology Evidence Synthesis

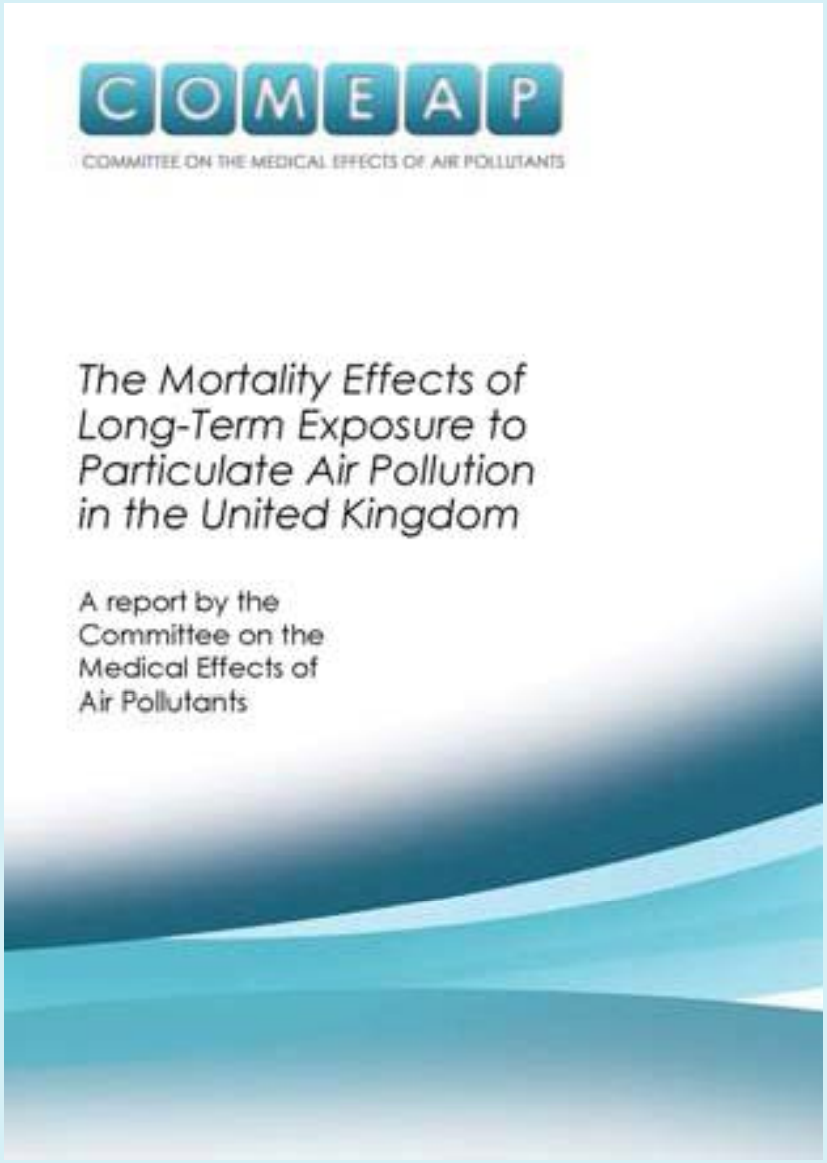
Health Outcome	Association with Traffic Air Pollution Exposure
Morality	
All-cause and Cardiovascular mortality	**Sufficient**
Asthma and Respiratory - Children	
Asthma onset and prevalence	**Sufficient**
Asthma is more common in children living in the street buffers with the highest concentrations of traffic-related pollution	
Exacerbation of asthma symptoms	**Sufficient**
Children living in hot spots of traffic-related pollution experience more symptoms and exacerbations	
Asthma and Respiratory - Adults	
Adult-onset of asthma *(one study)*	Insufficient
Exacerbation of asthma symptoms *(few studies)*	**Suggestive** but not sufficient
Hospitalisation rates	Insufficient

HEI (2010) Special Report 17

Summary of Air Pollution Related Health Effects-
Epidemiology Evidence Synthesis

Health Outcome	Association with Air Pollution Exposure
Respiratory Symptoms	
Lung function	
TRAFFIC	
Living in proximity to high concentration of traffic air pollution may be associated with reduced lung function	**Suggestive** but not sufficient
NON-TRAFFIC SPECIFIC AIR POLLUTION	
Evidence for a casual association between ambient air pollution in general and lung growth	**Sufficient**
Possible evidence for a lung-function decline in adults in relation to exposure to air pollution in general	Suggestive but not sufficient

HEI (2010) Special Report 17



Published December 2010

As a result of poor air quality:

- UK population lost 340,000 years of life in 2008
- This loss of life is equivalent to 29,000 deaths
- the average loss of life would have been 2 years, (though the actual amount would vary between individuals).
- The burden can also be represented as a loss of life expectancy from birth (for everyone) of 6 months

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Y Z or most popular

Air quality

Monitoring and controlling air pollution

Greenwich Council is committed to improving air quality. This has led to us becoming one of only four Beacon Authorities for air quality in the country.

The borough has been at the forefront of air pollution control for many years.

- We were the first local authority in the country to declare a Low Emission Zone (LEZ), namely the Greenwich Peninsula LEZ in 2004.
- During the 1980s, we conducted research into the accumulation of lead in children (leading to government action to introduce lead-free petrol).
- In the 1950s, we implemented the Smoke Control Area.

Vehicle emissions

The main air quality problem today is no longer factory pollution, but vehicle emissions. This means that we now concentrate on pollution monitoring and air quality improvement programmes and measures that:

- control vehicle emissions at the source
- minimise vehicle use
- encourage the uptake of cleaner fuels and vehicles
- encourage the uptake of other forms of transport, such as cycling and public transport.

Report an air quality problem

Useful links: Air quality

- Greenwich air quality map (London Air)
- AirTEXT air pollution alert service
- Low Emission Zones in London (TfL)
- Low Emission Strategies
- UK Smoke Controlled Areas
- London Mayor's Air Quality Strategy
- UK Air information (Defra)
- Environment Agency
- Environmental Protection UK

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