

Communicating results to general audiences and to the public

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Theresa May calls for UK general election on 8 June

Prime minister makes surprise announcement outside No 10, saying she has delivered stability after the Brexit referendum result

● [Theresa May announces UK general election - live](#)



14,711

Anushka Asthana, Rowena Mason and Jessica Elgot

Tuesday 18 April 2017 12:53 BST



Prime minister Theresa May calls general election for 8 June - full video statement

Theresa May has said she wants to hold a snap general election on 8 June, despite repeatedly claiming that she was against the idea of an early vote.

In a surprise statement outside Downing Street on Tuesday morning, the prime minister claimed that opposition parties were jeopardising her government's preparations for Brexit.

"We need a general election and we need one now," she said. "I have only recently and reluctantly come to this conclusion but now I have concluded it is the only way to guarantee certainty for the years ahead."

May claimed the decision she would put to voters in the election, the announcement of which was a tightly guarded secret known only by her closest aides, would be all about "leadership".



May's general election announcement annotated

➔ [Read more](#)

The prime minister may have been swayed by recent polls that placed the Conservatives 21 points ahead of Labour despite a policy blitz by Jeremy Corbyn's party. She will hope to boost a slim working majority of 17 in order to help pass both domestic and Brexit-linked legislation.

In her statement, May said her government was trying to deliver on last year's referendum result by making sure Britain regained control and struck new trade deals.

"After the country voted to leave the EU, Britain needed certainty, stability and strong leadership. Since I became prime minister the government has delivered precisely that," she said, but claimed that other political parties had opposed her efforts.

Advertisement



Most popular



'People wet their knickers when they find out I was in Bananarama': the 80s trio return



French election: Macron and Le Pen go to second round - live coverage



General election: Ukip accused of 'full-throated'

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Purdah - midnight 21 April 2017 until at least 9 June 2017

Government has failed to act on air pollution, says Labour

22 April 2017 | UK Politics



Cyclists wear masks against pollution in London, one of 16 areas where limits have been breached

Labour has accused the government of failing to act on air pollution, which it says is a "public health emergency".

The party said millions of people in the UK were living in areas with illegal levels of nitrogen dioxide (NO₂) and called air pollution levels a "national scandal".

It has vowed to bring in a new Clean Air Act, including a network of "clean air zones" if it is elected.

LIVE Election 2017: Latest updates

2 minutes ago
Fancy four extra days off a year?

Top Stories

Newcomer Macron targets presidency

Centrist Emmanuel Macron will take on the far-right's Marine Le Pen in France's run-off election.

18 minutes ago

General election 2017: Latest updates

22 April 2017

Man held in car theft murder case

36 minutes ago

Features



The Holocaust: Who are the

- The Research Councils strongly advises against issuing press releases about new research during this period
- Research councils are unable to engage in activities that might in **any way influence the outcome** of the election and **must avoid competition with parliamentary candidates for the attention of the public.**

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Raising public and political awareness

Pollution
Opinion

The Black Lives Matter protesters were right: air pollution is a race issue
John Vidal (6 Sept 2016)



MPs: UK air pollution is a 'public health emergency'

(27 April 2016)

Cross-party committee of MPs says the government needs to do much more to tackle the crisis, including a scrappage scheme for dirty old diesel cars



A face mask was placed on Nelson's Column on 18 April 2016 in a Greenpeace protest to highlight air pollution. Photograph: Dan Kitwood/Getty Images

Air pollution in the UK is a “public health emergency”, according to a cross-party committee of MPs, who say the government needs to do much more including introducing a scrappage scheme for old, dirty diesel vehicles.

The government's own data shows air pollution causes 40,000-50,000 early deaths a year and ministers were [forced to produce a new action plan](#) after losing a supreme court case in 2015.

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Every breath we take: the lifelong impact of air pollution. RCP report 2016

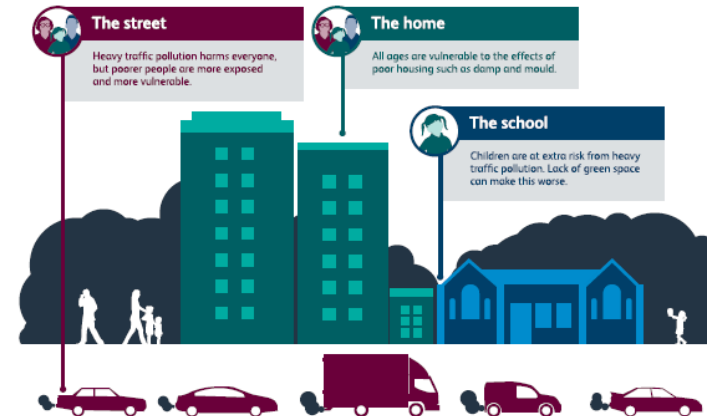
Every breath we take The lifelong impact of air pollution

Report of a working party
February 2016



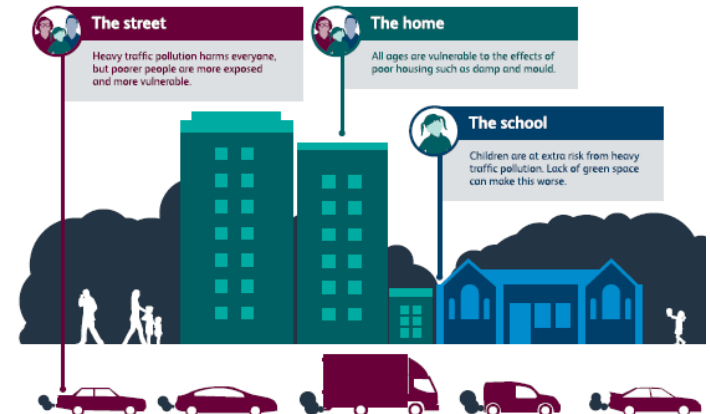
'6 steps to breathing better air' for the general public:

- **B**e aware of the air quality where you live
- **R**eplace old gas appliances in your home
- **E**nsure you have an energy efficient home
- **A**lter how you travel. Take the active travel option: bus, train, walking cycling
- **T**alk to your MP
- **H**arness technology to stay informed and monitor air pollution effectively



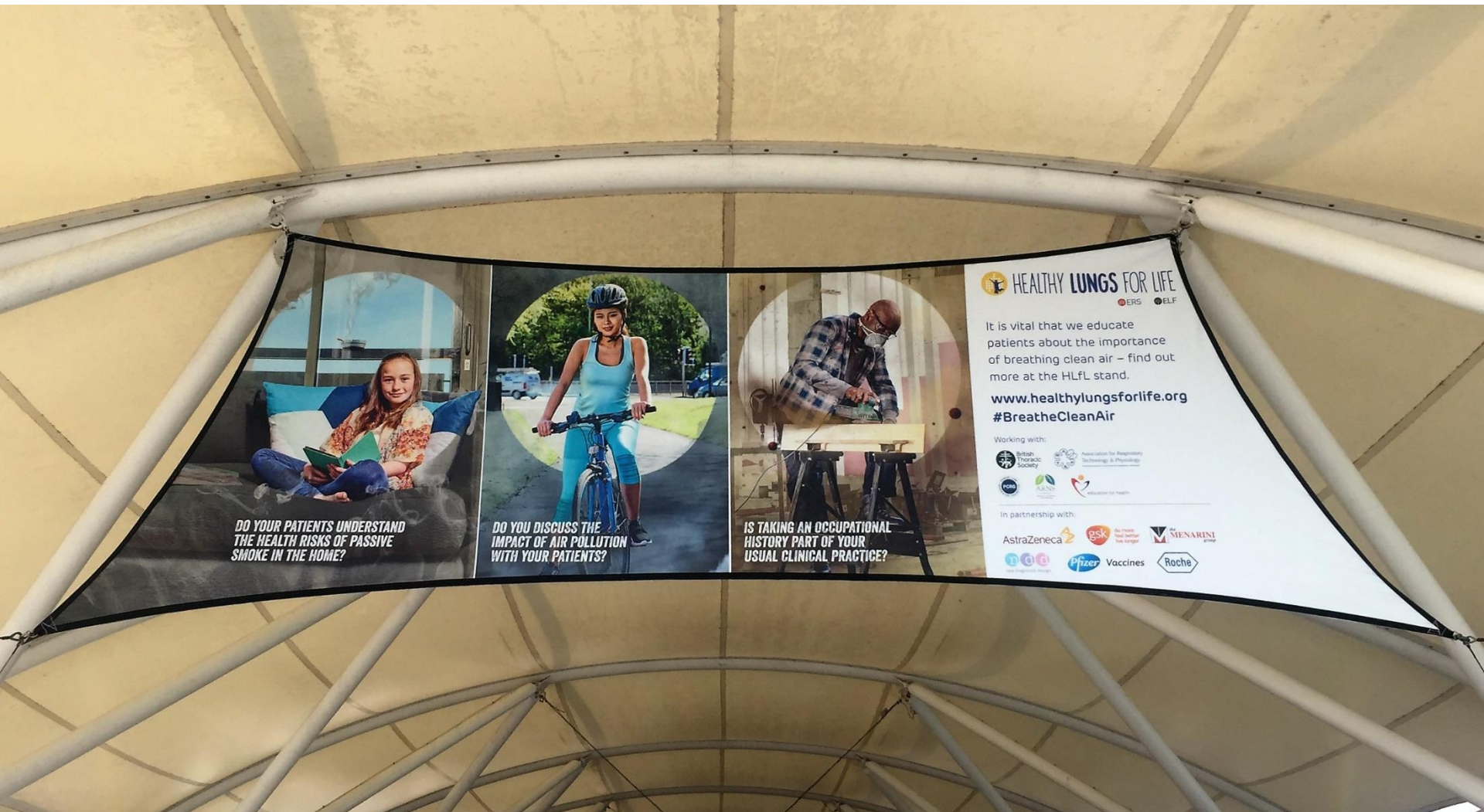
Every breath we take: the lifelong impact of air pollution. RCP report 2016

- **Put the onus on polluters.** Tougher regulations, including reliable emissions testing for cars.
- **Local authorities need to act to protect public health when air pollution levels are high.** Power to close or divert roads, especially near schools.
- **Monitor air pollution effectively.** Track exposure in major urban areas and near schools.
- **Quantify the relationship between indoor air pollution and health.**
- **Define the economic impact of air pollution.** Further research into the economic benefits of policies to tackle it.
- **Lead by example within the NHS.** It must lead by example and set the benchmark for clean air and safe workplaces.



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Every breath we take: engagement



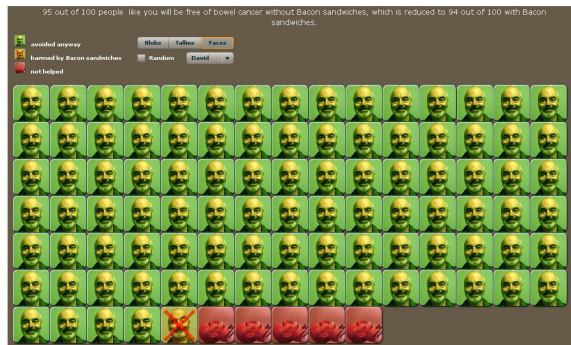
Poster at European Respiratory Society conference 2016

Reporting risk – David Spiegelhalter

- In 2007, a WCRF report (www.dietandcancerreport.org) estimated that there was a 20% increased risk of bowel cancer if you ate 50g of processed meat every day – that's equivalent to a **large bacon sandwich**
- This is a **relative risk**, and can sound quite frightening to a member of the public
- But for an average person, chance of getting bowel cancer at some point in their life is around 5%.
- A 20% relative increase on this translates to a lifetime risk of 6%, or an increase of 1% in **absolute risk**, which now does not sound so bad
- It is possible to frame the risk in a **positive way**: there is a 95% chance of avoiding bowel cancer, which reduces to 94% if you eat bacon sandwiches

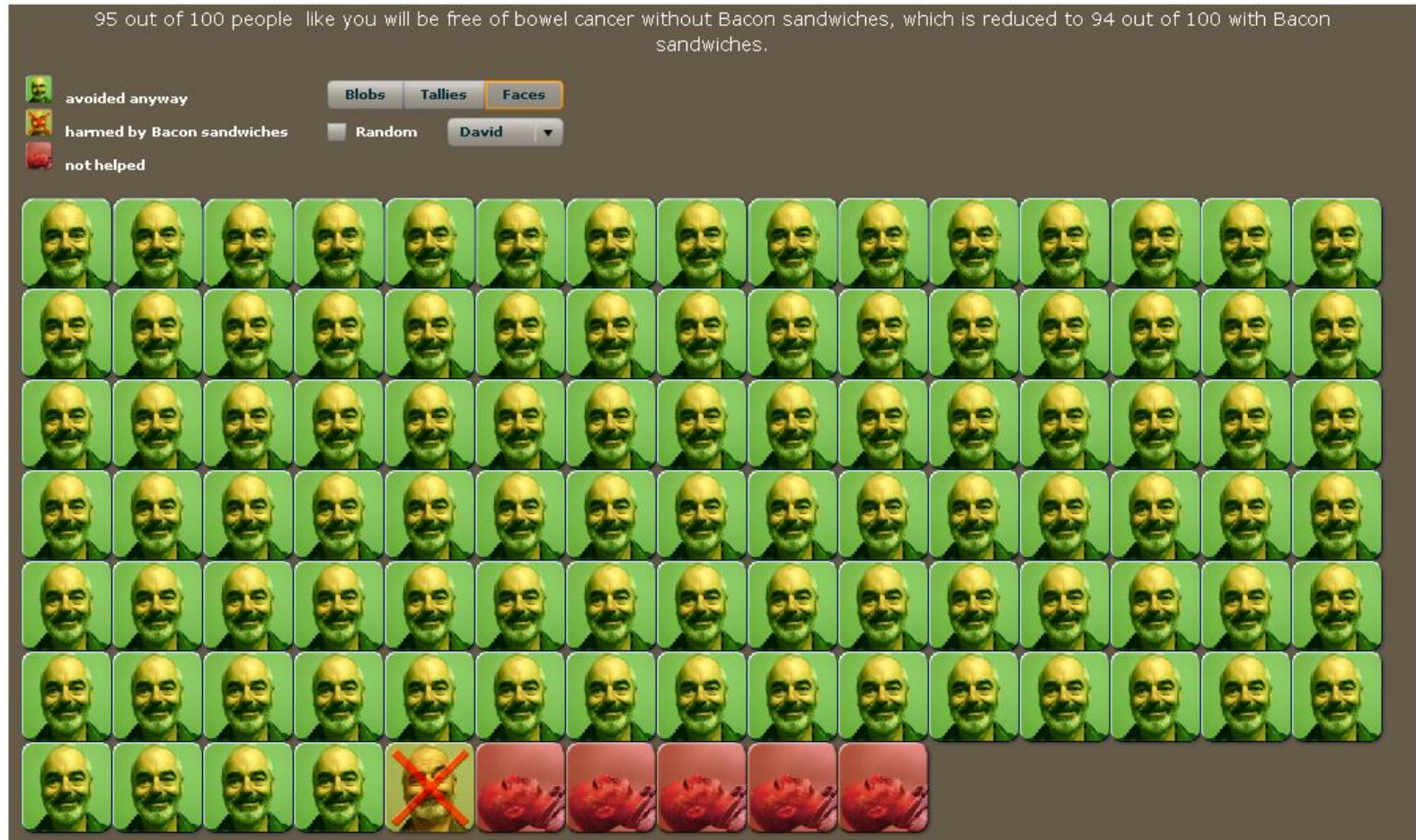
Different ways to report a risk

Which of these two is more dangerous to health?



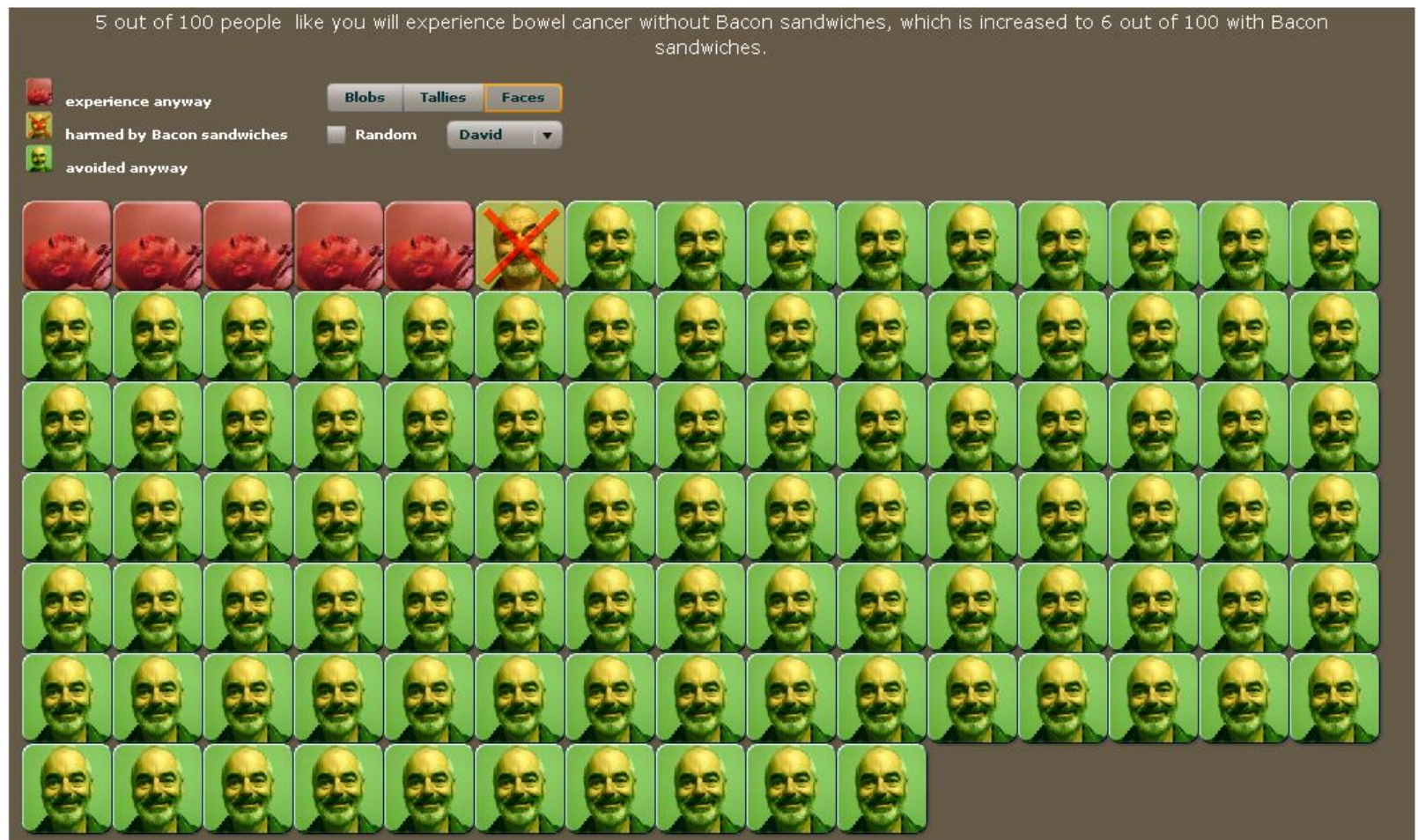
Different ways to report a risk

Absolute risk, positive framing, population



Different ways to report a risk

Absolute risk, negative framing, population
(<http://understandinguncertainty.org>)



Communicating – how did they do?

- Clear explanations
 - Simplifies a complex message
- Simple, readily understood graphics (picture paints a thousand words...)
- Framing is important
- Use of absolute risk for communicating with the public

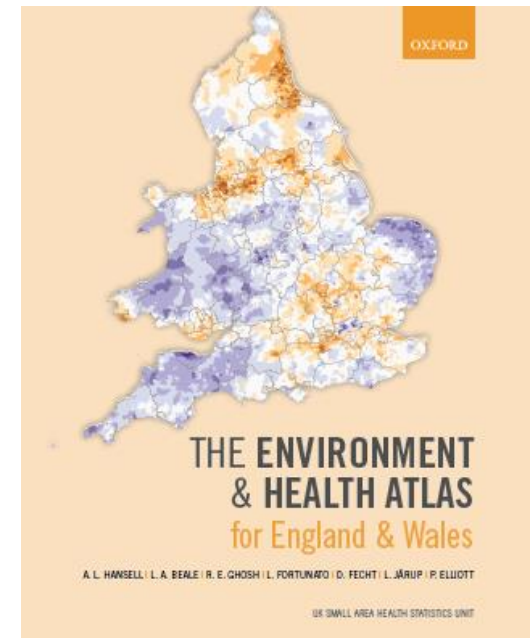
The Environment and Health Atlas for England & Wales

Aim of the EHA

- Maps of geographic patterns of disease and exposure to selected environmental pollutants for **public health professionals, policy makers and the public**
 - For use in development of hypotheses and further research in environmental health

Dissemination

- Print version: more maps, more academic audience
- On-line interactive version
www.envhealthatlas.co.uk : zoom-in functionality for both environmental exposures and health effects, focus on public accessibility



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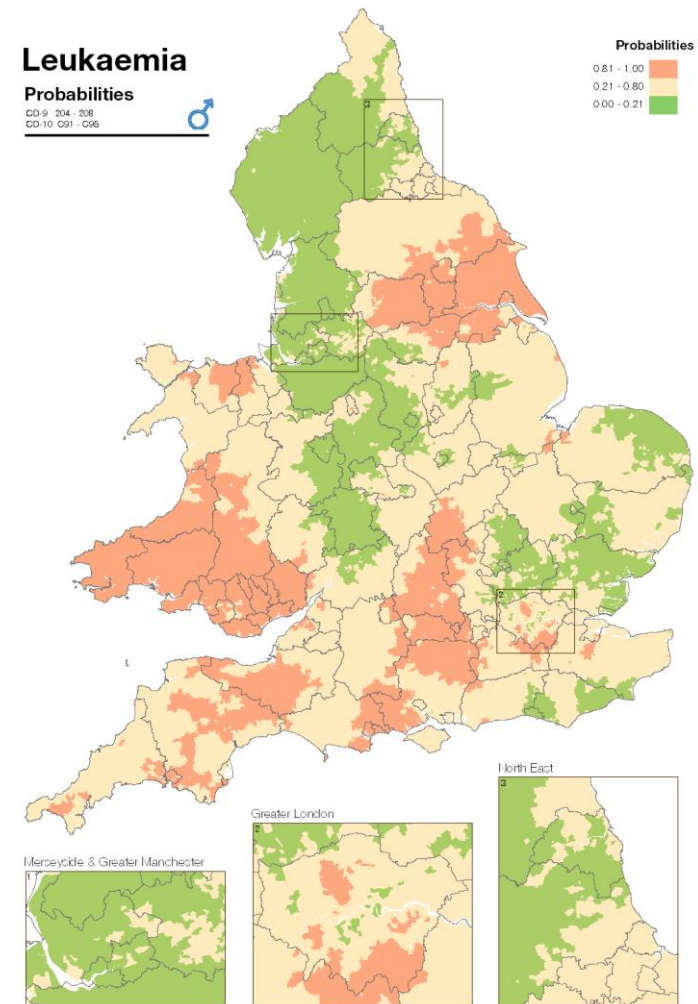
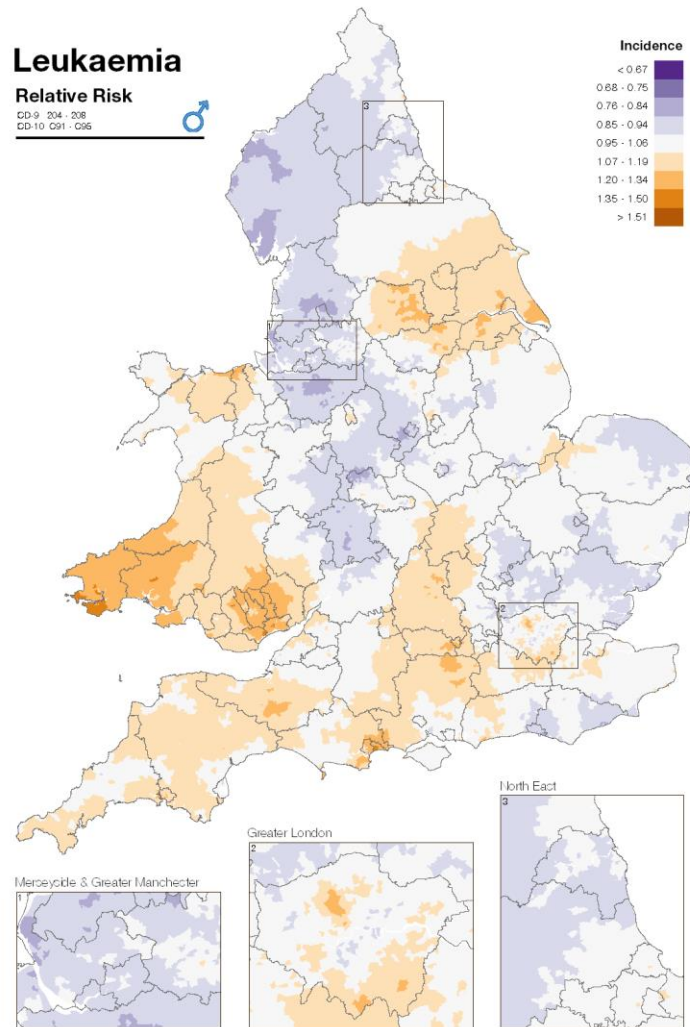


Atlas - statistical methods

- Poisson framework with BYM model used for all analyses
 - Allows to overcome the excess variability due to small numbers (rare disease/small areas)
 - Takes into account the spatial dependence in risks using
 - Global smoothing (unstructured heterogeneity)
 - Local smoothing (spatial heterogeneity)
 - a parameter in one area is influenced by the average value of its neighbours
 - variability quantified by a conditional variance depending on the number of neighbours



Environment and Health Atlas



- Data on 14 health outcomes
- 5 environmental exposures, contextual maps
- Print and interactive on-line version

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Atlas - summary table, interpretative text

	Observed	Expected	Expected	SIR	SIR	RR	RR
		Adjusted for age	Adjusted for age and deprivation	Adjusted for age	Adjusted for age and deprivation	Adjusted for age	Adjusted for age and deprivation
5th percentile	13.00	19.70	14.81	0.50	0.63	0.68	0.80
Median	47.00	53.60	47.65	0.89	0.99	0.98	1.01
95th percentile	172.00	146.28	163.48	1.57	1.41	1.65	1.26
Ratio				3.16	2.24	2.42	1.57

SIR Standardised Incidence Ratio

RR Relative risk (smoothed)

Ratio 95th:5th percentile



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Atlas – reaching a general audience

- Worked with the NGO Sense About Science who helped us with:
- Defining aims and target audience(s)
- Clarity of language and text
- Three two hour focus group / workshops with potential users on print version (two) and online version (one)
- Messages for media engagement



Atlas - feedback from focus groups

Feedback on disease maps:

- One colour ramp instead of a divergent colour ramp
- The same scale to be used across all health outcome maps to allow them to be comparable
- Defined categories instead of a continuous scale
- Provide the highest and lowest number of cases

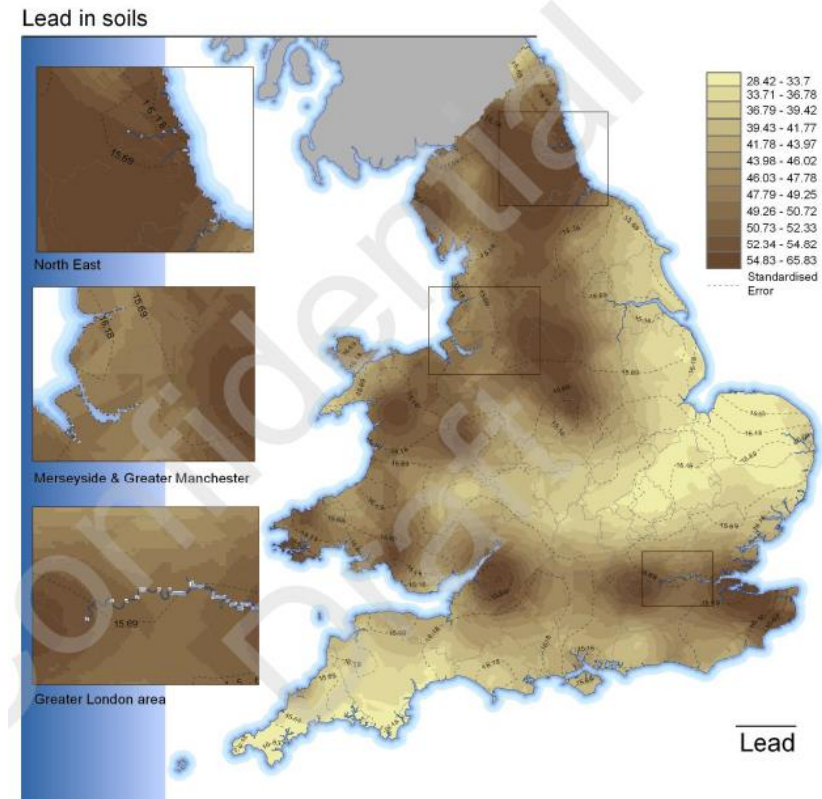


Feedback on interpretation of the maps:

- Revise text so that the chapter acts as an easy reference guide for interpreting the maps
- Provide a complete worked example of how to interpret the maps
- Remove statistical methods and move to an appendix
- Provide a limited number of maps

Atlas -feedback from focus groups

- Traffic light colours: Red=danger
- Displaying uncertainty on maps
 - Interpretation
 - Interpretation when not shown on other environmental exposure maps



Atlas - stakeholder consultation

Why
aren't
the data
up to
date?

I've no idea
what this
means

You should have
done (*the whole
atlas like*) this

Giving people
information on
exposure implies it is a
health risk and is
irresponsible

People will overlay
the health and
exposure maps

You will alarm people
who live in an area at
higher risk



Atlas – scientific rigour vs. accessible message

Public Health Message

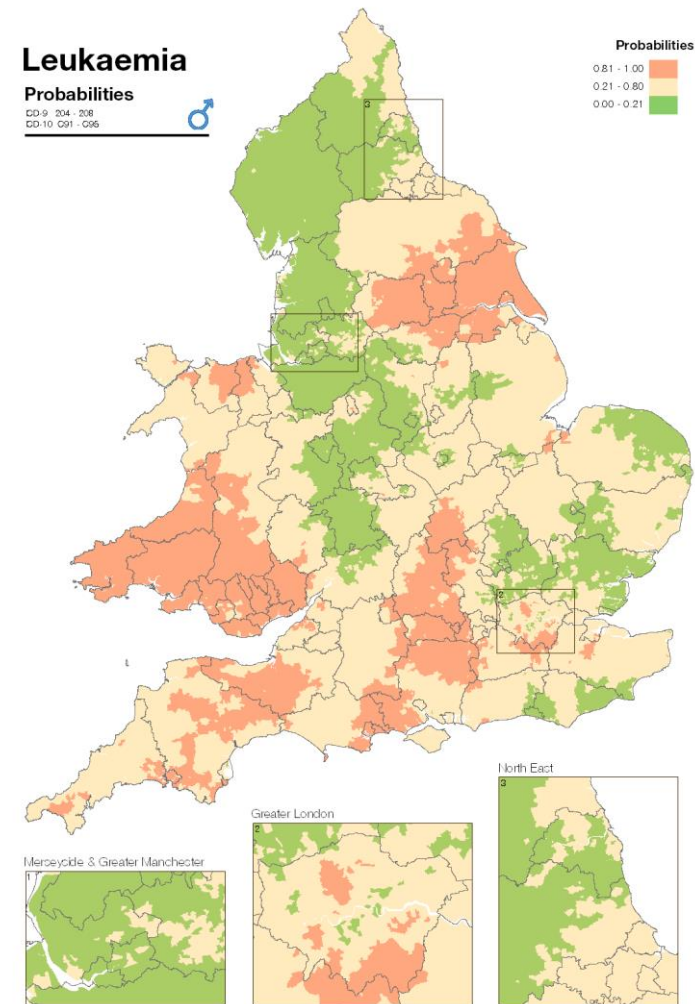
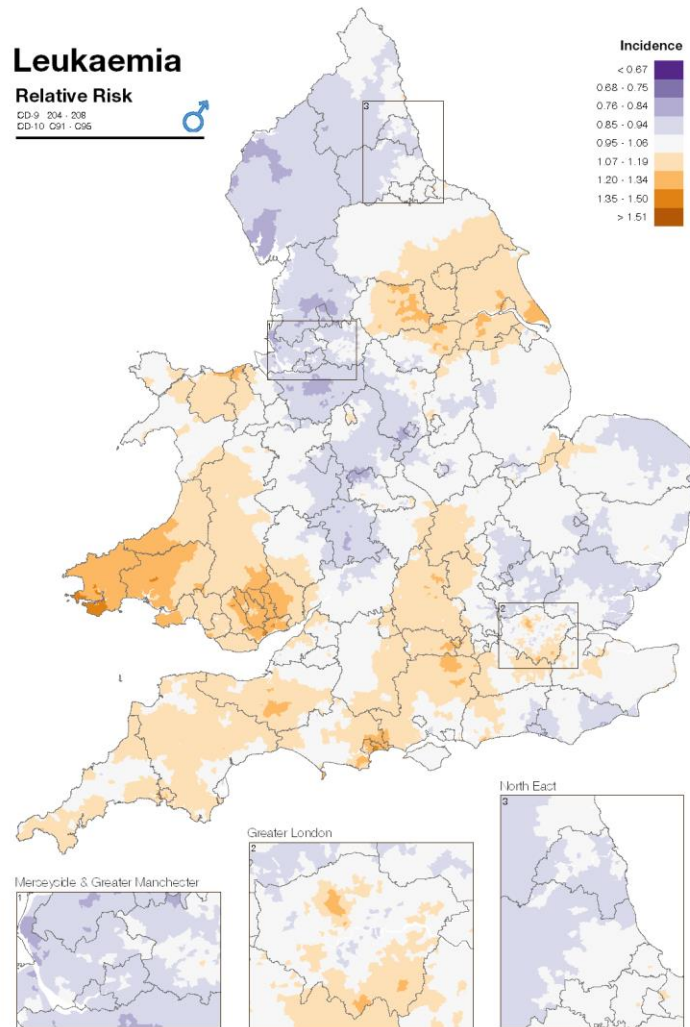
- Will the maps tell me if my area is bad?
- Will I be able to tell if the exposure in my area is giving me cancer?
- Everyone becomes an expert if they think they understand it!

Scientific discussion

- Why haven't you presented unadjusted maps?
- Is drinking tap water a risk factor for bladder cancer in men?
- You should use different statistical methods
- It's of statistical interest only

It's probably right when nobody is completely happy!

Atlas – cartography and colours



- Data on 14 health outcomes,
- 5 environmental exposures, contextual maps
- Print and interactive on-line version

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Atlas - mapping leukaemia with and without Bayesian smoothing

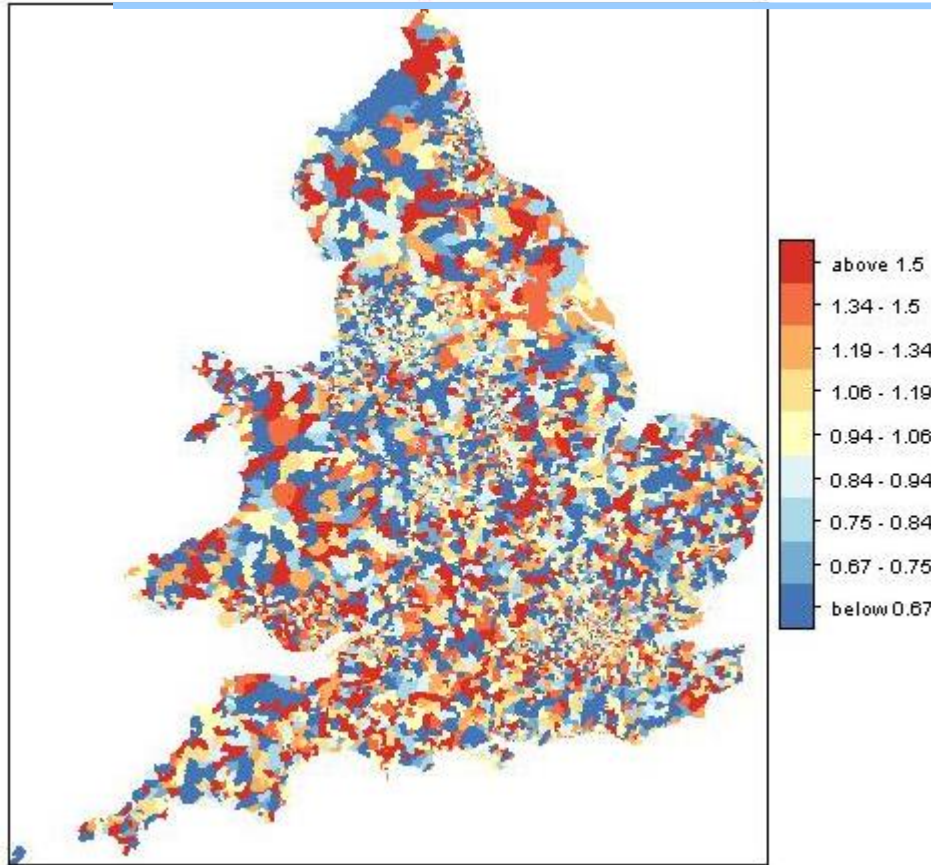


Figure 1: Standardised Incidence Ratio of female leukaemia adjusted for age and deprivation

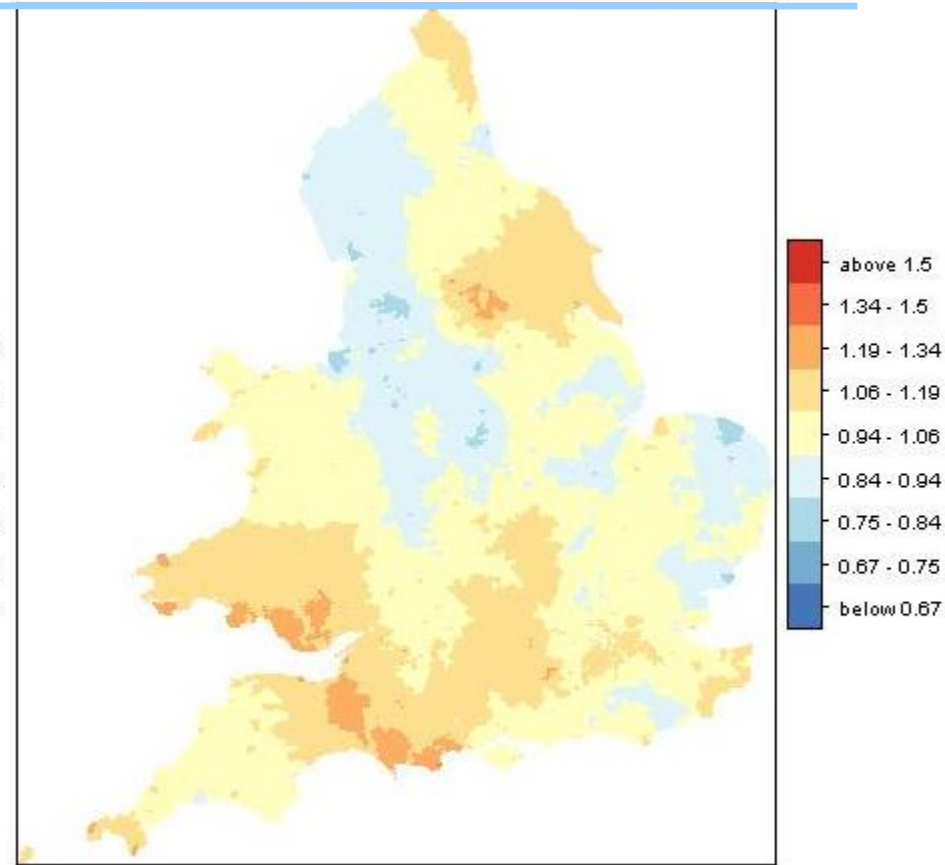


Figure 2: Smoothed Relative Risk of female leukaemia incidence adjusted for age and deprivation



Publication...

- Worked with university press office
- SMC press conference, Radio 4 Today programme, Guardian datablog, widespread UK media coverage
 - Media wanted best and worst areas...
- Extensive briefing of PHE and PHW in advance, prepared FAQs, data, slides in advance and set up email response system (from members of public to public health specialists)
 - Prepared for high web demand



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25 April 2014 Last updated at 10:26



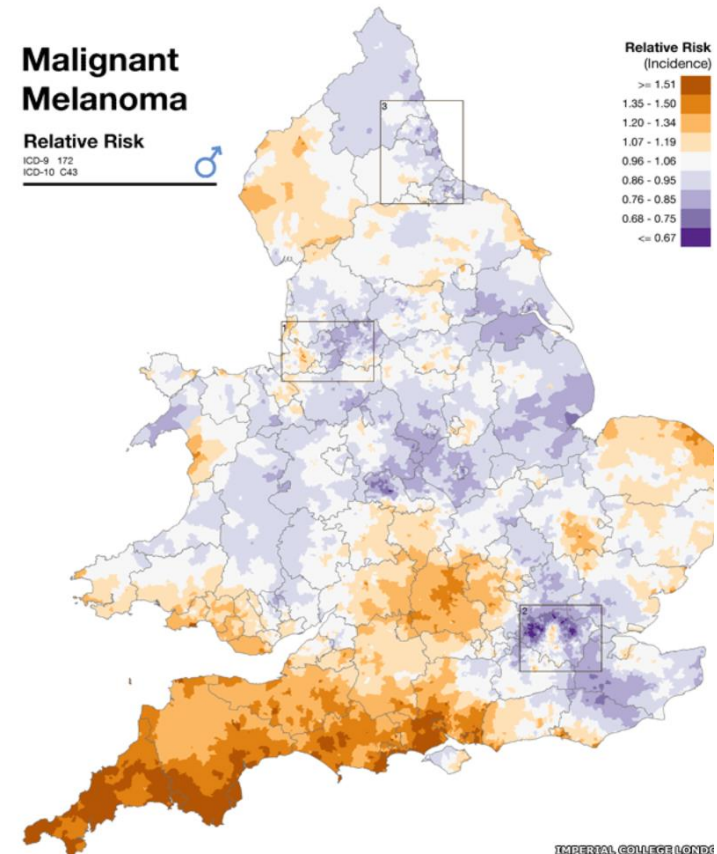
Health atlas allows online search of risk by area

By Pippa Stephens
Health reporter, BBC News

Malignant Melanoma

Relative Risk

ICD-9 172
ICD-10 C43



IMPERIAL COLLEGE LONDON

A new online map of England and Wales allows people to enter their postcode and find their community's risk of developing 14 conditions, such as heart disease and lung cancer.

The map presents population-wide health information for England and Wales.

The researchers at Imperial College London pointed out that it could not be used to see an individual's risk.

Related Stories

Skin cancer rates 'surge since 70s'

Women get heart disease too

Breast cancer risk up for UK Asians

Communicating – how did we do?

- Reached a wide range of audiences and generally very positive feedback
 - Presenting information to a range of different audiences is difficult
- Used standard readily understood map formats with extra information provided for more knowledgeable readers
 - Sophisticated (statistical, cartography, literature review) techniques doesn't mean the target audience will understand!
- Output may need to be simplified to be accessible and meaningful
 - Risks oversimplification
- Consultation results in a more useful output but
 - Takes a lot of time
 - Throws up the unexpected
 - Needs a thick skin!



OPEN ACCESS

ORIGINAL ARTICLE

Historic air pollution exposure and long-term mortality risks in England and Wales: prospective longitudinal cohort study

**Thorax. 2016
Apr;71:330-8**

Anna Hansell,^{1,2} Rebecca E Ghosh,¹ Marta Blangiardo,¹ Chloe Perkins,⁵ Danielle Vienneau,^{1,3,4} Kayoung Goffe,¹ David Briggs,⁵ John Gulliver¹

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/thoraxjnl-2015-207111>).

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ABSTRACT

Introduction Long-term air pollution exposure contributes to mortality but there are few studies examining effects of very long-term (>25 years) exposures.

Methods This study investigated modelled air pollution concentrations at residence for 1971, 1981, 1991 (black smoke (BS) and SO₂) and 2001 (PM₁₀) in relation to mortality up to 2009 in 367 658 members of the longitudinal survey, a 1% sample of the English Census. Outcomes were all-cause (excluding accidents), cardiovascular (CV) and respiratory mortality.

Results BS and SO₂ exposures remained associated with mortality decades after exposure—BS exposure in 1971 was significantly associated with all-cause (OR 1.02 (95% CI 1.01 to 1.04)) and respiratory (OR 1.05 (95% CI 1.01 to 1.09)) mortality in 2002–2009 (ORs expressed per 10 µg/m³). Largest effect sizes were seen for more recent exposures and for respiratory disease. PM₁₀ exposure in 2001 was associated with all outcomes in 2002–2009 with stronger associations for respiratory (OR 1.22 (95% CI 1.04 to 1.44)) than CV mortality (OR 1.12 (95% CI 1.01 to 1.25)). Adjusting

Key messages

What is the key question?

- What is the impact of very long-term (>30 years) air pollution exposure on mortality?

What is the bottom line?

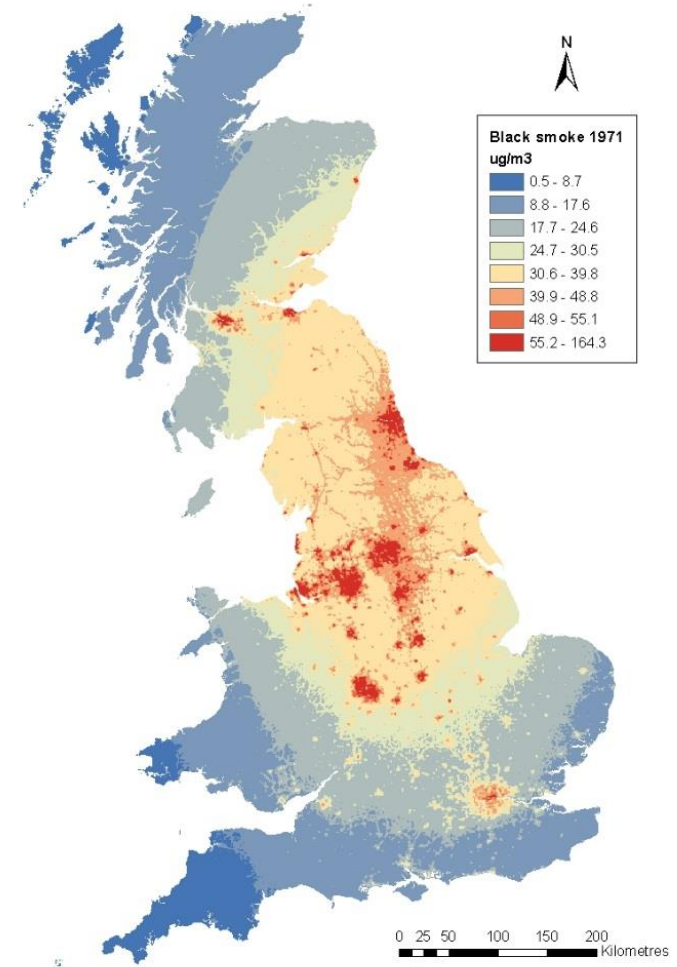
- Historic air pollution exposure has long-term effects on mortality that persist over 30 years after exposure and these potentially also influence current estimates of associations between air pollution and mortality.

Why read on?

- This is one of the longest running studies to look at health effects of air pollution, using air pollution estimates independently assessed at multiple time points using contemporaneous monitoring data in a large cohort followed for 38 years.

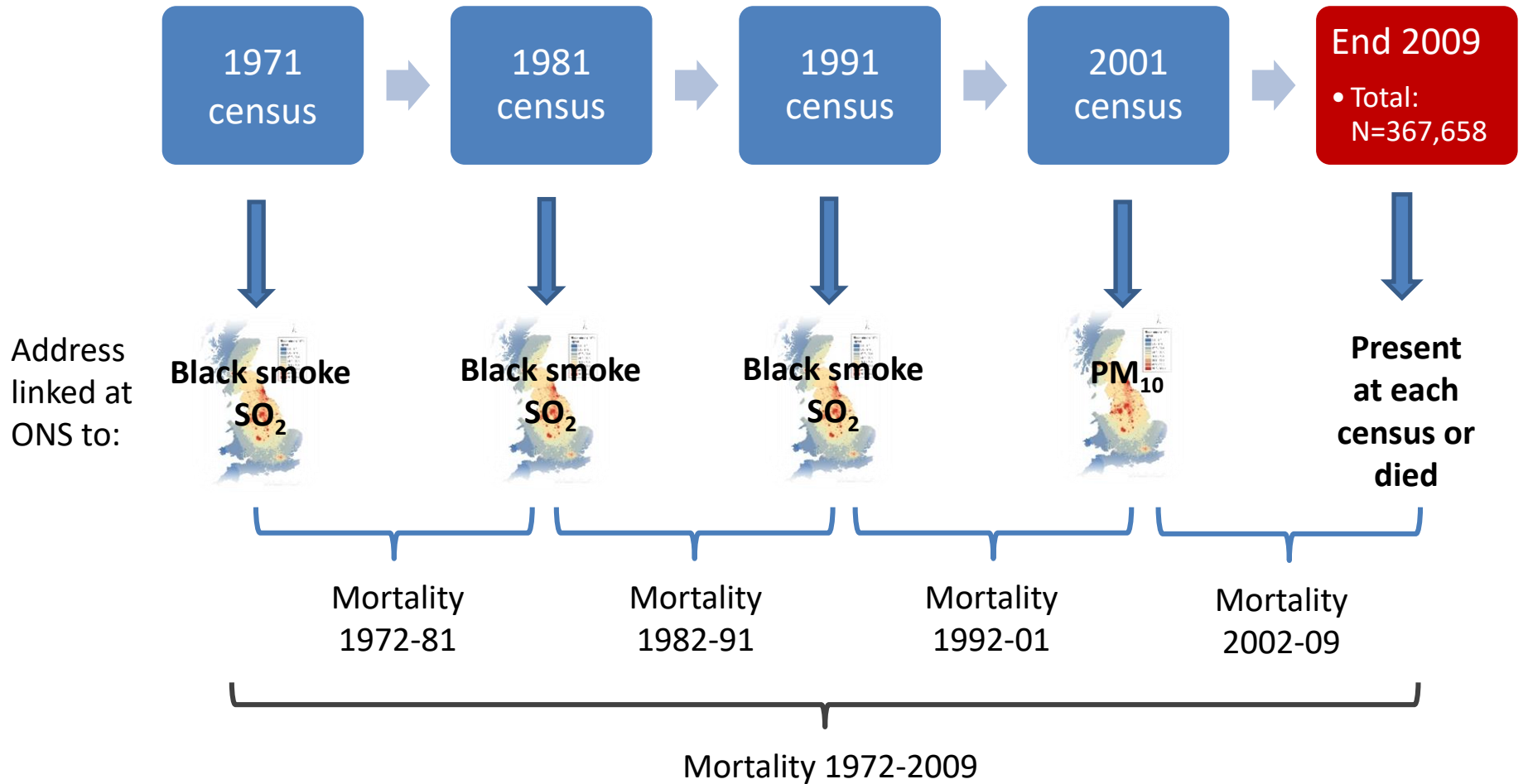
Data

- Black Smoke (BS) and sulphur dioxide (SO₂) air pollution concentrations estimated in 1971, 1981 and 1991 using 1km grids (Gulliver et al, Environ Sci Technol 2011)
- PM₁₀ air pollution concentrations estimated in 2001 at 100m grids (Vienneau et al, Sci Total Environ 2009)
- The ONS Longitudinal Study, started in 1971 with follow-up at Census in 1981, 1991, 2001.



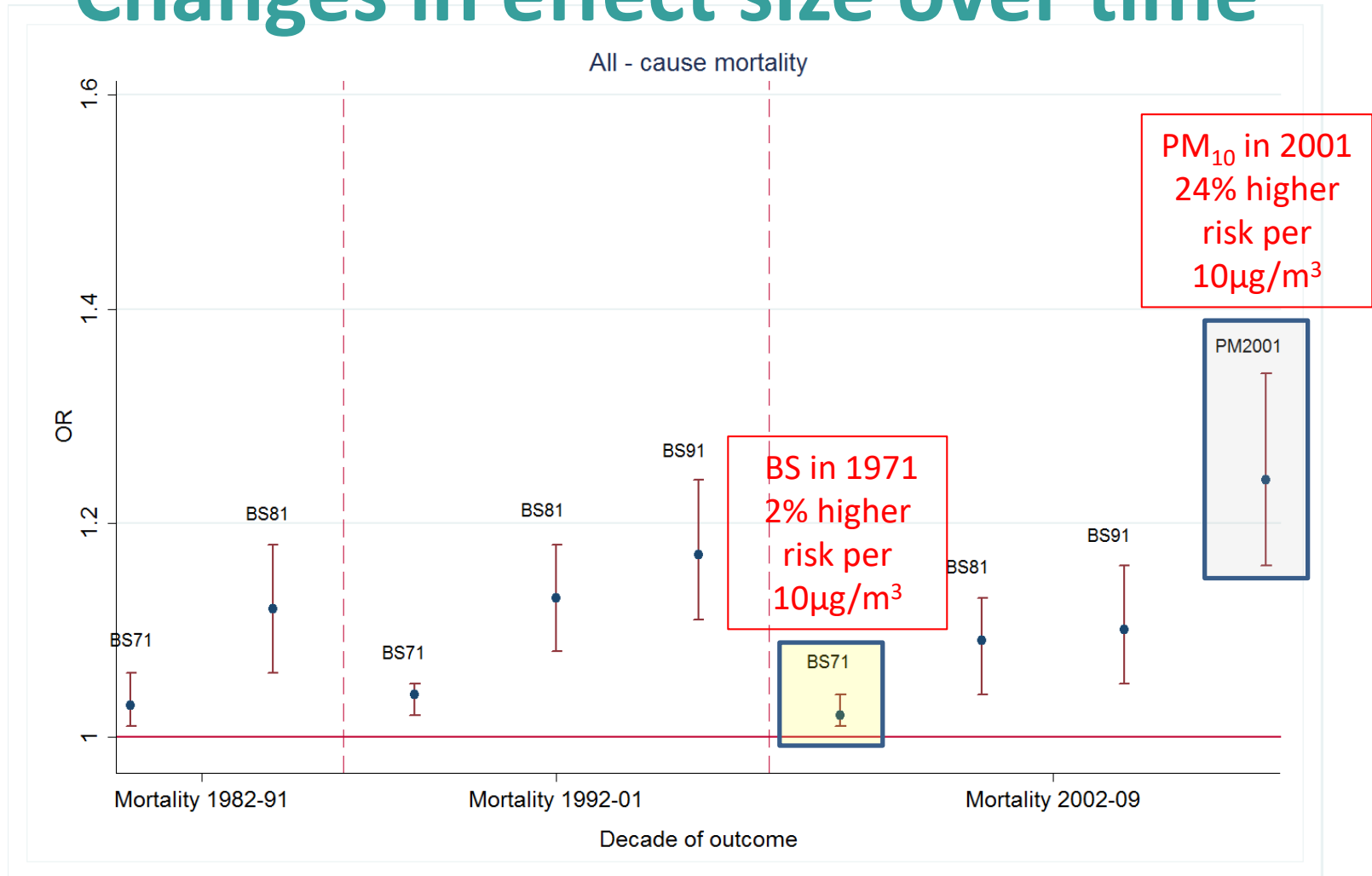
Gulliver J, *et al.* Land use regression modeling to estimate historic (1962-1991) concentrations of black smoke and sulfur dioxide for Great Britain. *Environ Sci Technol* 2011;**45**:3526–32.

Methods



Results – ORs by decade of exposure

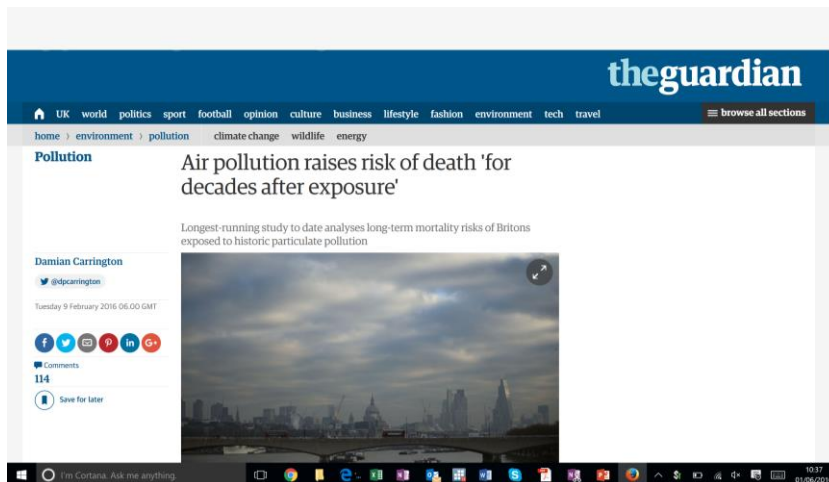
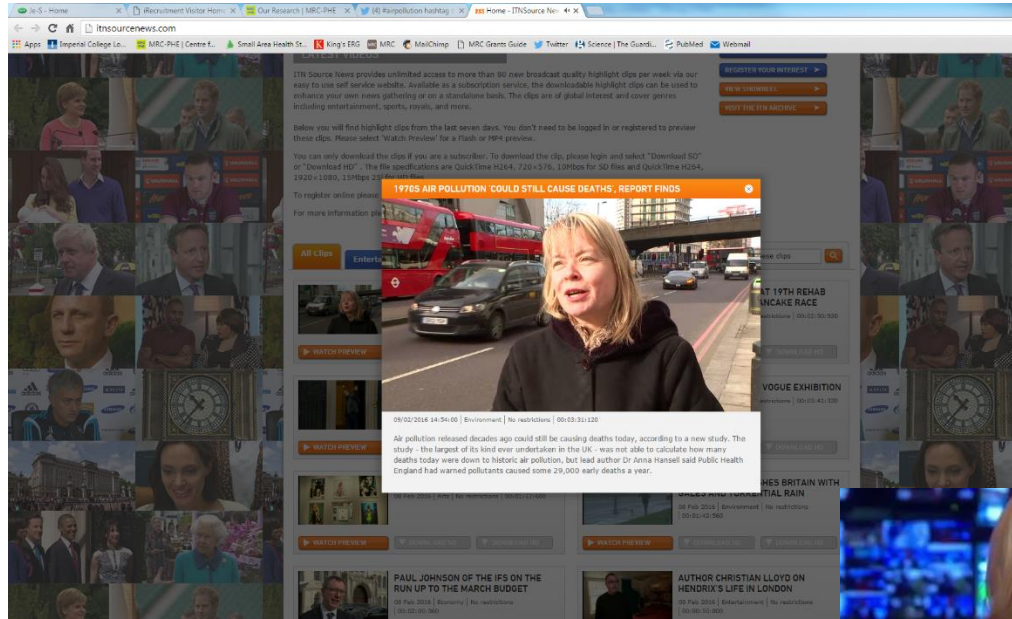
Changes in effect size over time



Publication...

- SMC press conference
 - Media wanted attributable risk – how many people are dying today because of air pollution in 1971
 - Metrics measuring air pollution change over time and exposures are not independent of each other
 - One journalist said this wasn't new and he knew it already, so what's your message?
 - Same journalist asked about changes in air pollution over time, which included heavier vehicles and then said 'So what you are saying is the SUVs in the school run are causing more toxic air pollution'
 - Questions about diesel cars

Media coverage



Communicating – how did we do?

- Reached a wide range of audiences and generally good feedback
 - Media have their own well-developed narrative about air pollution and will try to fit stories to this
- Policy angles brought out – another argument to do something about air pollution (its effects last a long time), not all bad news as recent exposures appear to be more important for health
- Difficult press conference, but stuck to the three key messages
 - SUV story still ran in a couple of papers

Comments

- Find a narrative
- Death from air pollution is not as visible as from a road traffic accident
- Clinical journals use statistical significance to tell if one treatment is superior to another using RCTs
 - It works / it doesn't work !
 - Approach translates to interventions/natural experiments
- In (environmental) epidemiology statistical uncertainty is viewed in relation to the Bradford Hill considerations
 - Consistency, coherence, biological plausibility etc.
 - We are moving from 'Are there significant results?' to 'How does this study affect the meta-analysis?'
 - Where is it on the distribution ?
- Level of statistical significance is a convention
 - $P < 0.05$ GWAS (or EWAS!), Bayesian mapping etc.

PPI/PPE

- Increasingly required by funders
- Helps identify questions and shape methodology
- Helps communicating results
- Go on a course!

Recap (last slide!)

- Air pollution is very topical – what we say and how we say it matters
- Good examples
 - <https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution>
 - <https://understandinguncertainty.org/>
- Examples of public and media engagement
 - Environment and Health Atlas - wide consultation
 - Long-term air pollution exposure – media narrative!
 - How many deaths (attributable risk)
 - Best/worst areas
 - Personal angles
- PPI/PPE

THANK YOU!



www.sahsu.org
www.envhealthatlas.org

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