LANCET COUNTDOWN:
TRACKING PROGRESS
ON HEALTH AND
CLIMATE CHANGE

# Lancet Countdown 2018 Report:

## Briefing for UK Policymakers

November 2018

# Introduction

This briefing, launched in parallel with the 2018 Lancet Countdown report, focuses on the links between health and climate change, and their implications for the UK's Government, public sector, businesses, and citizens.


## Acknowledgements

The concept of this brief was developed by the Lancet Countdown on Health and Climate Change. The brief was written by Caroline Hook and Courtney Howard. Excel graphic support by Claudia Kraft. Critical review and edits were provided by David Pencheon, Laurie Laybourn-Langton and Nick Watts.

Strategic Partners

THE LANCET

wellcome

# About the Lancet Countdown

The *"Lancet Countdown: Tracking Progress on Health and Climate Change"* is a global, interdisciplinary research collaboration between 27 academic institutions and inter-governmental organisations. It monitors progress on the relationships between health and climate, and their implications for national governments, reporting annually. The Lancet Countdown follows in the footsteps of two Lancet Commissions on climate change. The first surveyed the damage climate disruption is having on health, determining that "climate change is the biggest global health threat of the 21st century," (1) whilst the 2015 Commission concluded that responding to climate change could represent "the greatest global health opportunity of the 21st century." (2) The 2018 report presents data on indicators selected following a consultation process in 2017. These span 5 domains, from impacts and adaptation to mitigation, and the economics and politics of climate action. (3)

# Take-Home Messages and Recommendations

## Recommendation 1

NET ZERO: There are substantial benefits to health in staying below 1.5°C of global surface temperature warming as compared to allowing temperatures to go to 2°C.

The UK should set a target for net zero greenhouse gas emissions before 2050 and ensure that health co-benefits are maximized in policy measures designed to reach this goal.

## Recommendation 2

HEATWAVES: Threats to health from increasing heat are becoming more frequent and more dangerous.

Ensuring coordination between governmental departments, local governments and national institutions is crucial to improve communication to the public about the threat of heatwaves to health, and to essential services.

## Recommendation 3

AIR QUALITY: No levels of air pollution can be considered safe.

Increase investment in active transport to at least 10 pounds per capita; implement a new Clean Air Act with legally-enforced air quality standards; advance the phase-out of conventional diesel and petrol cars and vans to 2030; and expand Clean Air Zones countrywide.

## Recommendation 4

DIET: Plant-rich diets are healthy for both people and planet.

Provide vocal health-sector support for Public Health England's Eatwell guidelines, and embed a public education campaign which encourages increased consumption of beans and pulses as well as decreased red meat intake, with framing of this advice as having both immediate benefits to human health and global benefits in terms of reduced diet-associated greenhouse gas emissions.

## Recommendation 5

PROFESSIONAL EDUCATION: A widespread understanding of climate change as an increasing health threat is vital to delivering an accelerated response.

Rapidly integrate climate change and health into the curriculum of all medical and allied-health faculties in the UK.

# Key Findings of the Lancet Countdown's 2018 International Report

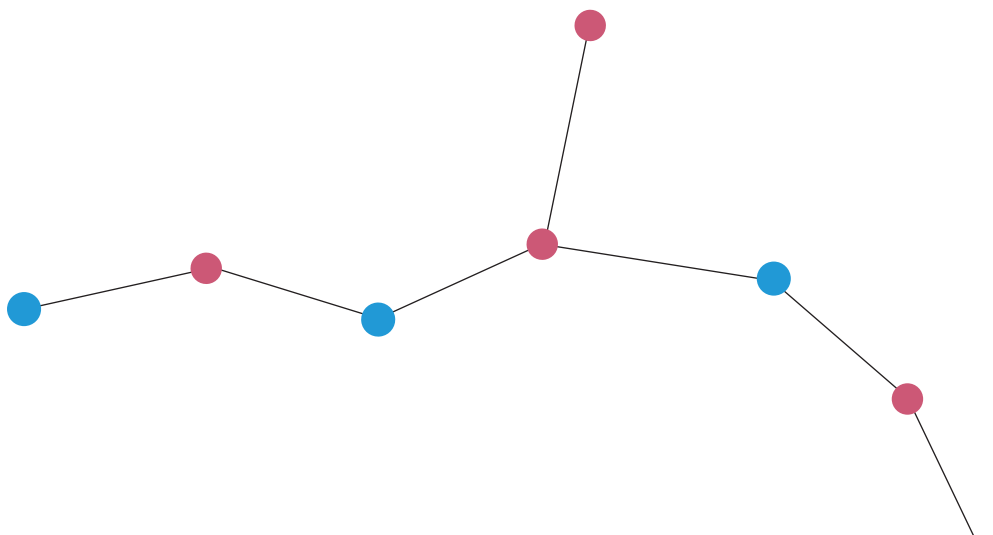
- Present day changes provide warning that as temperatures continue to rise, there will be significant impacts to how society can operate, particularly in three key areas: labour capacity, insect-borne disease, and safe and secure food supplies. Trends in climate dysfunction are creating conditions that worsen the impacts, exposures, and vulnerabilities to health for everyone at a dangerously high level of risk.

- A lack of progress in reducing emissions and building adaptive capacity threatens both human lives and the viability of the national health systems they depend on, leading to the potential for disruption of core health infrastructure with health and care services being overwhelmed.

- Despite the lack of progress to both adapt and mitigate, there are trends in some sectors are breathing life into the beginning of a low-carbon transition. The nature, pace and scale of the response to climate dysfunction will be the main determining factor in shaping the health of nations for centuries to come.

- Ensuring a widespread understanding of climate change as a central public health issue will be vital in delivering an accelerated response, with the health profession beginning to rise to this challenge.(3)

The 2018 Countdown makes clear that climate change is threatening human health around the world. Exposure to extreme events such as heatwaves, floods, droughts and fires is increasing, with the number of weather-related disasters up by nearly 50% between 2000 and 2017.(3) Globally air pollution concentrations have worsened in almost 70% of cities. (3) These effects will continue to worsen with a disproportionate impact on vulnerable populations.



# State of Health and Climate Change Globally

Since the signing of the Paris Agreement in 2015, with its goal of limiting climate change to well below a global average temperature rise of 2°C above pre-industrial levels, aiming for 1.5°C, the global response has been mixed.

Across the world the carbon intensity of primary energy supply (a key indicator of decarbonisation) has remained unchanged since 1990.(3) Spending committed to climate change adaptation is still significantly below the $100 billion USD committed to under the Paris Agreement, and of existing spending, only 3.8% is dedicated to human health.(3) With failure to adapt to our changing climate comes economic loss amounting to billions.(4) However, there is growing investment in renewable energy, more people are employed in the renewable energy sector, some fossil fuel subsides are falling, and media coverage of climate and health has grown substantially between 2007 and 2017.(3) However, these isolated examples of progress still do not match the scale of the challenge: human health, justice and survival.

## Towards a healthy, low-carbon world.

Ambition must increase: the recent Intergovernmental Panel on Climate Change report on 1.5°C finds that global surface temperature warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate.(5) To keep the world to 1.5°C or less, global net human-caused emissions of carbon dioxide ($CO_2$) will need to fall by about 45 percent from 2010 levels by 2030, reaching 'net zero' around 2050.(5) As detailed in the IPCC report, there are substantial benefits to health in staying below 1.5°C of warming as compared to allowing temperatures to go to 2°C.(5) It is becoming increasingly clear that "net zero" emissions is a healthy target.

## Recommendation 1

The UK should set a target for net zero greenhouse gas emissions before 2050 and ensure that health co-benefits are maximized in policy measures designed to reach this goal.

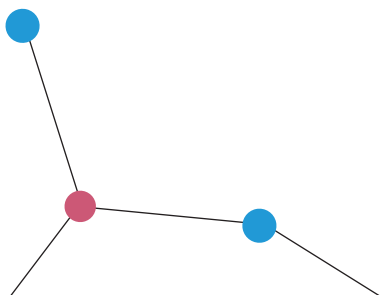
# Current Climate Within the UK

The UK's Climate Change Act, passed in 2008, commits the country to setting legally-binding carbon budgets as stepping stones to an 80% reduction in greenhouse gas emissions by 2050 as compared to 1990 levels.(6)

The country achieved a 41% reduction in greenhouse gas emissions between 1990 and 2016, largely thanks to its decreasing use of coal to power electricity.(7) A report by the Grantham Institute finds that ten years on, the Act's comprehensive framework has helped to reduce emissions while the economy has continued to grow, and recommends that the Act now be supplemented with an updated set of milestones and targets for achieving net zero emissions.(8)

There are many areas where reducing greenhouse gas emissions to secure long-term survival also has immediate benefits to human health. As detailed in the 2017 Lancet Countdown Briefing for UK Policymakers, the government's commitment to phase out coal by 2025 is a clear example of climate leadership which can help prevent approximately 1,600 deaths each year and save the UK billions of pounds in healthcare costs. (9) Additionally, switching from single-occupant vehicles to sustainable modes of travel such as combinations of walking, cycling and public transport represents a cost-effective way to tackle the obesity and physical inactivity epidemics which are straining the NHS: monies spent on sustainable travel offer an average social return on investment of approximately 5.5 pound per 1 pound spent.(10) Increasing active travel investment to the 10 pounds per capita pledged by the Conservative government would result in enormous health gains and economic savings.(9)

Brexit discussions have recently distracted from the climate and health challenge. The UK has been a climate leader within the EU, and globally, and should aim to continue to lead regardless of developments in its continued relationship with the EU.



# Health Impacts of Rising Temperatures and Heatwaves

## Lancet Countdown indicators - 1.2, 1.3, 1.4

The summer of 2018 was the joint hottest on record for the UK as a whole, and for England.(11) At the time of writing, mortality statistics have not been finalized: the UK Office for National Statistics has released data for June, confirming that on the 25th and 26th, when temperatures were high, there were 259 more deaths than average, but it has yet to look at figures for July and August, or to assess reasons behind the rise.(12) Previous heatwaves have taken a toll: the 2003 heatwave, for example, resulted in an additional 2,000 deaths in the UK.(13) Heatwaves are associated with increased rates of heat stress and heat stroke, exacerbations of heart failure and acute kidney injury from dehydration. (4) A US study has also found that higher temperatures increase rates of suicide.(14)

The International Lancet Countdown report found that in 2017, 157 million heatwave exposure events occurred globally, representing an increase of 18 million additional exposure events compared with 2016.(3) One 'exposure event' represents one heatwave, experienced by one person, with a heatwave defined as a period of more than 3 days during which the minimum temperature is greater than the 99th percentile of the historical minima (1986-2008 average).

Data for the UK provided by the Lancet Countdown looks at the mean change in summer temperature (based on the months of June, July and August) compared to the baseline average temperature for these months between 1986 and 2000 and show average summer temperatures are on the rise with 12 out of 18 summers between 2000 and 2017 above the baseline.

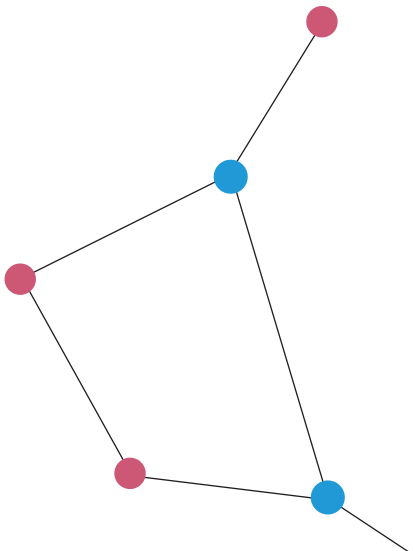
The 2018 International Countdown report found that vulnerability to extremes of heat is increasing across the world, with the European and East Mediterranean World Health Organization region (which includes the Gulf and North Africa) the worst off, most likely as a result of having a more elderly population living in urban areas.(3) In 2017, the mean global summer temperature increase relative to the 1986-2008 reference period was 0.3°C, with the change experienced by humans (i.e.: weighted by population) more than double that, at 0.8°C. The difference in numbers is due to the fact that population densities are increasing in India, parts of China, and sub-Saharan Africa.(3)

Rising temperatures make it difficult, and sometimes dangerous, for people to work effectively, particularly in more physically-demanding occupations, such as agriculture. The 2018 Countdown reports that in 2017, 153 billion hours of labour (3.4 billion weeks of work) were lost globally; 62 billion more lost hours than in 2000.(3)

In July 2018, the House of Commons Environmental Audit Committee issued a report analysing current UK response to heatwaves.(15) They highlight issues such as lack of a clear definition of a heatwave, a disjointed approach to policy and regulation involving several different government bodies, and lack of funding for local authorities. Ambiguity over the distribution of responsibilities between the Department for Environment, Food and Rural Affairs and the Department of Health and Social Care may mean various heat related health risks are overlooked.(15) Currently the government does not provide clear public information on the developing threat of heatwaves and there is a public misconception that they are actually becoming less frequent.(15) An LSE report shows people are ill-prepared for this increase in heatwaves and many deaths attributable to heatwaves could be prevented with better public education.(16)

## Recommendation 2

HEATWAVES: Threats to health from increasing heat are becoming more frequent and more dangerous. Ensuring coordination between governmental departments, local governments and national institutions is crucial to improve communication to the public about the threat of heatwaves to health, and to essential services.



# Health Benefits of Greenhouse Gas Emission Reductions

## Premature mortality from ambient air pollution by sector

## (Indicator 3.5.2)

An estimated 7 million people die each year from air pollution.(17) Air pollution increases the likelihood and severity of many medical conditions: especially asthma, chronic obstructive pulmonary disease, (COPD), cancer, dementia, stroke and heart disease, obesity and diabetes.(18)) Particulate matter measuring less than 2.5 micrometres ($PM_{2.5}$) is especially dangerous to human health as it is small enough to enter the blood via the lungs and be transported throughout the body.

The 2018 Countdown report contains an important new analysis which attributes air pollution-related deaths to different sectors and finds that globally there were 2.9 million deaths from the fine particulate ($PM_{2.5}$) component of outdoor air pollution, of which 16% were from coal.(3) Phasing out coal, which is also responsible for approximately 44% of global $CO_2$ emissions,(4) is therefore a priority public health intervention. The Countdown's UK numbers, shown in Figure 1, similarly tell a story of health opportunity: ending the use of coal-fired power could prevent 2722 premature deaths every year.(Figure 1) The UK's commitment to phase out unabated coal-power by 2025(19) paved the way for it to co-found the Powering Past Coal Alliance with Canada at last year's COP23 climate change negotiations, catalysing a global initiative which now has 46 country, state and city partners, and is a true example of public health leadership on the world stage.(20)

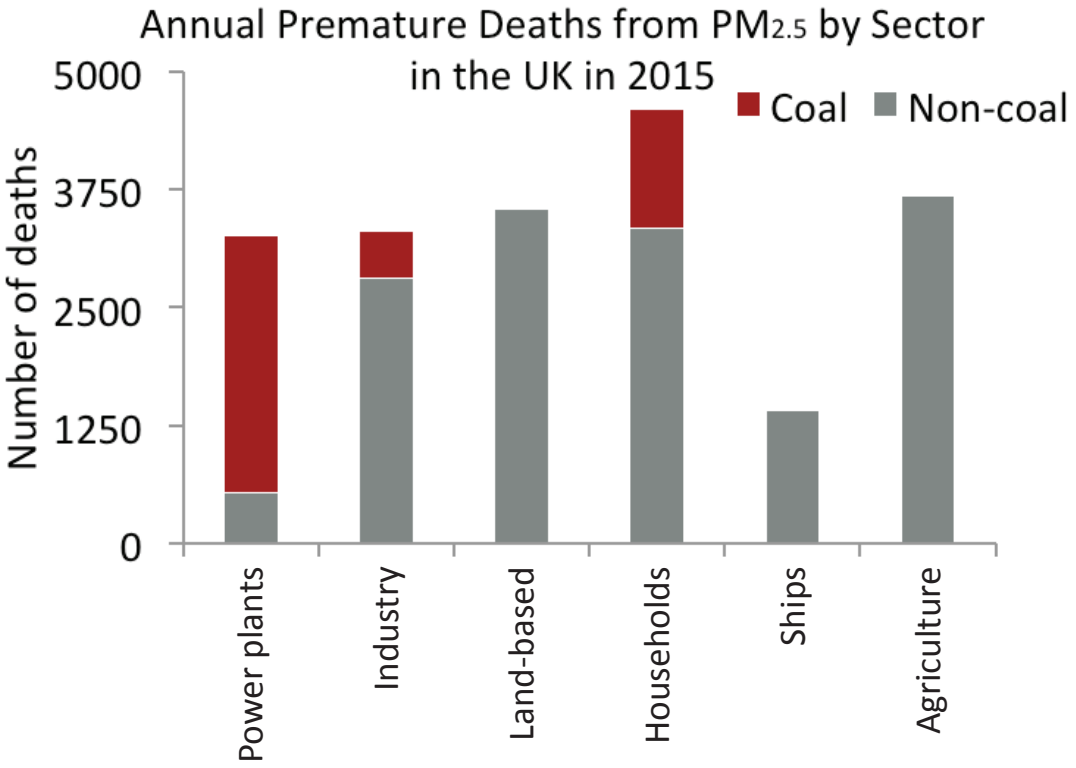



Figure 1: Premature deaths related to ambient $PM_{2.5}$ by sector. (Data courtesy of the Lancet Countdown)

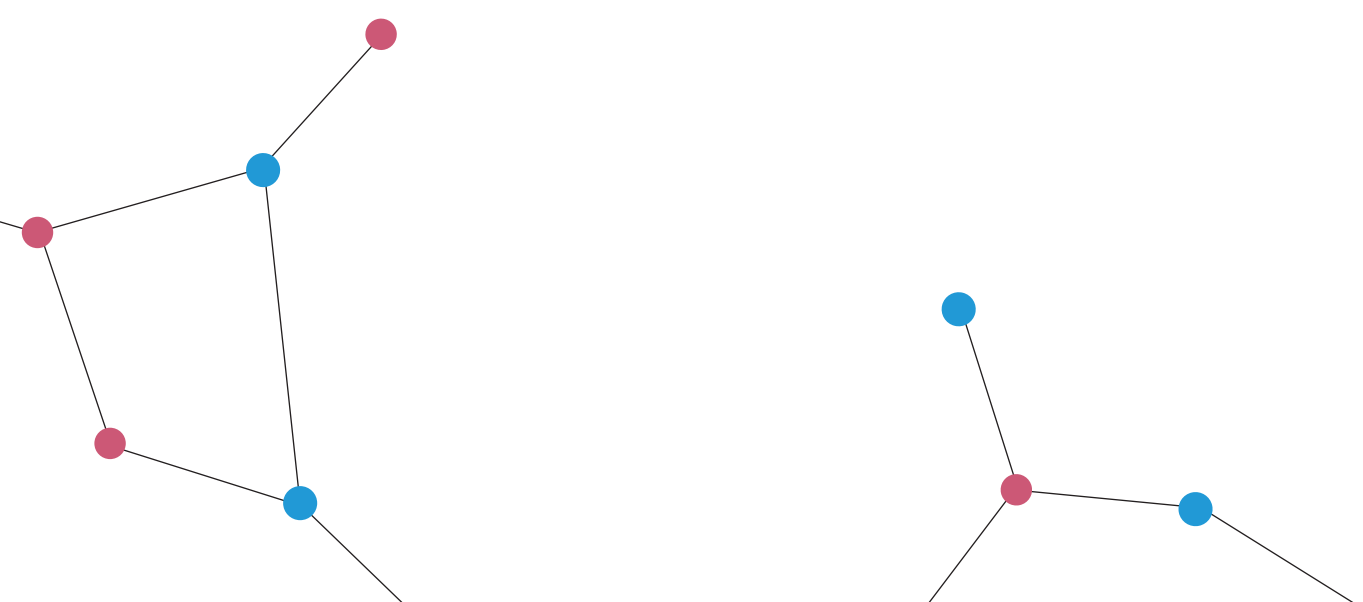
It is now widely accepted that we need to phase out coal as quickly as possible, making the transition directly to low-air-pollution renewable energy, and avoiding an unnecessary intermediate over-reliance on biomass and gas. Thus far, there are indications that the construction of new, large, gas-fired power plants may not be necessary,(21) a positive development which will help avoid stranded assets as the push for net zero gathers momentum.

According to the UK government, household emissions from the burning of solid fuel in open fires and stoves in people's homes account for 38% of primary emissions of $PM_{2.5}$(22) Lancet Countdown data shows household-related $PM_{2.5}$ to be responsible for 4606 premature deaths, 1262 of these related to coal. The UK government's draft Clean Air strategy proposes ensuring only the cleanest wood stoves for sale by 2022 and updating legislation on 'dark smoke' for chimneys, welcome measures which will help to reduce this proportion of $PM^{2.5}$.(23) These would be important steps forward. The new Clean Air Act should include legally-enforced air quality standards, a new independent statutory body to enforce these, and the required resources and authority for authorities at all levels to protect health when air pollution levels are high.

Land-based transport is another significant area associated with $PM_{2.5}$-related premature deaths; the Countdown data shows this to be responsible for 3544 deaths, as well as the UK's greatest source of greenhouse gas emissions in 2016.(24) The 2017 UK Countdown Policy Brief recommended increasing investment into initiatives to support travel on public transport, on bike and by foot to at least 10 pounds per capita, which would serve to decrease traffic-related air pollution.(9) The government's current 2040 target for ban on new conventional diesel and petrol cars and vans is reasonable, but could productively be to moved forward to 2030. Combined with the 2017 Countdown brief's recommendation to expand clean air zones countrywide and the government's commitment to phase-out all non-electric vehicles by 2040(9) these measures would significantly decrease mortality from air pollution—as well as address obesity levels through increased levels of physical activity.

## Recommendation 3

AIR QUALITY: No levels of air pollution can be considered safe. Increase investment in active transport to at least 10 pounds per capita; implement a new Clean Air Act with legally-enforced air quality standards; advance the phase-out of conventional diesel and petrol cars and vans to 2030; and expand Clean Air Zones countrywide.



# Ruminant Meat Consumption

## (Indicator 3.8)

In the UK, agriculture was responsible for approximately 10% of greenhouse gas emissions in 2016.(7) It is a major contributor to the UK's methane, making up 53% of the UK's total methane emissions in 2015,(25) with the majority of this being generated via the enteric fermentation of cattle.(25) This is significant, given that methane has 84 times the GHG potential of $CO_2$ over a twenty year period,(26) leading to near-term warming risks.

Low-meat, plant-rich diets have multiple benefits for human health. They been shown to decrease colorectal cancer and cardiovascular disease risk,(27) modestly reduce all-cause mortality,(27) and improve glycaemic control in people who have Type II Diabetes, (28) as well as to reduce water use, land use and GHGs to a median of 20-30%.(27)

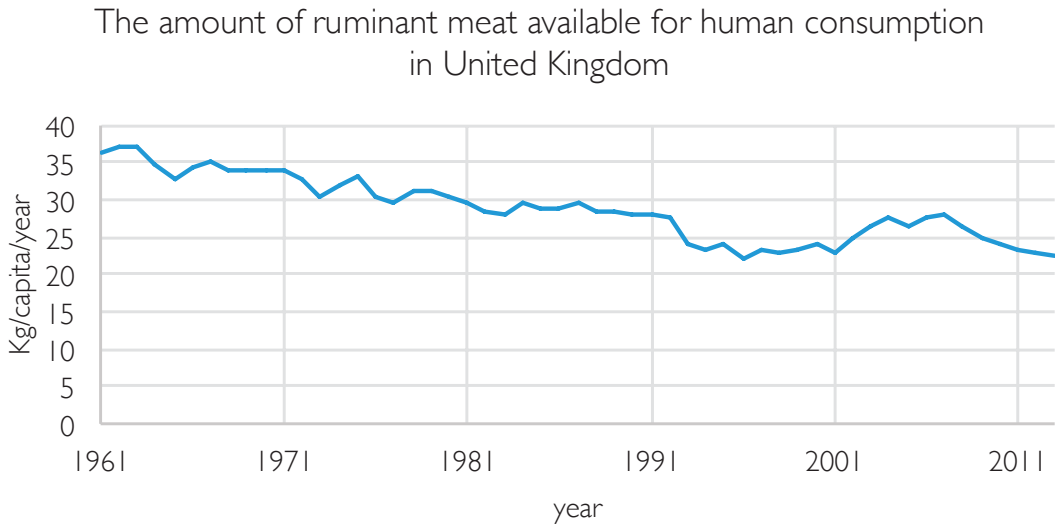


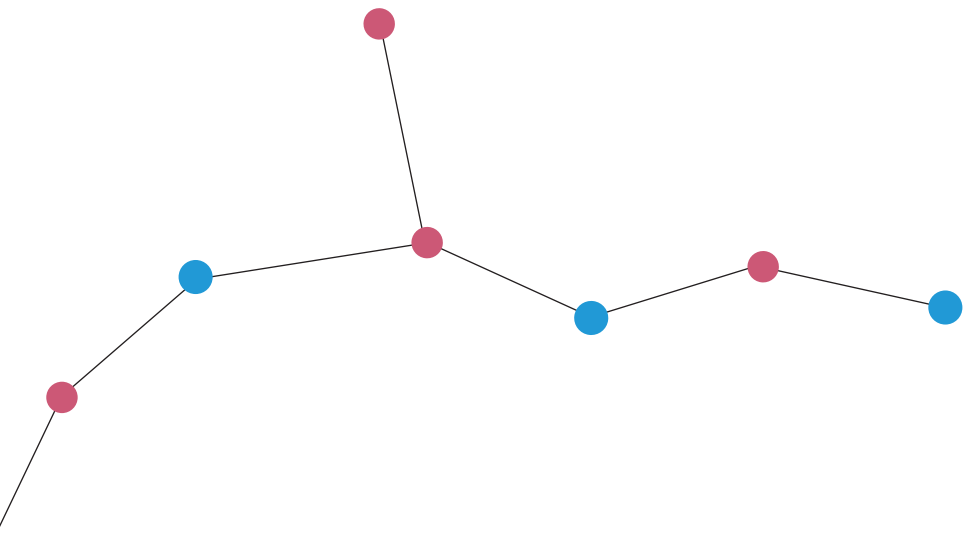

Figure 2: Ruminant Meat for Human Consumption in the UK

The Lancet Countdown tracks ruminant meat availability, assuming a correlation between availability and consumption. Ruminant meat accounts for high levels of GHG emissions, estimated at 5.6-7.5 GtCO2e per year, much of it from cattle.(4) Using data constructed from UN Food and Agricultural Organization balance sheets, the Lancet Countdown found that the amount of ruminant meat available for human consumption globally has declined slightly from 1990-2013. The UK data, shown in Figure 2, shows a 38% decrease in amount of ruminant meat available for human consumption between 1961 (36.45) and 2013 (22.61). This is a welcome trend, and one that health professionals are well-placed to help accelerate.

Public Health England's Eatwell Guide contains the recommendation to eat more pulses and beans, to consume two servings of sustainably-sourced fish per week, and to reduce consumption of red meat.(29) Recent analyses demonstrate the challenge of keeping global diet-related environmental change within healthy limits given population growth projections, and propose "flexitarian" diets that reduce red meat to once per week as part of the solution.(30)

## Recommendation 4

DIET: Plant-rich diets are healthy for both people and planet. Provide vocal health-sector support for Public Health England's Eatwell guidelines, and embed a public education campaign which encourages increased consumption of beans and pulses as well as decreased red meat intake, with framing of this advice as having both immediate benefits to human health and global benefits in terms of reduced diet-associated greenhouse gas emissions.



# The role of medical professionals as leaders in climate and health

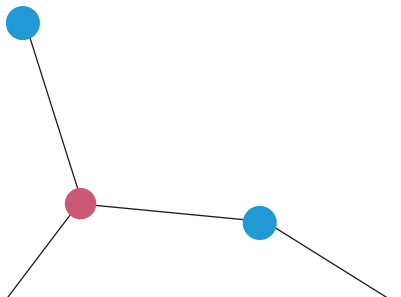
One of the main findings of the 2018 Lancet Countdown is that "ensuring a widespread understanding of climate change as a central public health issue will be vital in delivering an accelerated response." This will only be possible if health professionals have received education on the health impacts of climate change, and if the healthcare system has got its own house in order and is able to demonstrate that it is leading by example.

On the latter front, the UK is a world leader. The National Health Service (NHS) was the first health system in the world to measure its carbon footprint, and its Sustainable Development Unit has shown that despite a 27.5% increase in clinical activity, between 2007 and 2017 it was able to reduce its carbon emissions by 18.5% and its water footprint by 21%. Additionally, in 2017 85% of NHS provider waste avoided a direct trip to the landfill.(31) The NHS has met the targets set out in the Climate Change Act, and they have additional measures to ensure the whole health and care system sets an example in meeting their 2020 target.(31) Fresh energy and commitment is required to drive the necessary change.

A powerful example of this ambition for change can be found within the medical community: but it will only be truly effective if all members of the health professions are aware of the scale of the problem, the need for an urgent response, and examples in the health system of how this is already being achieved. As detailed in the 2018 Lancet Countdown report, the health community is beginning to rise to the challenge(3)—but the pace and scale of response is currently inadequate. The International Federation of Medical Students' Associations has identified the lack of climate change and health education as a major area of international inadequacy, and has launched an initiative to see climate change and health gain a proper place in all health curricula by 2020 with fuller integration by 2025.(32) This level of ambition is commensurate with the challenge faced by the global health community and deserves to be supported.

## Recommendation 5

A widespread understanding of climate change as a central public health issue is vital to delivering an accelerated response. Rapidly integrate climate change and health into the curriculum of all medical and health sciences faculties.



# References


1. Costello A, Abbas M, Allen A, Ball S, Bell S, Bellamy R, et al. Managing the health effects of climate change: Lancet and University College London Institute for Global Health Commission. Lancet. 2009;373(9676):1693-733.https://www.ncbi.nlm.nih.gov/pubmed/19447250

2. Watts N, Adger WN, Agnolucci P, Blackstock J, Byass P, Cai W, et al. Health and climate change: policy responses to protect public health. Lancet. 2015;386(10006):1861-914.https://www.ncbi.nlm.nih.gov/pubmed/26111439

3. Watts N, Ammann M, Arnell N, Ayeb-Karlsson S, Belesova K, al. e. The 2018 Report of The Lancet Countdown on Health and Climate Change. The Lancet. 2018

4. Watts N, Amann M, Ayeb-Karlsson S, Belesova K, Bouley T, Boykoff M, et al. The Lancet Countdown on health and climate change: from 25 years of inaction to a global transformation for public health. Lancet. 2017.https://www.ncbi.nlm.nih.gov/pubmed/29096948

5. Intergovernmental Panel on Climate Change. Global Warming of 1.5C--Summary for Policymakers. 2018 October 8, 2018. Report No.http://www.ipcc.ch/report/sr15/

6. United Kingdom. UK Regulations: the Climate Change Act. 2018 [cited 2018]. Available from: https://www.theccc.org.uk/tackling-climate-change/the-legal-landscape/the-climate-change-act/

7. Government of the United Kingdom. 2016 UK Greenhouse Gas Emissions.2017.https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/679334/2016_Final_Emissions_Statistics_one_page_summary.pdf

8. Fankhauser S, Averchenkova A, J. F. Policy brief 10 years of the UK Climate Change Act 2018. http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2018/04/10-years-of-UK-Climate-Change-Act-Summary-Policy-Brief.pdf

9. Braithwaite I. Lancet Countdown 2017 Report: Briefing for UK Policymakers. London: Lancet Countdown and Royal College of Physicians, 2017.http://www.lancetcountdown.org/media/1275/2017-lancet-countdown-uk-policy-brief.pdf

10. UK Department of Transport. Value for Money Assessment for Cycling Grants. 2014. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/348943/vfm-assessment-of-cycling-grants.pdf

11. British Broadcasting Corporation. Heatwave-2018 was the joint hottest summer for UK. 2018. https://www.bbc.com/news/uk-45399134

12. British Broadcasting Corporation. Deaths spiked during UK heatwave. 2018.https://www.bbc.com/news/health-45549261

13. Johnson H, Kovats RS, McGregor G, Stedman J, Gibbs M, Walton H, et al. The impact of the 2003 heat wave on mortality and hospital admissions in England. Health Stat Q. 2005(25):6-11. https://www.ncbi.nlm.nih.gov/pubmed/15804164

14. Burke M, González F, Baylis P, Sam Heft-Neal S, Baysan C, Basu S, et al. Higher temperatures increase suicide rates in the United States and Mexico Nature Climate Change. 2018;8:723-9. https://www.nature.com/articles/s41558-018-0222-x

15. Government of the United Kingdom. Heatwaves: adapting to climate change 2018 Oct 7, 2018. Report No. https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/826/826.pdf

16. Ward B. Hundreds are dying from ignorance of rising heatwave risks Grantham Research Institute on climate change and the environment. London School of Economics and Political Science: 2018 July 25, 2018. http://www.lse.ac.uk/GranthamInstitute/news/hundreds-are-dying-from-ignorance-of-rising-heatwave-risks/

17. World Health Organization. 9 out of 10 people worldwide breathe polluted air, but more countries are taking action 2018 [cited 2018 October 2018]. Available from: https://www.who.int/news-room/detail/02-05-2018-9-out-of-10-people-worldwide-breathe-polluted-air-but-more-countries-are-taking-action.

18. World Health Organization. 7 million premature deaths annually linked to air pollution. 2014. http://www.who.int/mediacentre/news/releases/2014/air-pollution/en/

19. Government of the United Kingdom. Implementing the End of Unabated Coal by 2025 Department for Business, Energy and Industrial Strategy, 2018. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/672137/Government_Response_to_unabated_coal_consultation_and_statement_of_policy.pdf

20. Government of the United Kingdom. Powering Past Coal Alliance: Partners. 2018. https://www.gov.uk/government/publications/powering-past-coal-alliance-declaration/powering-past-coal-alliance-partners

21. World Wildlife Fund. Coal to Clean: How the UK phased out coal without a dash for gas. 2018. https://www.wwf.org.uk/sites/default/files/2018-05/Coal To Clean %28May 2018%29.pdf

22. Government of the United Kingdom. Clean Air Strategy 2018 Draft. 2018. https://consult.defra.gov.uk/environmental-quality/clean-air-strategy-consultation/user_uploads/clean-air-strategy-2018-consultation.pdf

23. UK Department for Environment F, and Rural Affairs. Air quality: draft Clean Air Strategy 2018. 2018.https://consult.defra.gov.uk/environmental-quality/clean-air-strategy-consultation/

24. United Kingdom National Statistics. 2016 UK Greenhouse Gas Emissions 2018 [cited 2018 October 9 2018]. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/679334/2016_Final_Emissions_Statistics_one_page_summary.pdf.

25. Government of the United Kingdom. Agricultural Statistics and Climate Change 8th Ed. Department for Environment, Food, and Rural Affairs,2017.https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/666073/agriclimate-8edition-8dec17.pdf

26. Intergovernmental Panel on Climate Change. IPCC 2014; Climate Change 2014 Synthesis Report;Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland.: Intergovernmental Panel on Climate Change, 2014.https://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full.pdf

27. Aleksandrowicz L, Green R, Joy EJ, Smith P, Haines A. The Impacts of Dietary Change on Greenhouse Gas Emissions, Land Use, Water Use, and Health: A Systematic Review. PloS one. 2016;11(11):e0165797. https://www.ncbi.nlm.nih.gov/pubmed/27812156

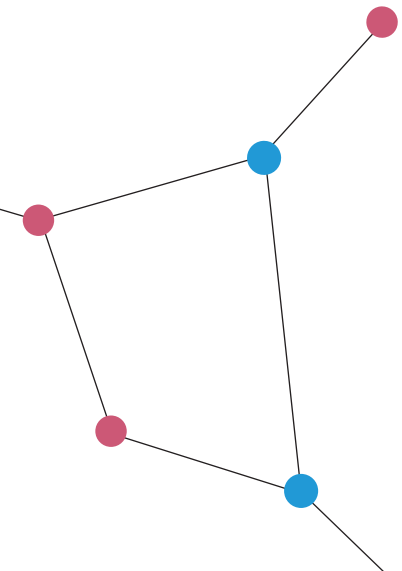
28. Yokoyama Y, Barnard ND, Levin SM, Watanabe M. Vegetarian diets and glycemic control in diabetes: a systematic review and meta-analysis. Cardiovasc Diagn Ther. 2014;4(5):373-82. https://www.ncbi.nlm.nih.gov/pubmed/25414824

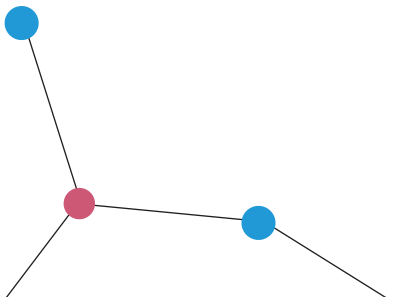
29. Public Health England. Eatwell Guide. 2016. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/528193/Eatwell_guide_colour.pdf

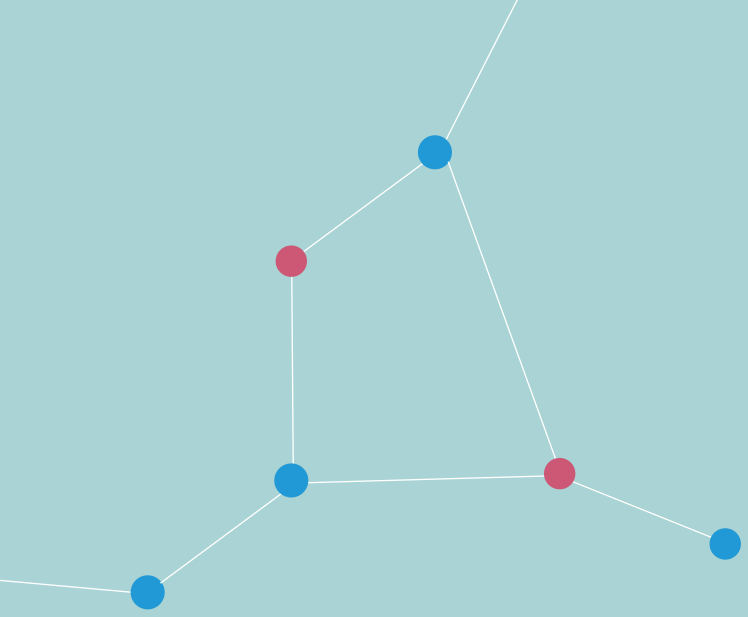
30. Springmann M, Clark M, Mason-D'Croz D, Wiebe K, Bodirsky B, al. e. Options for keeping the food system within environmental limits. Nature. 2018.https://www.nature.com/articles/s41586-018-0594-0

31. National Health System Sustainable Development Unit. Reducing the use of natural resources in health and social care 2018 report. 2018.https://www.sduhealth.org.uk/policy-strategy/reporting/natural-resource-footprint-2018.aspx

32. International Federation of Medical Students' Associations. 2020 Vision for Climate-Health in Medical Curricula 2018 [cited 2018 October 9, 2018]. Available from: https://docs.google.com/forms/d/e/1FAIpQLSeMxig6Yhs4qJU8oboKXm0KqGXRj64fcso8o9IHBikNGX5RYA/viewform.







Created by

LANCET COUNTDOWN:
TRACKING PROGRESS
ON HEALTH AND
CLIMATE CHANGE