

Lancet Countdown 2018 Report: Briefing for Spanish Policymakers

November 2018



Introduction

This brief has been developed as a collaborative task between the *Lancet Countdown: Tracking Progress on Health and Climate Change* and the *Spanish Society of Internal Medicine*.

Launched in parallel with the 2018 Lancet Countdown report, this brief focuses on the links between health and climate change, and their implications for public policy in Spain. It also aims to act as a resource for Spanish health professionals on the links between human wellbeing and climate change, enabling them to play a central role in communicating the challenges and opportunities of the coming decade.

Acknowledgements

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Review and edits were provided by Courtney Howard, MD, and Nick Watts, MBBS, of the Lancet Countdown.

Strategic Partners

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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 a healthy response to climate change.⁽³⁾

About the Spanish Society of Internal Medicine (SEMI)

The Spanish Society of Internal Medicine, in Spanish “*Sociedad Española de Medicina Interna*” (SEMI), is a professional association which gathers all Spanish doctors specialised in Internal Medicine. Internal Medicine is a general speciality, which covers all diseases except for those that require surgical management. Internal Medicine doctors, also known as internists, are particularly skilled in the management of patients who have undifferentiated or multi-system disease processes.

Take-Home Messages and Recommendations

Ensuring widespread understanding of climate change as a public health issue is vital in delivering an accelerated response.

Recommendation 1

Rapidly integrate climate change and health into medical and health sciences curricula.

Adverse health impacts from heat exposure are increasing.

Recommendation 2

Ensure coordination and funding for a response to heatwaves that links government departments and multiple levels of government in order to better communicate to the public the health threat of heatwaves and generate a public health response that minimizes health impacts.

Reducing air pollution-related deaths from transport and coal-fired power plants offers immediate health benefits as well as long-term climate-related health benefits via reduced greenhouse gas emissions.

Recommendation 3

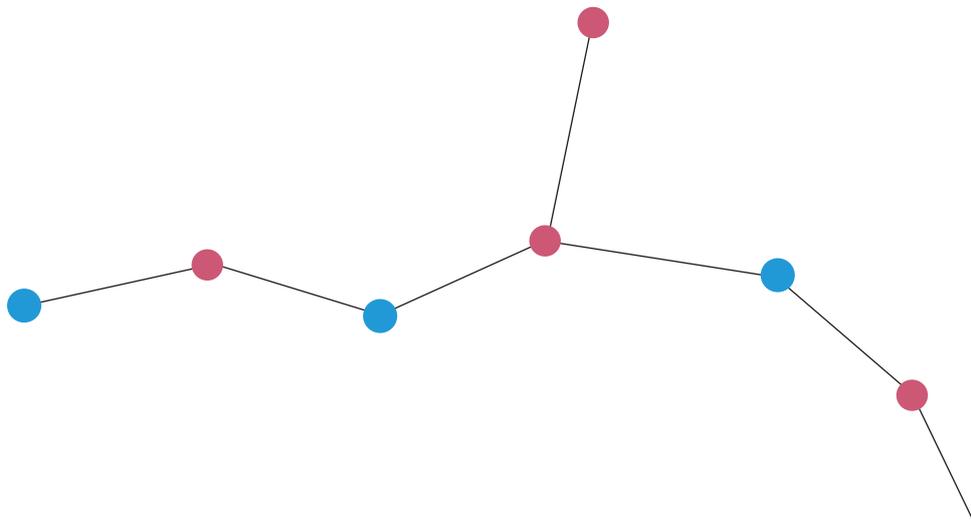
Provide support for clean fuel use for transport and for active transport infrastructure, opening up cities and communities to pedestrians and cyclists.

Recommendation 4

Commit to coal phase-out in Spain by 2030 or sooner, with a rapid transition to renewable energy, strengthening an already thriving wind power sector.

Key Messages of the 2018 International Lancet Countdown on Health and Climate Change

- Present day changes in labour capacity, vector-borne disease, and food security provide early warning of compounded and overwhelming impacts expected if temperature continues to rise. Trends in climate change impacts, exposures, and vulnerabilities demonstrate an unacceptably high level of risk for the current and future health of populations across the world.
- 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, with the potential to disrupt core public health infrastructure and overwhelm health services.
- Despite these delays, trends in a number of sectors are breathing life in to the beginning of a low-carbon transition, and it is clear that the nature and scale of the response to climate change will be the 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.



The Health Consequences of Climate Change – and the Health Benefits of a Strong Response.

The environmental determinants of health provide essential eco-system services on which good health depends.

As climate change undermines these foundations, it will continue to result in major reductions in good health, and the ability of the health profession to manage these issues.(2)

The health impacts of climate change are many and varied. As shown in the 2018 Lancet Countdown report, heat-related illness continues to rise globally as a result of both rising average temperatures and increased volatility.(3) Changes in temperature and precipitation result in altered patterns and distributions of a large number of infectious disease vectors, such as mosquitoes. The 2018 Lancet Countdown report highlighted this issue, with the vectorial capacity for the transmission of dengue fever the highest it has ever been since recording began.(3) Climate change threatens yields and food production, which in turn results in malnutrition and a loss of livelihoods in vulnerable countries and communities across the world. Indeed, malnutrition is expected to be among the most consequential impacts of climate change this century.(4)

In addition to the above, business-as-usual emissions scenarios will result in a 2.6-4.8°C rise in average surface temperatures by 2100,(5) with potentially catastrophic impacts on public health via:

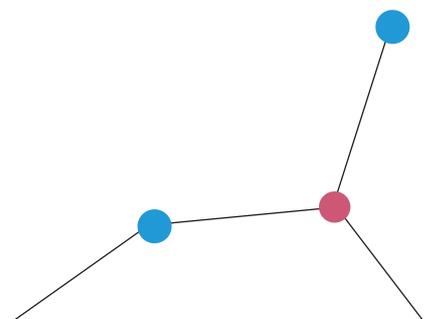
- Threats to the integrity of health systems and critical health infrastructure from extreme weather events.
- An undermining of the social determinants of health through a reduction in access to adequate housing, water and food.
- Downstream effects such as mass migration as a result of rising sea levels, or decreased habitability of previously occupied land.

In December, 2015, 195 countries, including Spain, signed the Paris Agreement, which pledges to keep the global mean temperature rise to well below 2°C, aiming for 1.5°C - a level which seeks to avoid the worst outcomes for public health. The recent report on 1.5°C by the Intergovernmental Panel on Climate Change makes clear the magnitude of the challenge involved in meeting this target. They state, "global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate," and find that in order to stay below 1.5°C, "global net human-caused emissions of carbon dioxide (CO₂) would need to fall by about 45 percent from 2010 levels by 2030, reaching 'net zero' around 2050."(6)

Given the above, as well as the Lancet Countdown's message that, "ensuring a widespread understanding of climate change as a central public health issue will be vital in delivering an accelerated response," it is clear that making Spanish physicians and allied health physicians themselves aware of the health risks of climate change must be a priority. Education on this topic being inadequate in many countries worldwide, and the urgency of change being high, in 2018 the International Federation of Medical Students' Associations launched an initiative aiming to get climate change and health into medical curricula by 2020, with fuller integration by 2025.(7)

Recommendation 1

Rapidly integrate climate change and health into medical and health sciences curricula.



Impacts of Heatwaves and Increasing Temperatures on Health

The summer of 2018 saw temperatures soar to over 40°C in Spain, wildfires spread across the country, and excess mortality from heat stroke.(8)

Heatwaves are associated with increased rates of heat stress and heat stroke, particularly in the context of prolonged exposure to heat or physical exertion in high temperatures.(4) Heatstroke occurs when the body overheats, usually as a result of prolonged exposure to or physical exertion in high temperatures. Impacted patients often require emergency treatment to avoid damage to the brain, lungs, heart, and kidneys, which can lead to death.(3) A US study has also produced preliminary evidence that higher temperatures increase rates of suicide.(9)

The 2018 International Lancet Countdown report found that vulnerability to extremes of heat is increasing across the world, with Europe and the East Mediterranean 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 (ie: 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) Data for Spain also show a trend towards higher temperatures as compared to the 1986-2008 baseline, with 2017 1.6°C above the baseline. (Figure 1)

According to the European Union's Science and knowledge service, in Member States, it is estimated that mortality increases by 1– 4% for each one-degree rise in temperature, meaning that heat related mortality could rise by 30 000 deaths per year by the 2030s and by 50 000 to 110 000 deaths per year by the 2080s.(10)

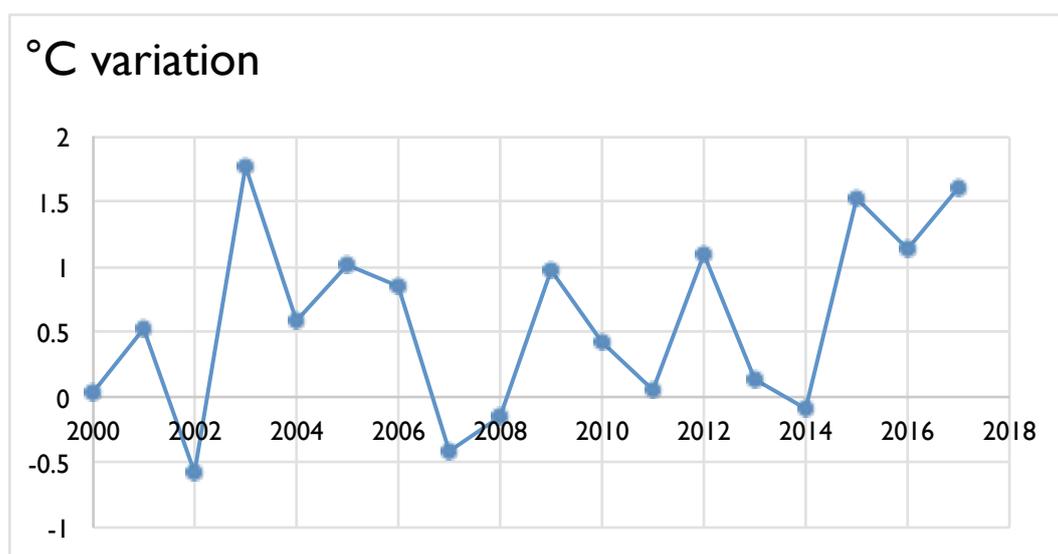
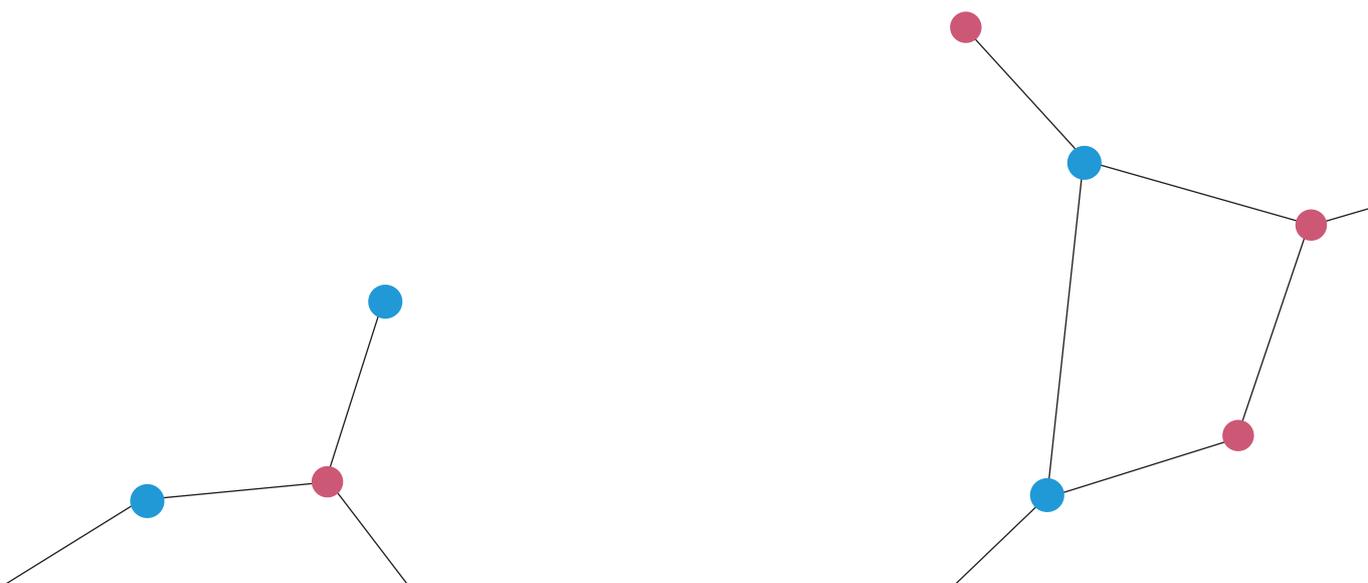


Figure 1. Exposure weighted summer temperature change in Spain, 2000-2017 as compared to the 1986-2008 average. Data from the Lancet Countdown.

A heatwave is defined by the Lancet Countdown 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).”⁽⁴⁾ This indicator therefore focuses on the high night-time temperatures which make it difficult for people to recuperate during a hot period. The International Countdown report shows that in 2017, 157 million heatwave exposure events occurred globally, an increase of 18 million additional exposure events compared with 2016.⁽³⁾

Public measures such as advanced warning of heatwaves, public health messaging reminding people to seek shelter and consume adequate amounts of water and interventions aimed at providing support to the most vulnerable, including the elderly, can decrease morbidity and mortality from increasing temperatures and heatwaves.⁽¹¹⁾ Given rising temperatures and forecasts for more of the same, it is critical that government, public health systems and clinicians prepare.

Recommendation 2: Ensure coordination and funding for a response to heatwaves that links government departments and multiple levels of government in order to better communicate to the public the health threat of heatwaves and generate a public health response that minimizes health impacts.



Air Pollution, Energy, and Health

From smog hanging over cities to smoke inside the home, air pollution poses a major threat to health.

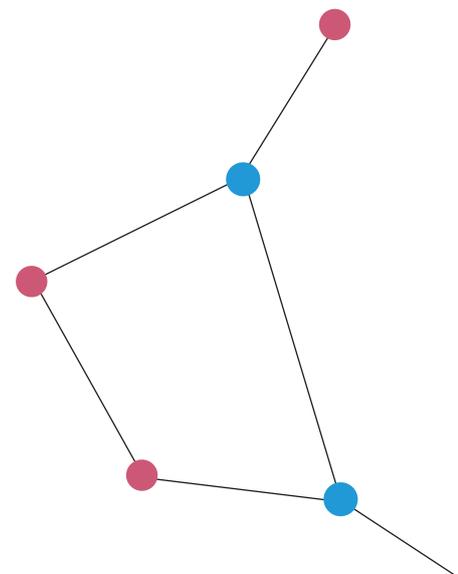
According to data from the World Health Organization (WHO), air pollution is responsible for about 7 million premature deaths every year, largely as a result of:

- Cardiovascular diseases, such as stroke, coronary disease and heart failure.
- Respiratory diseases, such as acute respiratory infections, chronic obstructive pulmonary disease and lung cancer.(12)

The 2018 International Lancet Countdown report found that fine particulate ambient air pollution of less than 2.5 microns ($PM_{2.5}$), a subset of air pollution that is particularly problematic for health, resulted in more than 2.9 million deaths globally in 2015, and that coal was responsible for about 16% of this (Figure 2).(3) Data was generated using the GAINS model, which calculates emissions of all precursors of $PM_{2.5}$ using statistics from the International Energy Agency and a detailed breakdown of economic sectors and fuels used.(3)

Data on Spain provided by the Lancet Countdown demonstrates a total of 20,938 deaths from $PM_{2.5}$ air pollution in 2015, of which 4770 (23%) were generated by households, 3664 (18%) were from agriculture, 3291 (19%) were from land-based transport, 2047 (10%) were from industry, and 1106 (5%) were from power plants, with 958 deaths attributable to coal-fired power plants.

In addition to air-pollution-related deaths, coal is responsible for 44% of global CO_2 emissions, meaning that it contributes disproportionately to the ill-health impacts of global climate change. (4) Phasing out coal-fired power is therefore a no-regret option for public health.(3) An increasing number of countries worldwide are looking to capitalize on this health opportunity, as exemplified by the Powering Past Coal Alliance, founded at the COP23 Climate Change negotiations in 2017. As of April 2018, 60 national, provincial, state, city, business and organizations have endorsed its declaration to phase-out traditional coal power on a short timeline—the United Kingdom having committed to 2025, and Canada to 2030, amongst others.(13) In 2015, according to World Bank data, 19% of Spain's total electricity came from coal, down from 37% in the year 2000.(14) This trend of improvement and Spain's vast potential for solar power make it a good candidate for future coal phase-out commitments in keeping with the goals of the alliance.



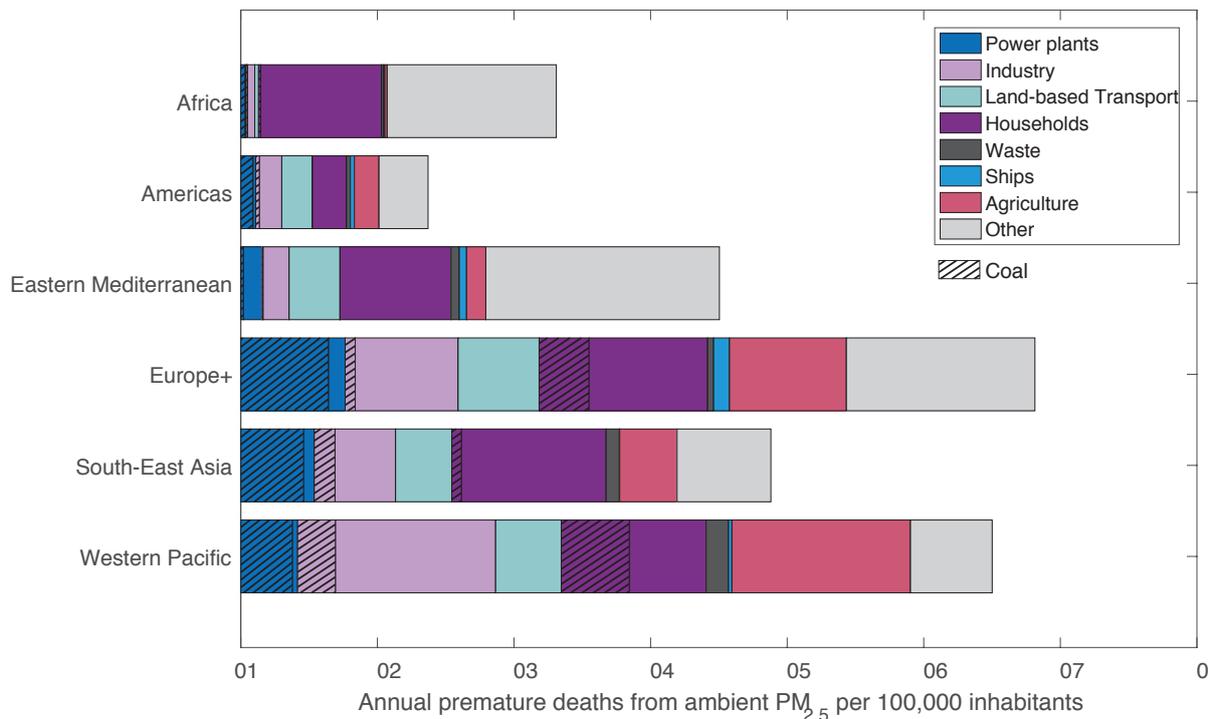


Figure 2. Health impacts of exposure to ambient fine particulate matter (PM_{2.5}) in 2015, by key sources of pollution (Lancet Countdown).

In addition to the 3291 yearly air-pollution-related deaths from PM_{2.5} generated by the transport sector listed above, transport is responsible for a large and increasing share of greenhouse gas emissions in Spain. (15) Substantial public health benefits could be gained by switching to clean fuel use for transport and increasing support for active transport (walking and cycling), with the latter additionally increasing the activity level of the population, thereby reducing chronic disease.(3)

Given the above, it is clear that there are significant health benefits and healthcare cost savings to be gained by reducing air pollution, and that many measures which improve air quality also decrease greenhouse gas emissions. The combination of transport-related measures with policies dedicated to increasing energy efficiency, and phasing out coal power in favour of renewable energy sources,(4) represents a tremendous opportunity for Spain to improve both present-day public health and future global health outcomes.

Recommendation 3

Provide support for clean fuel use for transport and for infrastructure that makes it easier for people to get to where they want to go on foot and by bicycle.

Recommendation 4

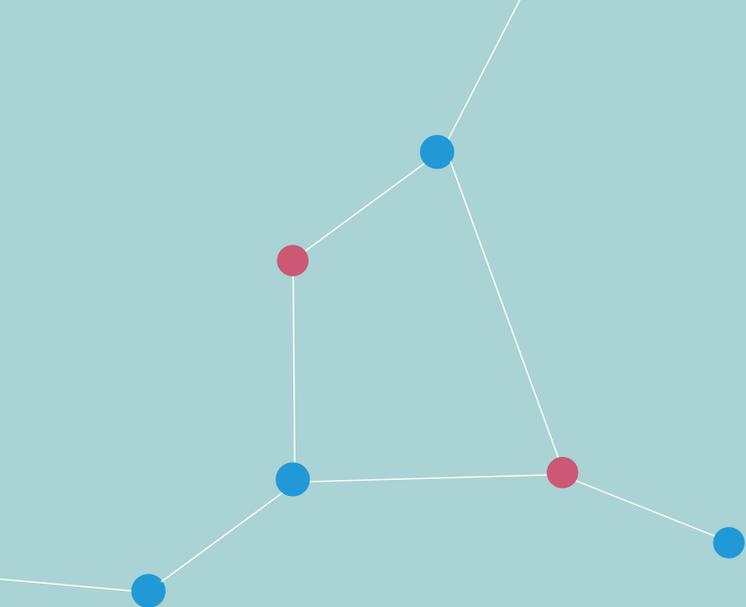
Aim for a timeline to coal-power phase-out in Spain of 2030 or sooner and provide support for renewable energy production.

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