

Decarbonising Healthcare

10th February 2021

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cet Centre for Climate
and Energy Transformation

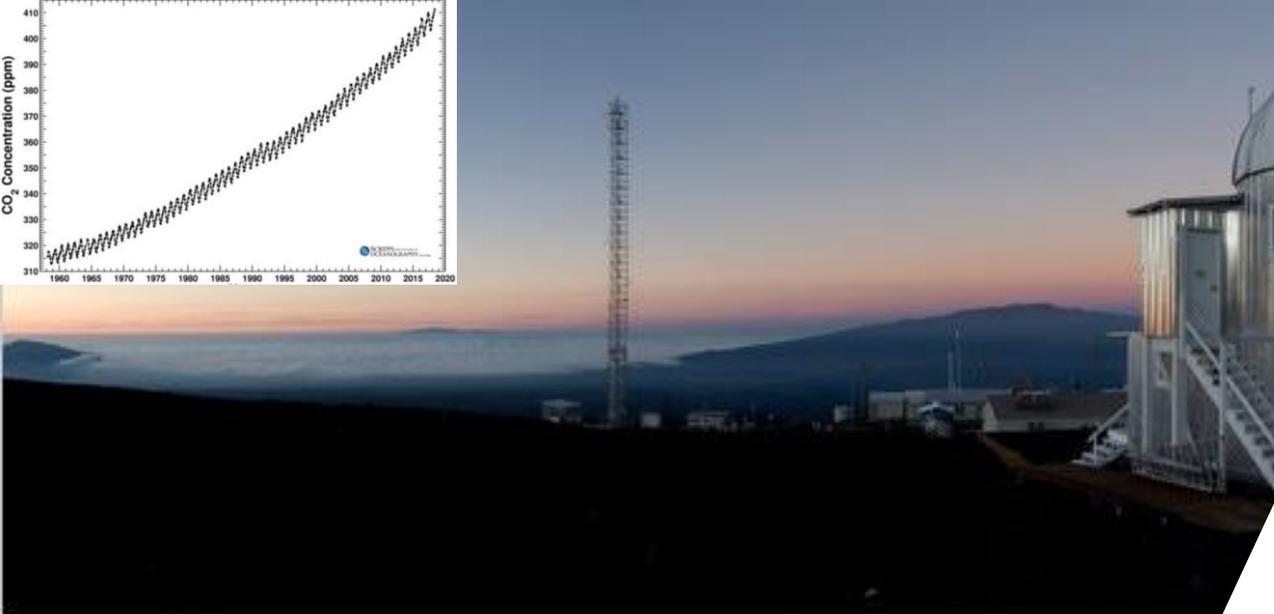
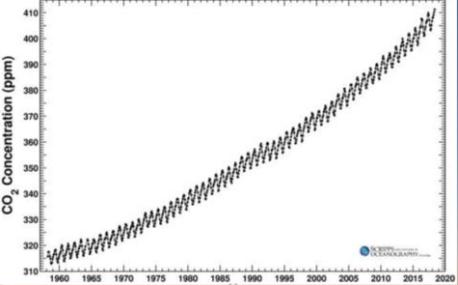


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Plan for the session

- 11:00 - 11.10: Introductions
- 11:10 – 11:25: Setting the scene
- 11:25 – 11:40: Team work (round 1)
- 11:40 – 11:55: Team work (round 2)
 - 11:55 – 12:15: Re-group
 - 12:15 – 12:30: Wrap up and next steps!



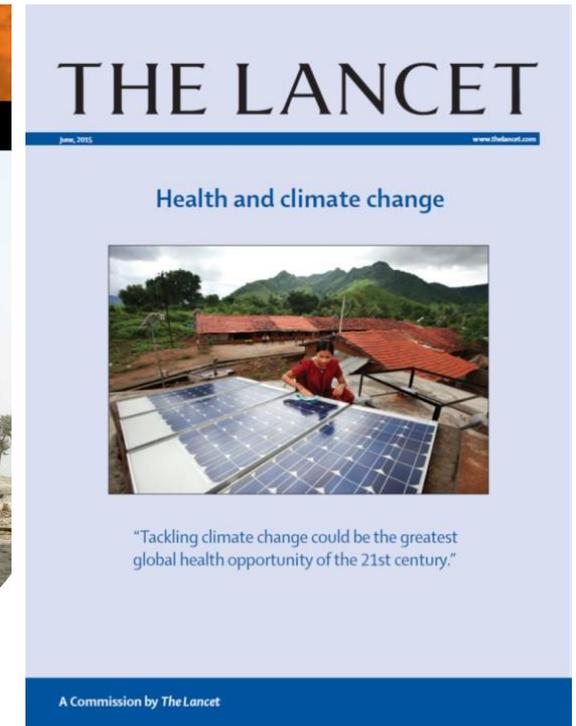
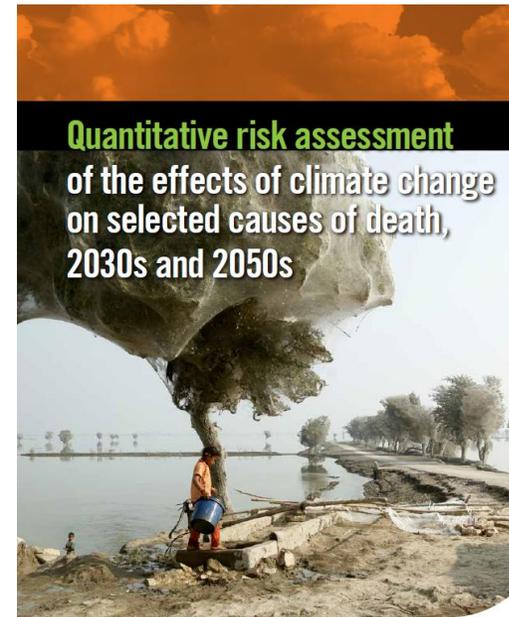
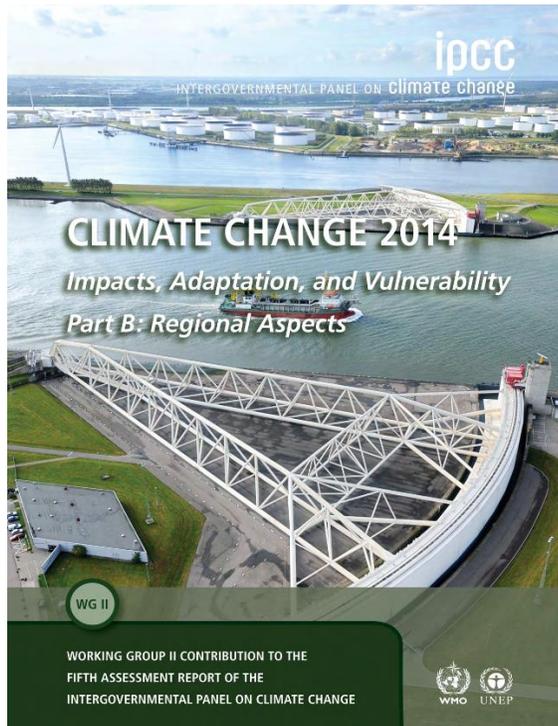
IN OUR HANDS
EARTH SUMMIT '92



NATIONS UNIES
Conférence sur les Changements Climatiques 2015
COP21/CMP11
Paris France

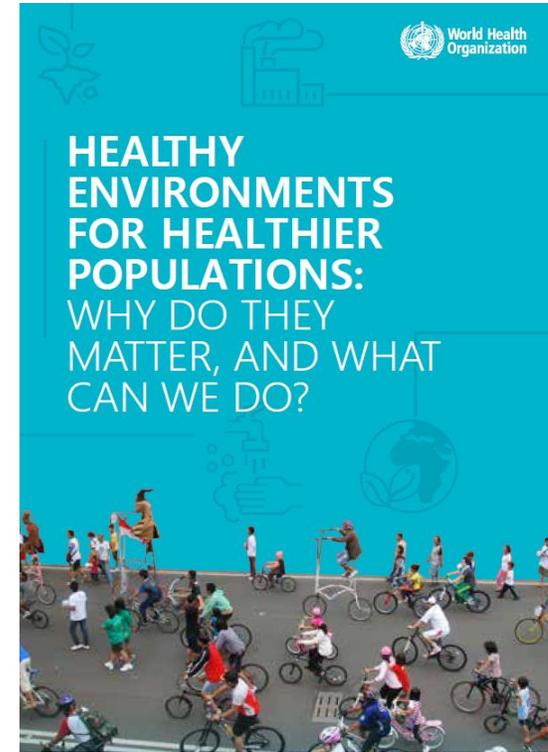
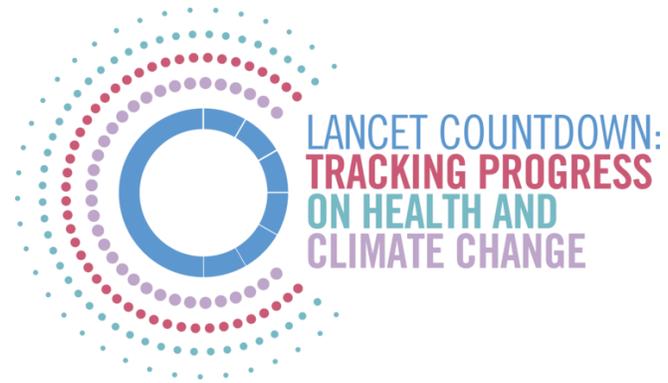


Emerging Evidence



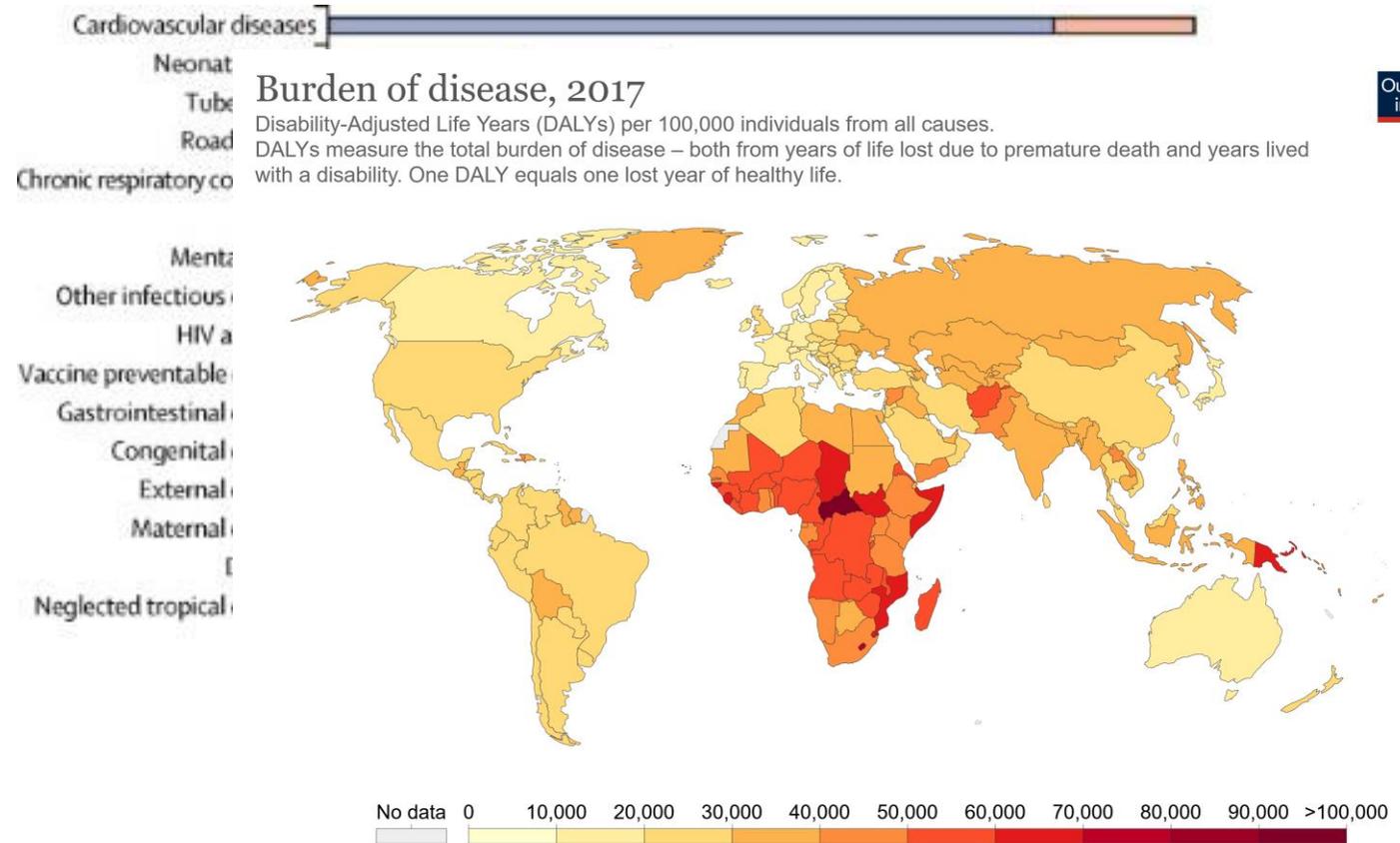


Prescriptions and Actionables for
a Healthy and Green Recovery



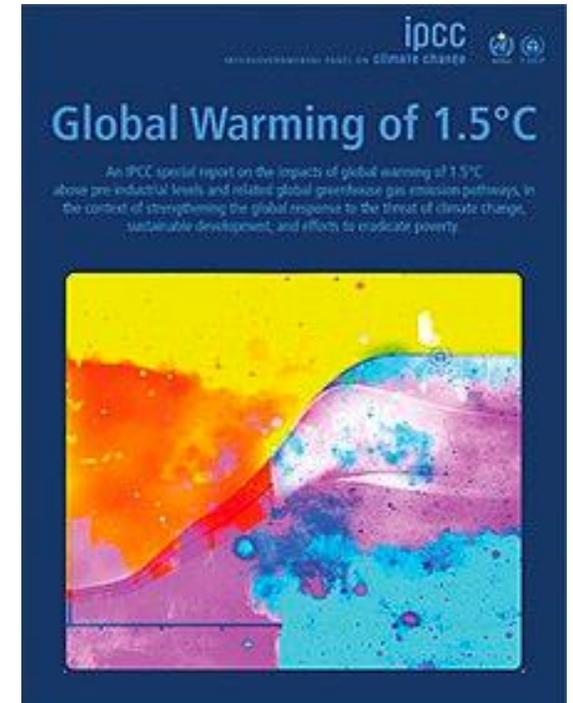
International climate & health agenda

Major challenges remain



Source: IHME, Global Burden of Disease
 Note: To allow comparisons between countries and over time this metric is age-standardized.

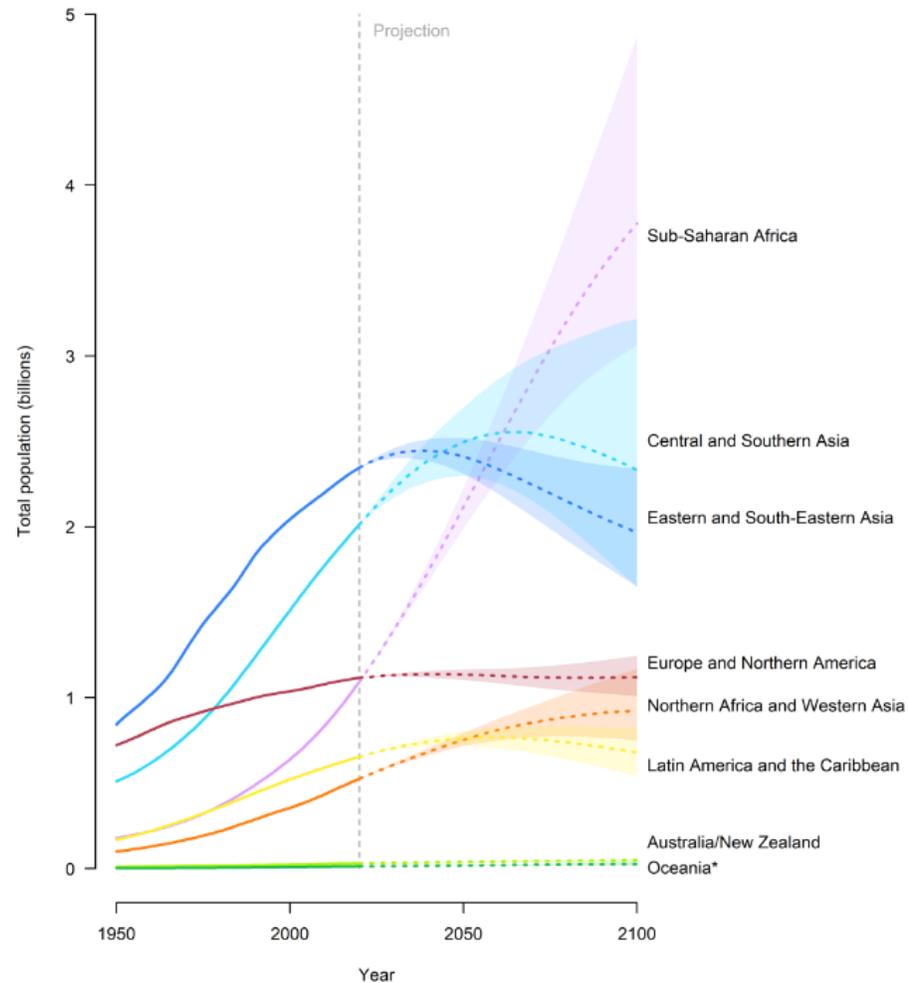
OurWorldInData.org/burden-of-disease • CC BY



[IPCC 1.5C special report, 2018](#)

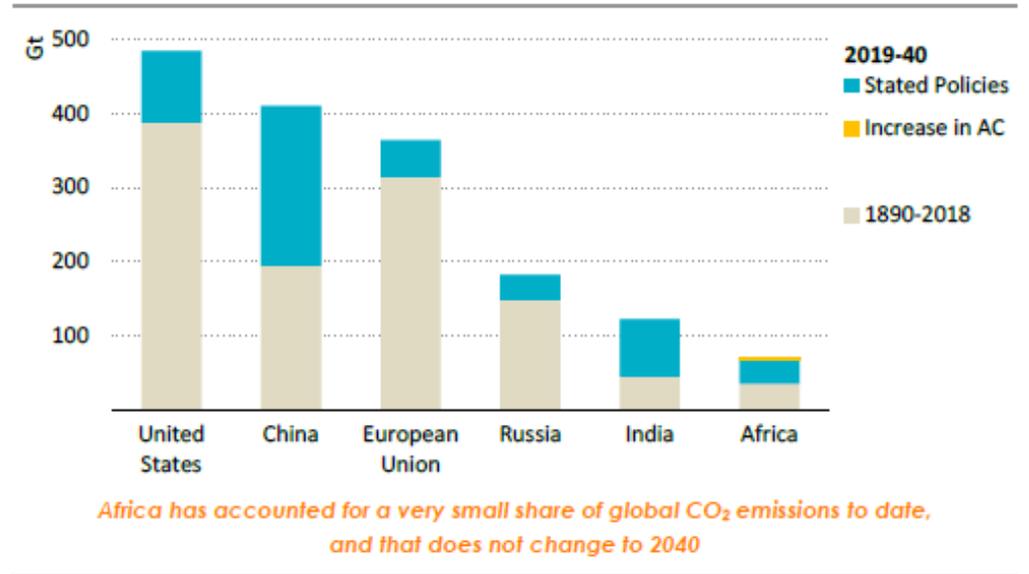
[Quality health systems in the universal health coverage era, Lancet 2018](#)

Responsibility in a changing world



Data source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*.
 * excluding Australia and New Zealand

Figure 5.7 ▶ Cumulative energy-related CO₂ emissions by region and scenario



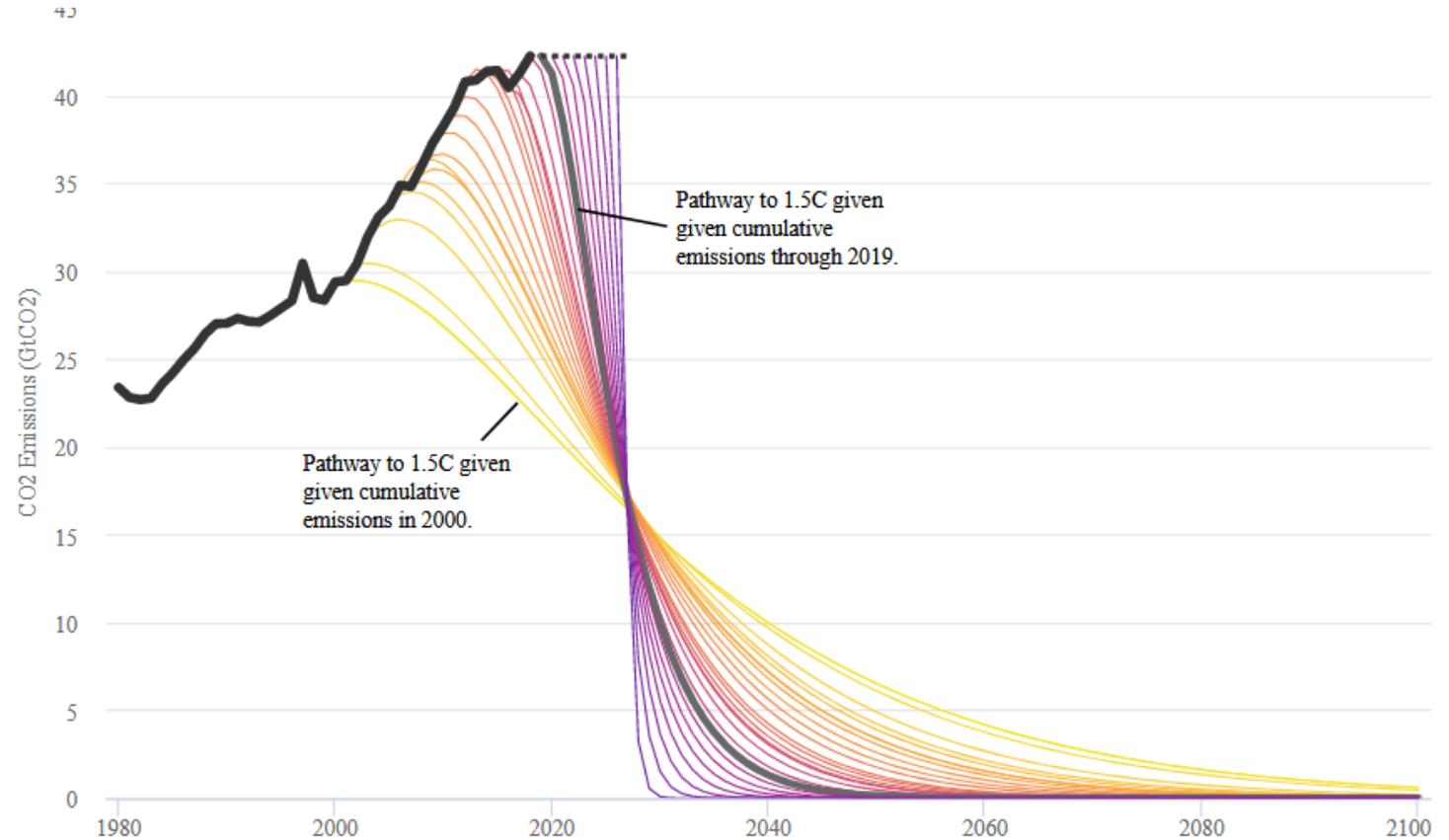
Note: AC = Africa Case.





Carbon is a limited resource

Additional Warming since 2006–2015 [°C] ⁽¹⁾	Approximate Warming since 1850–1900 [°C] ⁽¹⁾	Remaining Carbon Budget (Excluding Additional Earth System Feedbacks ^{*(5)}) [GtCO ₂ from 1.1.2018] ⁽²⁾		
		Percentiles of TCRE ^{*(3)}		
		33rd	50th	67th
0.3		290	160	80
0.4		530	350	230
0.5		770	530	380
0.53	~1.5°C	840	580	420
0.6		1010	710	530
0.63		1080	770	570
0.7		1240	900	680
0.78		1440	1040	800
0.8		1480	1080	830
0.9		1720	1260	980
1		1960	1450	1130
1.03	~2°C	2030	1500	1170
1.1		2200	1630	1280
1.13		2270	1690	1320
1.2		2440	1820	1430





Healthcare in world's largest economies 'accounts for 4%' of global emissions



A HEALTH PODYSSEY
Podcast: Health Care Take Note: Every Greenhouse Gas Emission Matters
Kristie Ebi, Alan Weil
December 22, 2020
Preview Short Description Listen

ENVIRONMENTAL RESEARCH LETTERS

LETTER • OPEN ACCESS
International comparison of health care carbon footprints
Peter-Paul Pichler^{1,1} , Ingram S Jaccard^{1,1}, Ulli Weisz² and Helga Weisz^{1,3}
Published 24 May 2019 • © 2019 The Author(s). Published by IOP Publishing Ltd
[Environmental Research Letters, Volume 14, Number 6](#)
Citation Peter-Paul Pichler et al 2019 *Environ. Res. Lett.* 14 064004

Article PDF Article ePub

Figures ▾ References ▾



HEALTH CARE'S CLIMATE FOOTPRINT
HOW THE HEALTH SECTOR CONTRIBUTES TO THE GLOBAL CLIMATE CRISIS AND OPPORTUNITIES FOR ACTION

Articles

The impact of surgery on global climate: a carbon footprinting study of operating theatres in three health systems

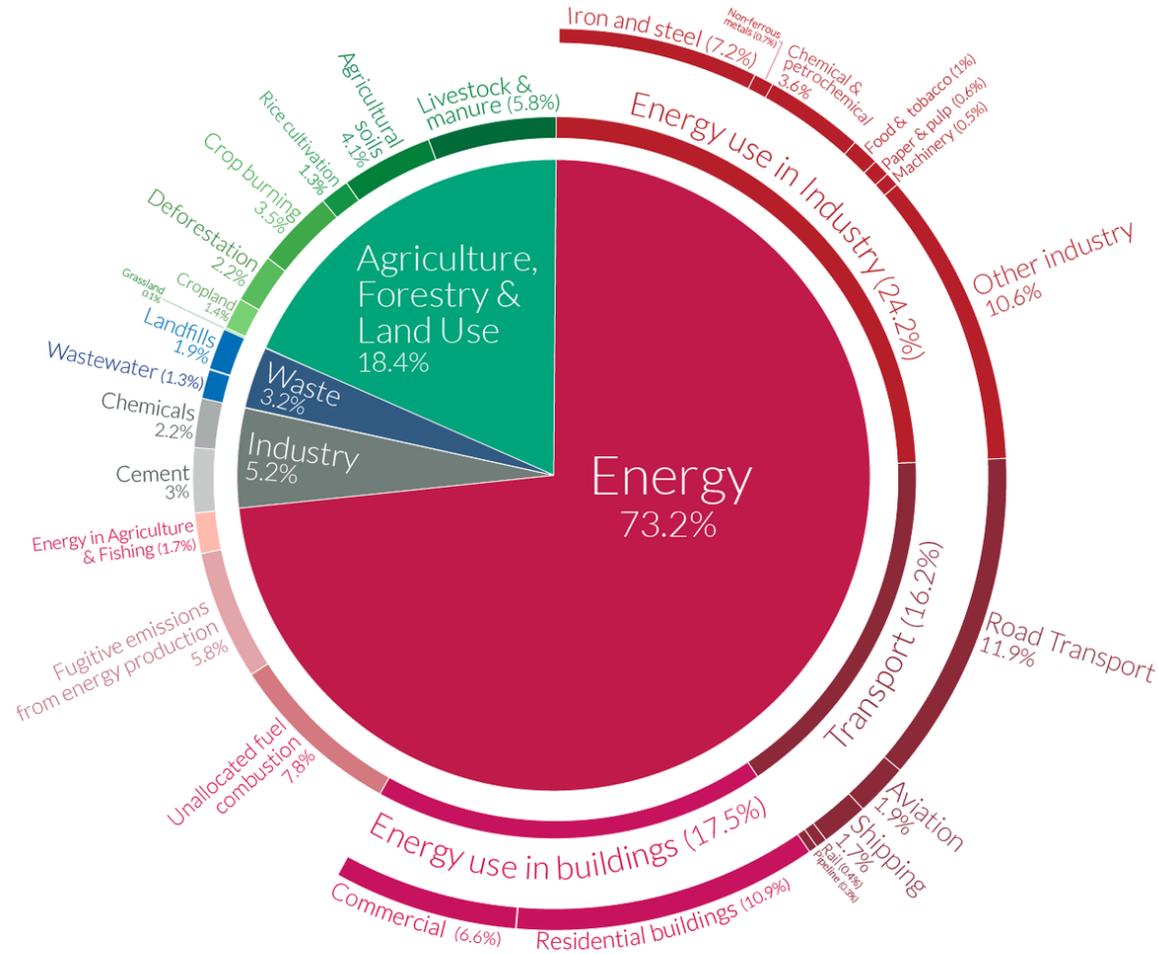
Andrea J MacNeill, Robert Lillywhite, Carl J Brown
Summary
Background Climate change is a major global public health priority. The delivery of health-care services generates considerable greenhouse gas emissions. Operating theatres are a resource-intensive subsector of health care, with high energy demands, consumable throughput, and waste volumes. The environmental impacts of these activities are generally accepted as necessary for the provision of quality care, but have not been examined in detail. In this study, we estimate the carbon footprint of operating theatres in hospitals in three health systems.
Methods Surgical suites at three academic quaternary-care hospitals were studied over a 1-year period in Canada (Vancouver General Hospital, VGH), the USA (University of Minnesota Medical Center, UMMC), and the UK (John Radcliffe Hospital, JRH). Greenhouse gas emissions were estimated using primary activity data and applicable emission factors, and reported according to the Greenhouse Gas Protocol.
Lancet Planet Health 2019; 1: e391-408
See Comment page 4107
Division of General Surgery, University of British Columbia, Vancouver, Canada
(A) MacNeill MD, Prof C J Brown MB; Environmental Change Institute, School of Geography and the Environment,

Climate impacts of healthcare

Global greenhouse gas emissions by sector



This is shown for the year 2016 – global greenhouse gas emissions were 49.4 billion tonnes CO₂eq.



How much is 4-5%?

- Aviation 1.9%
- Shipping 1.7%
- Road Transport 11.9%

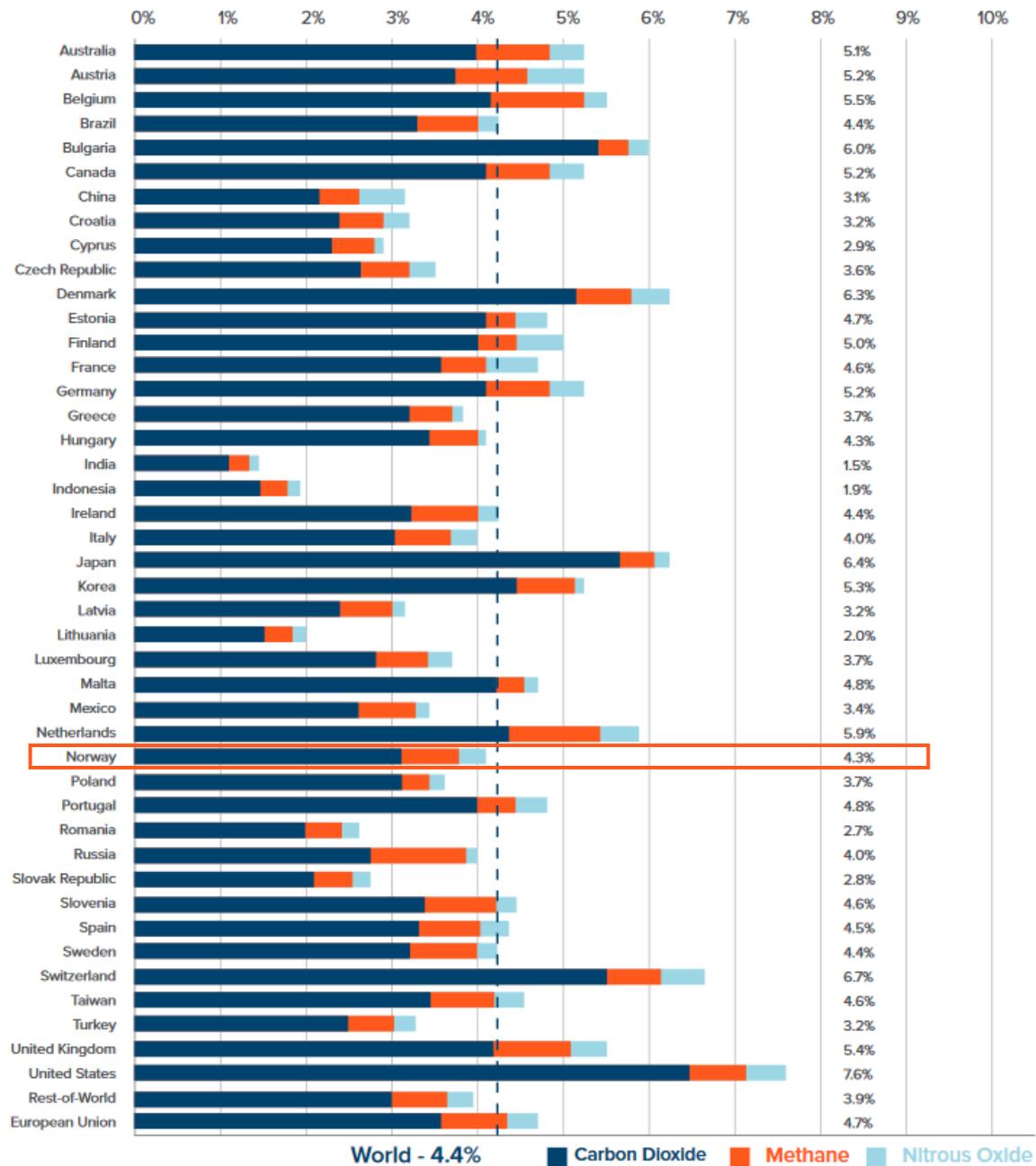
OurWorldinData.org – Research and data to make progress against the world's largest problems.
Source: Climate Watch, the World Resources Institute (2020).

Licensed under CC-BY by the author Hannah Ritchie (2020).

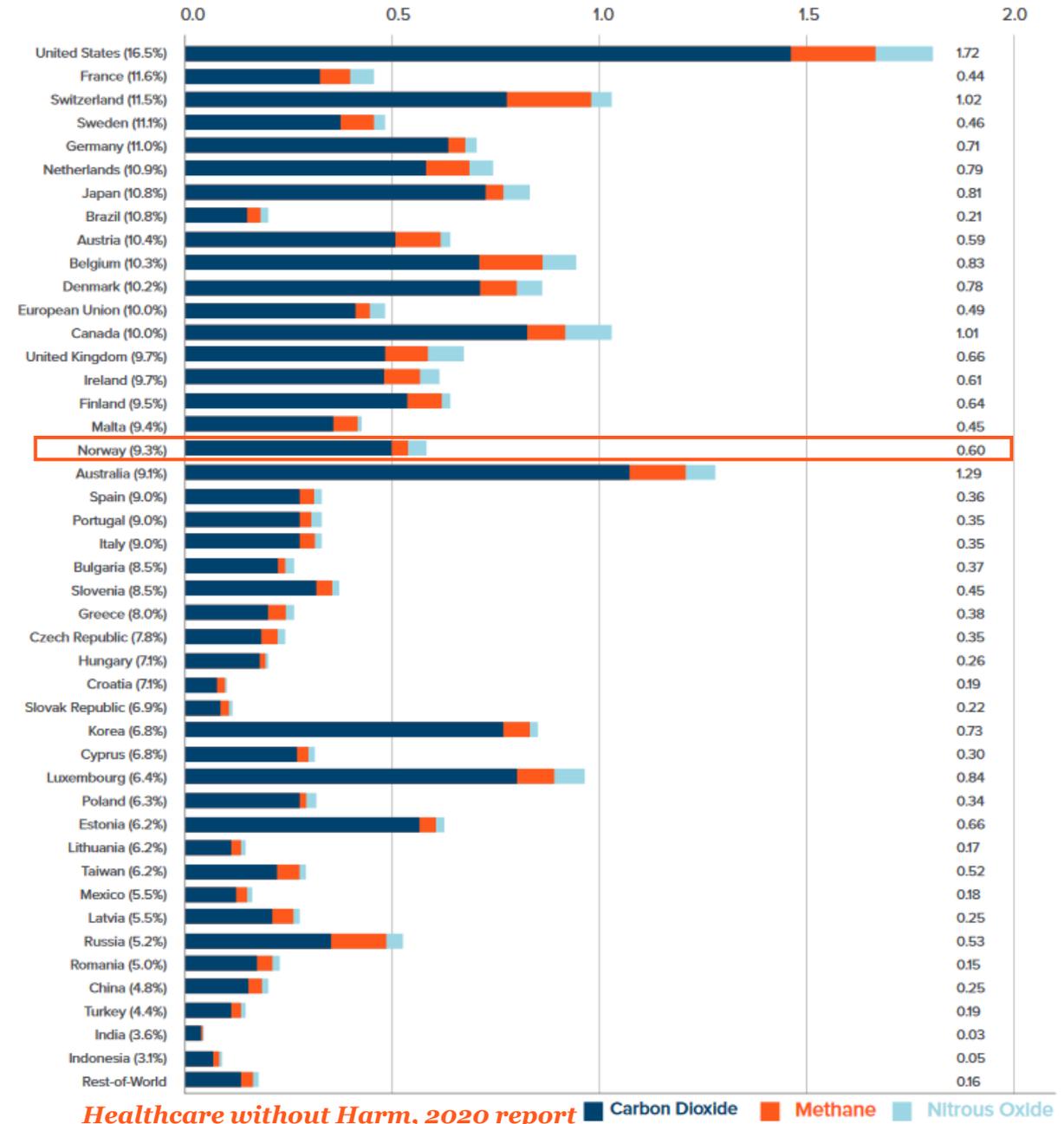
Healthcare emissions

and how to reduce them...

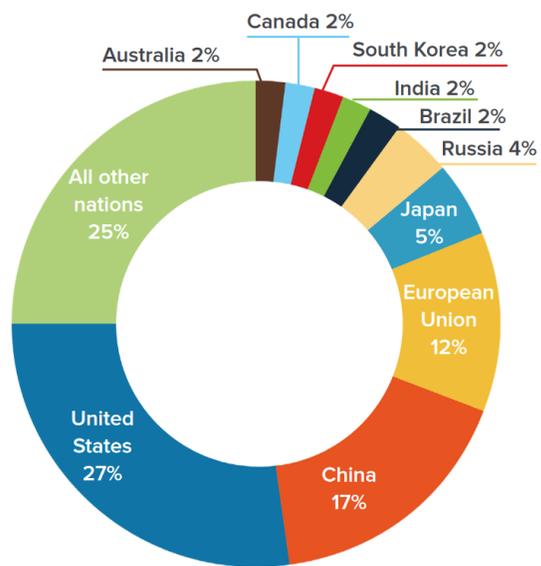
Healthcare footprint as % of national footprint



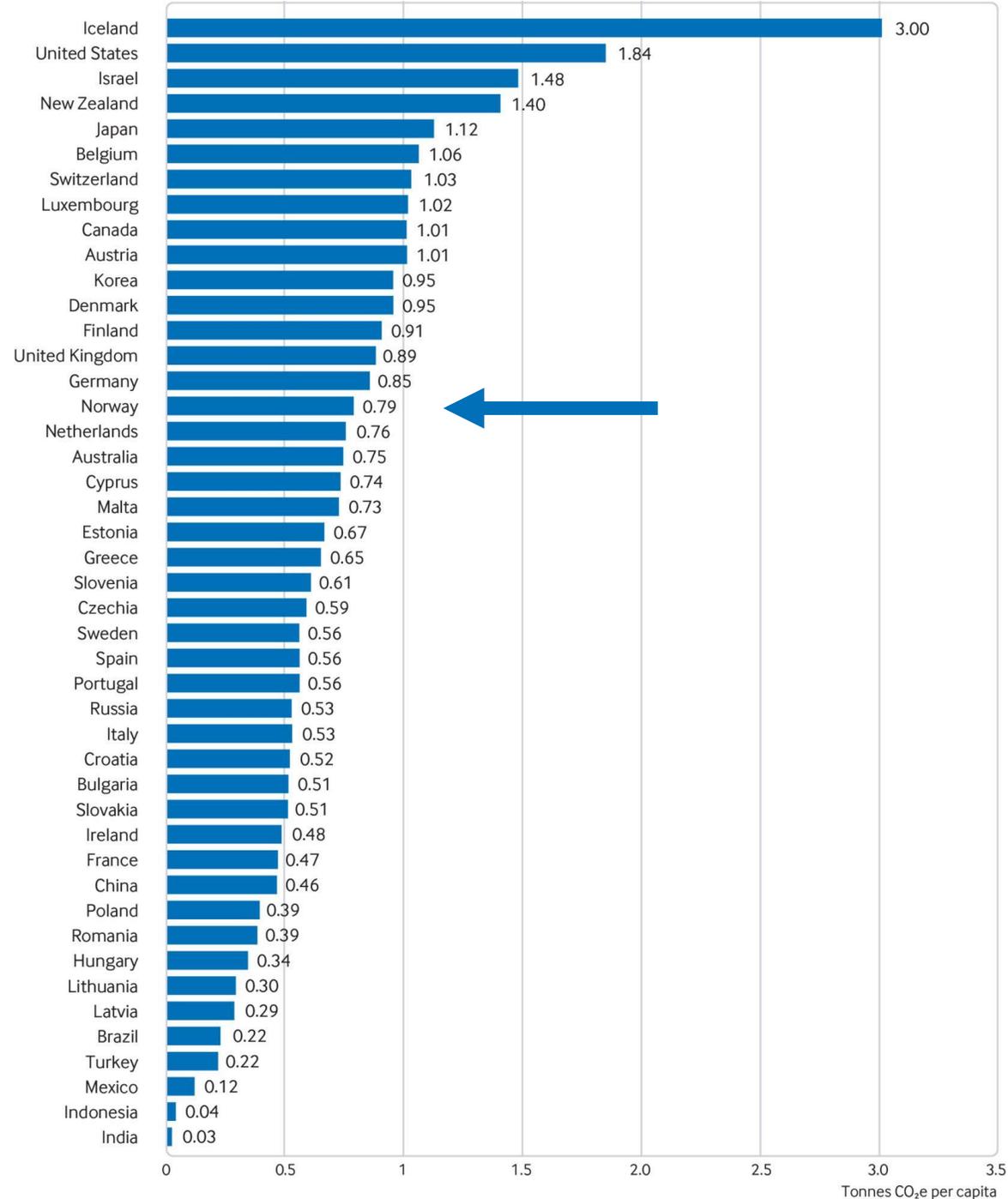
Healthcare footprint per capita (tCO₂e / capita)

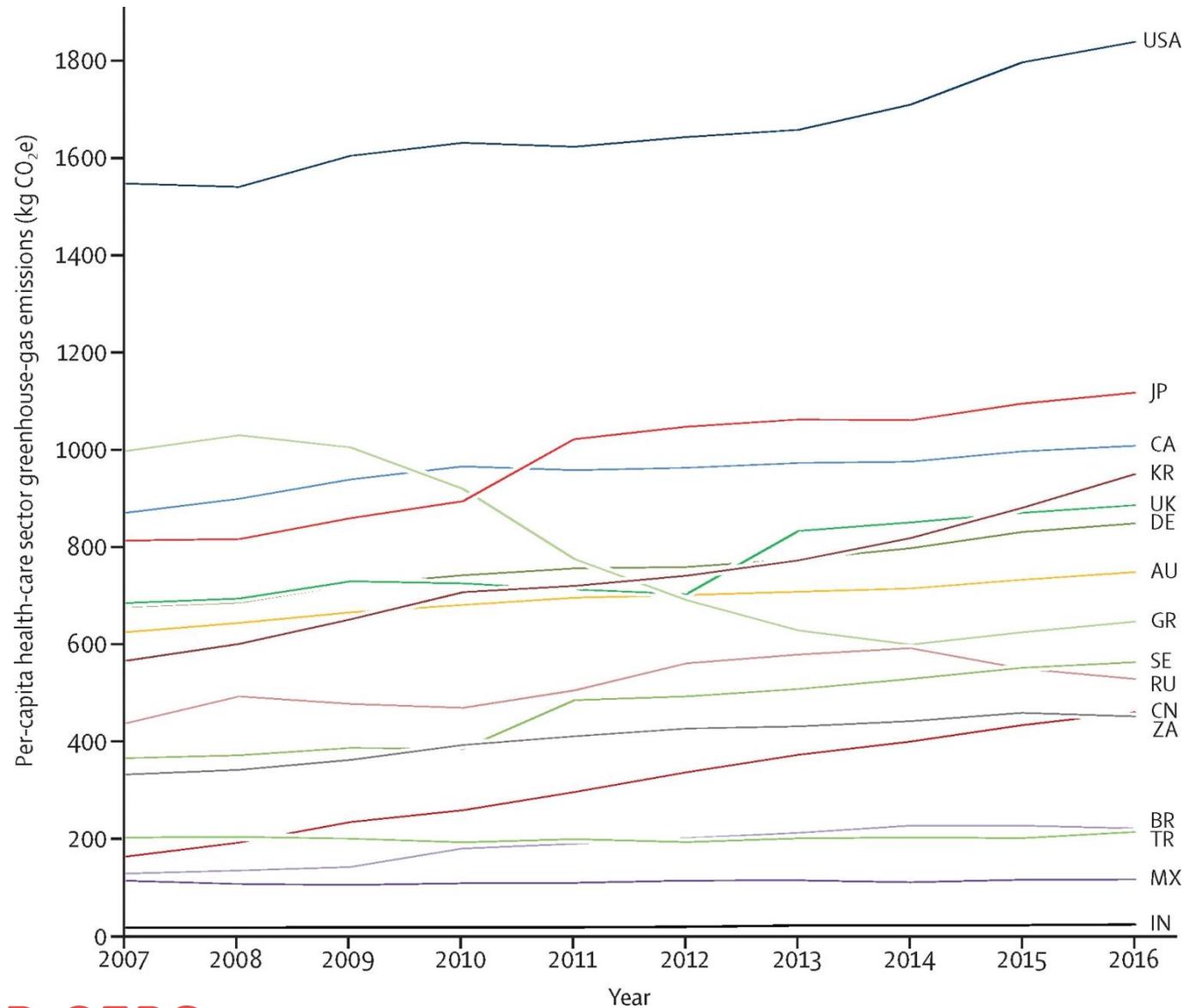


National healthcare carbon footprints.



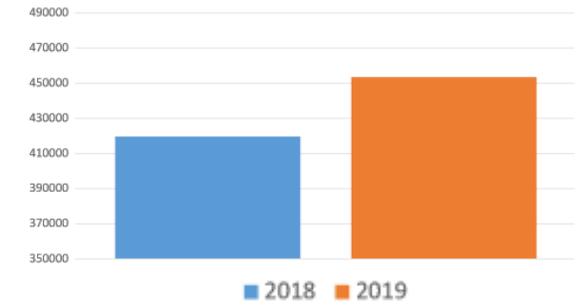
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CO₂-utslipp tonn Helse Nord, Helse Midt-Norge, Helse Sør-Øst, Helse Vest og felleseide selskap
CO₂-utslipp (tonn)

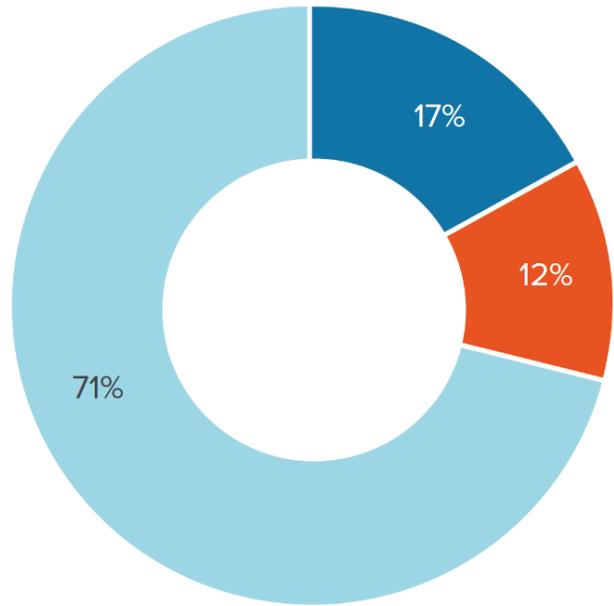


Healthcare emissions increasing



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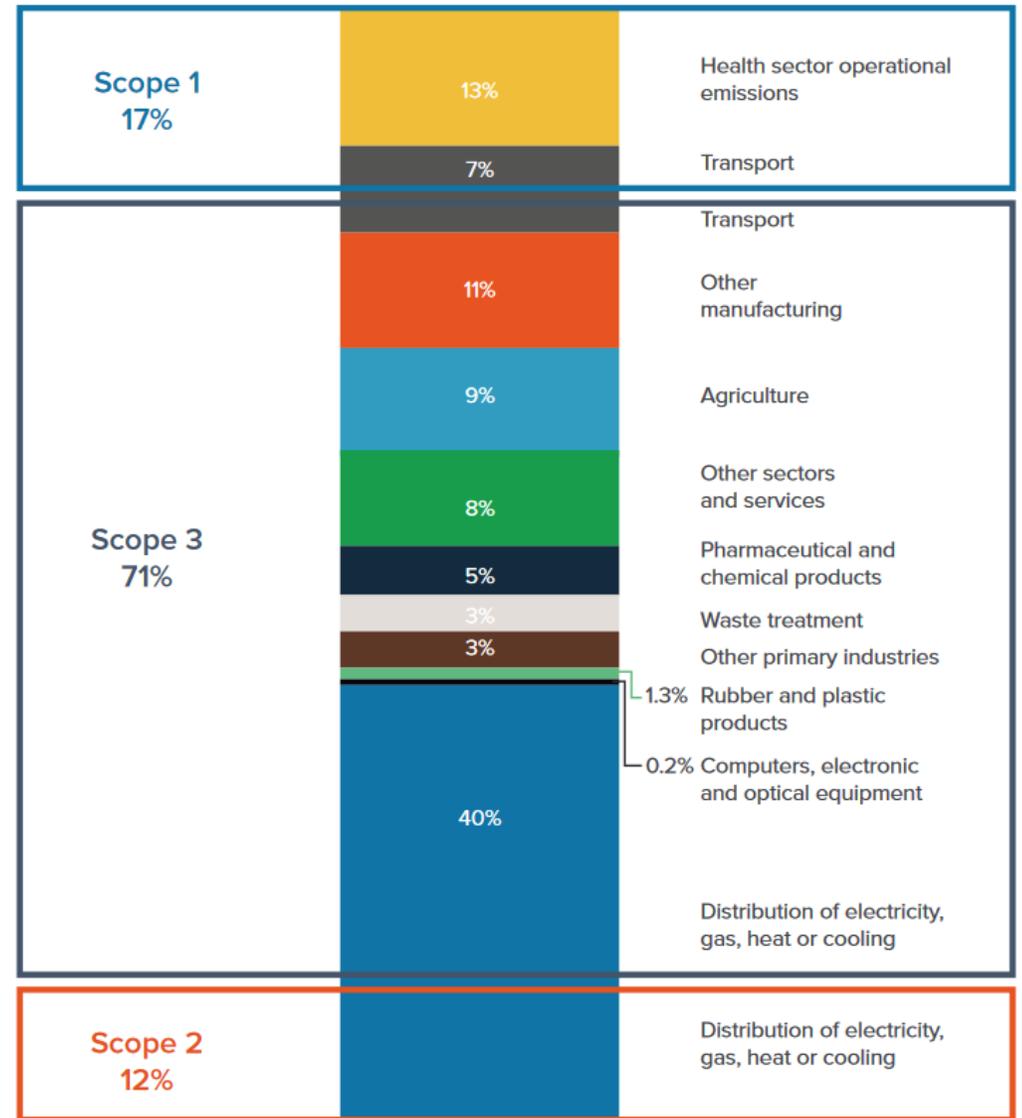
Emissions breakdown



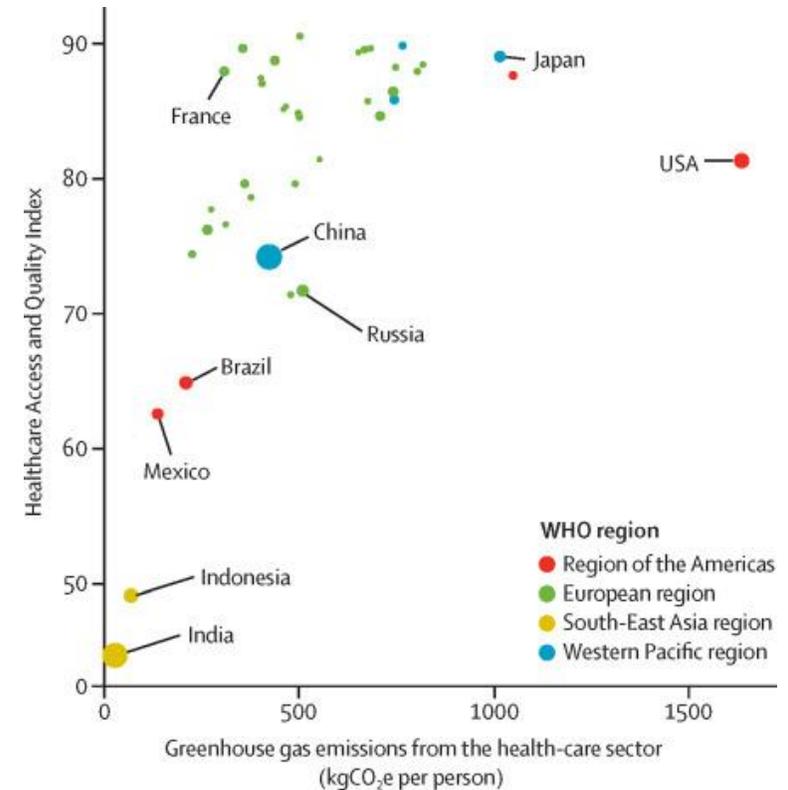
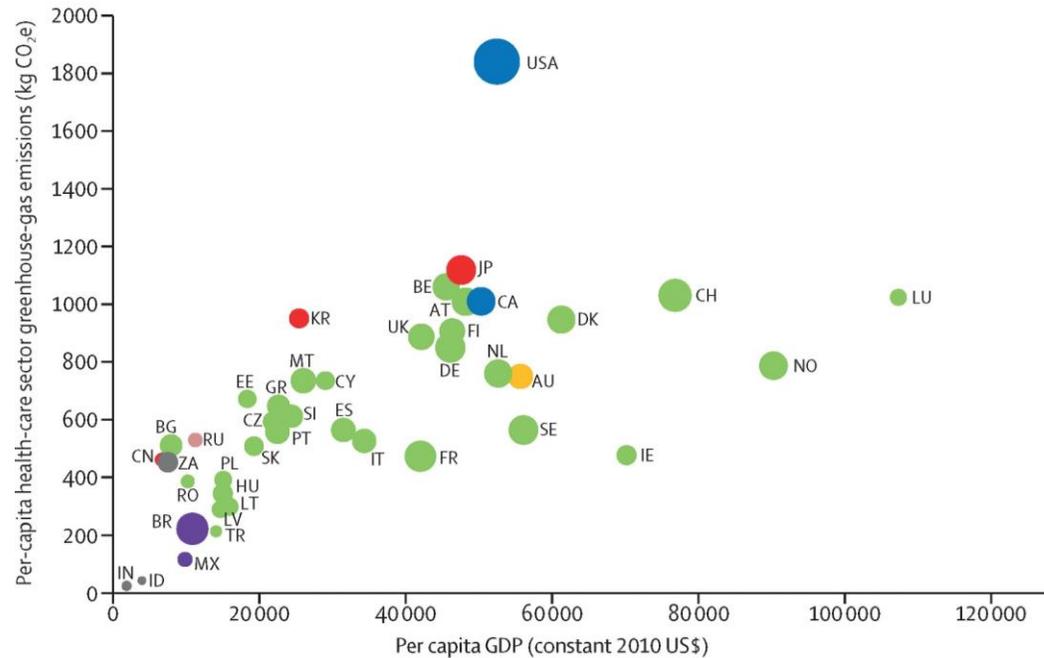
■ Scope 1
 ■ Scope 2
 ■ Scope 3

Scope 1 – Direct;
 Scope 2 – Indirect
 Scope 3 – Upstream

Healthcare without Harm, 2020 report



Healthcare emissions & GDP



- Carbon intensity of domestic energy
- Energy intensity of domestic economy
- National healthcare expenditure

~50% of the variation

Group work

- **Advocacy Stream**

- a) towards the public, b) towards policy makers, c) towards healthcare sector
 - *Why should this be a priority?*
 - *What conflicting interests are there?*

- **Research Stream**

- a) consider the research needs and gaps, b) explore opportunities for interdisciplinary collaborations
 - *What information do you want to have?*
 - *Which expertise is needed in research collaborations?*

Welcome back!

Research Stream

- Need to explore how to incorporate climate impacts of our research (e.g. new treatments)
 - Ethical review needs a climate impact section
- Need to translate knowledge (e.g. tonnes of carbon) into health metrics which people understand – new tools needed
- Treating patients as a whole impacts type and amount of treatment people need – a need sort of ethics needed which is more person and ecosystem centred approach
- Alternative low-carbon approaches can reduce medicines use and improve public health
- Need to demonstrate the impact of climate change on the number of patients we are seeing
- Need to consider impacts in public/private health systems – are private more interested or more negative due to lower cost effectiveness
- Need to consider the impacts on low resource setting

Advocacy Stream

- Need to raise awareness among medical professionals
- Need a strong student lobby to include climate on the medical curricula
- Climate coordinators at regional hospital level in Norway – can cooperate with them
 - Best if this is a cross national approach – need to work with european partners especially.
- Important to involve healthcare sector from early on in any project
- Prescribing exercise is already available in many places
- ‘Health in all policies’ – can reduce load on health system and carbon footprint
- Could Norwegian medical association have a checklist for ‘the climate wise choice’?
 - Need to know how to be low carbon while protecting and improving care

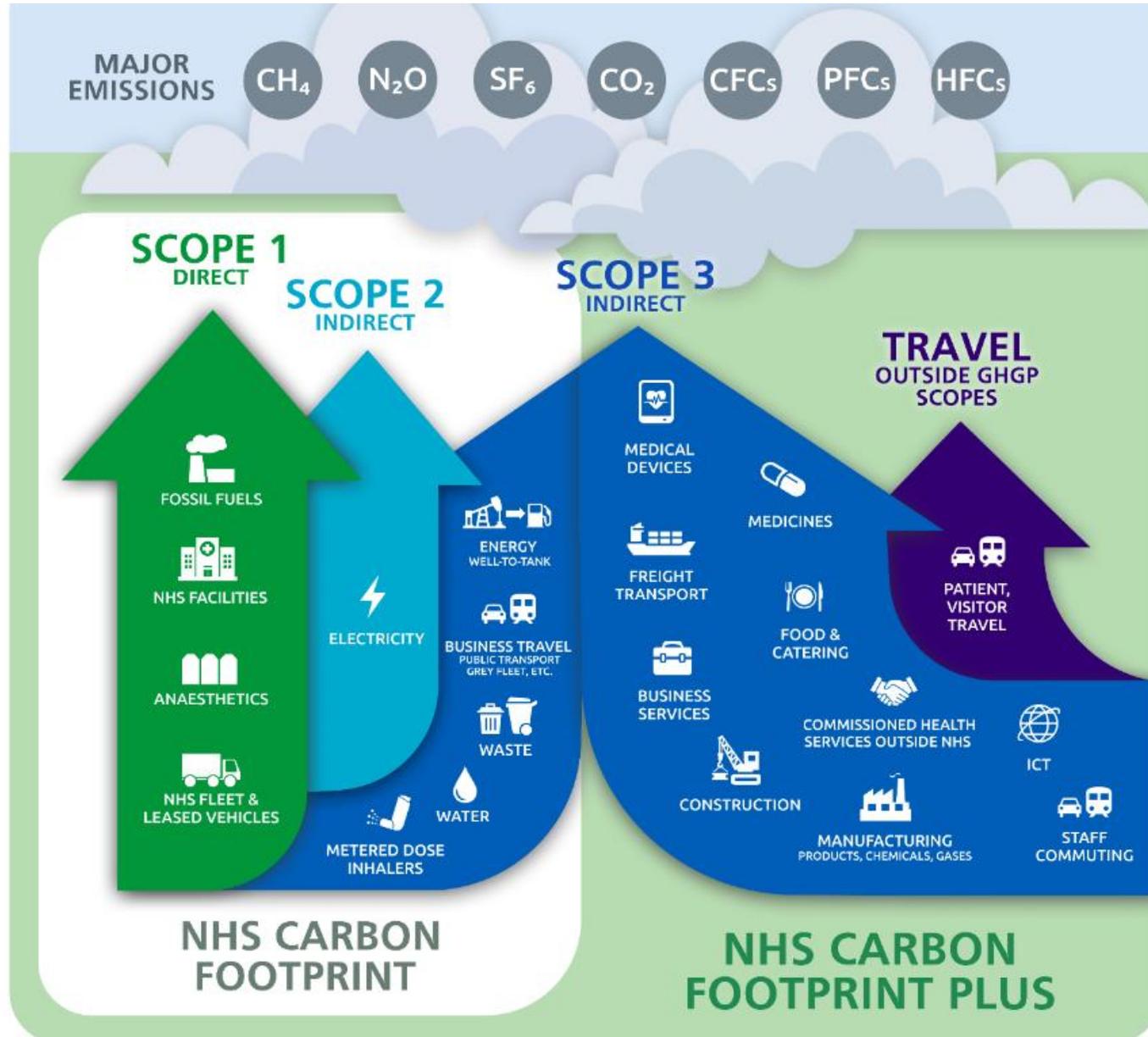
NHS

**Delivering a 'Net Zero'
National Health Service**



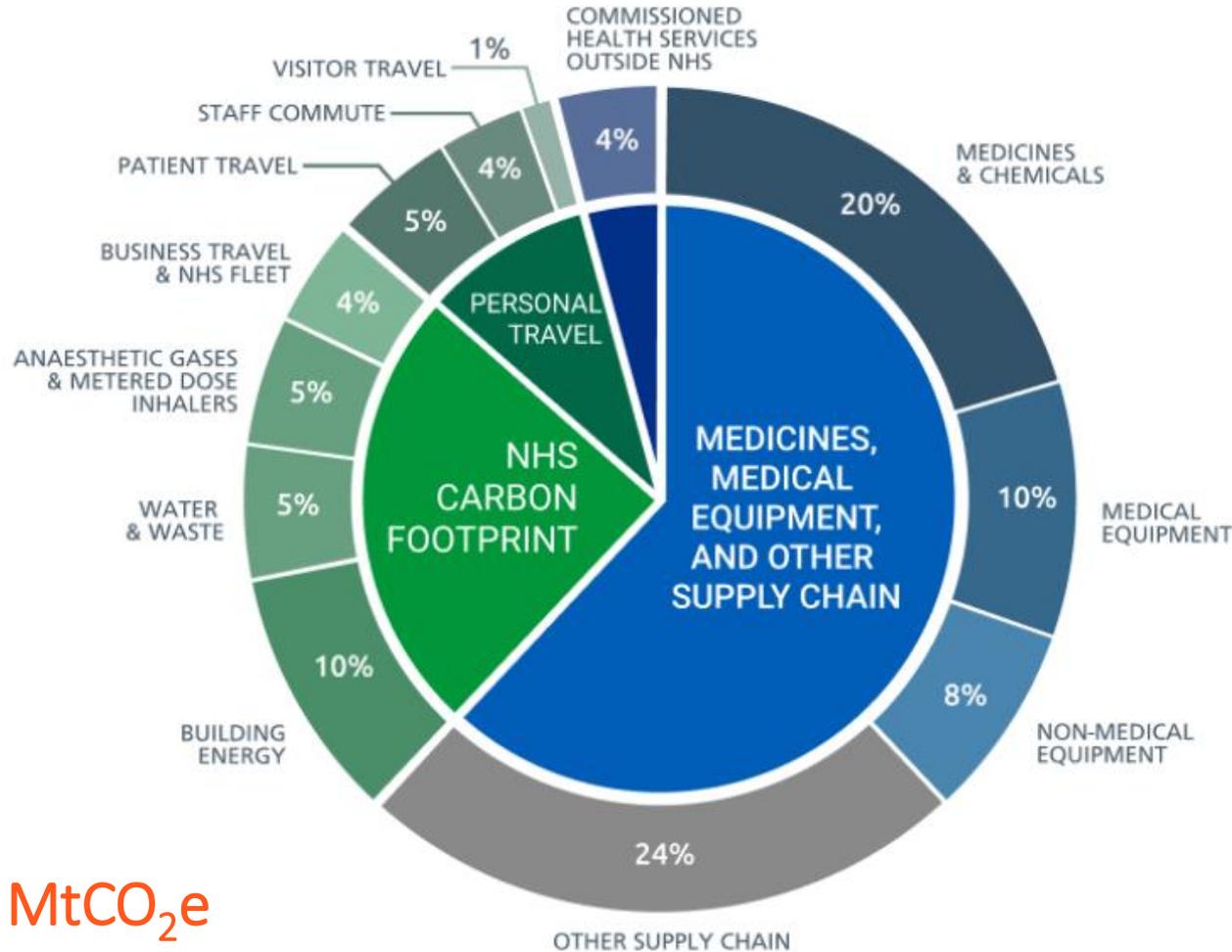
NHS England: Net zero case study

6.1 MtCO₂e
(Scope 1 & 2)



+ 18.9 MtCO₂e
(Scope 3)

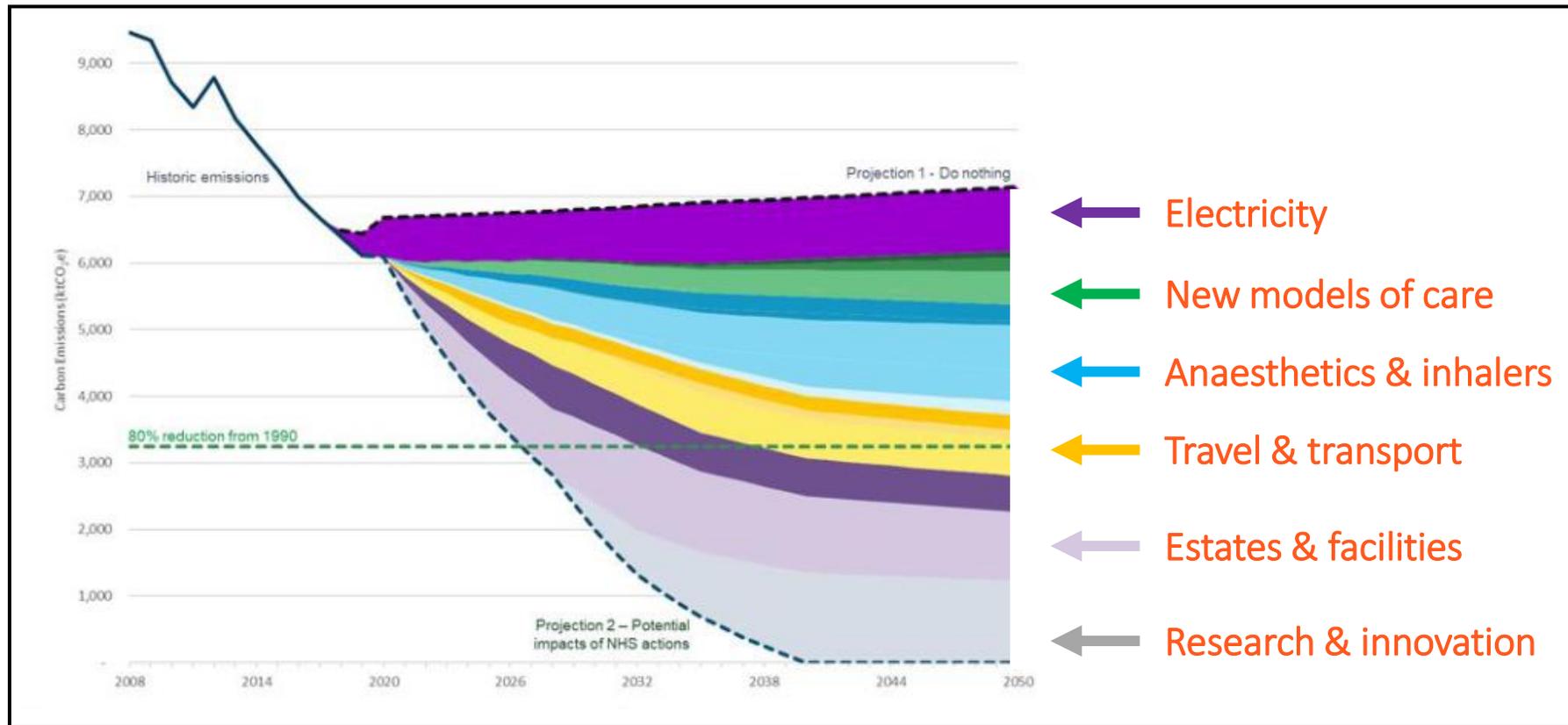
Emissions by Source



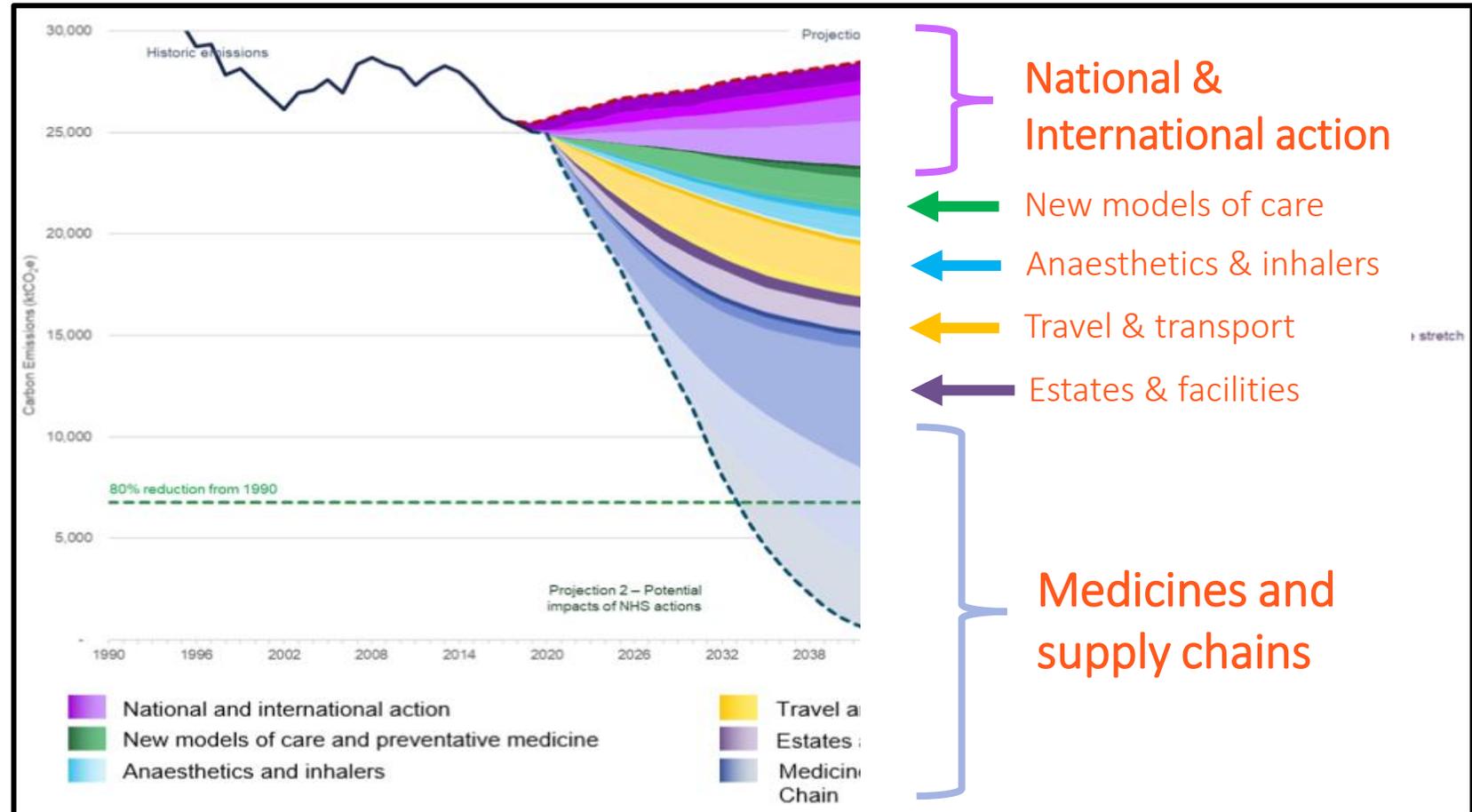
25.0 MtCO₂e
(Scope 1, 2 & 3)

- Travel 9%
- Anaesthetics/inhalers 5%
- Energy 10%
- Other supply chain 24%
- Equipment 18%
- Medicines 20%

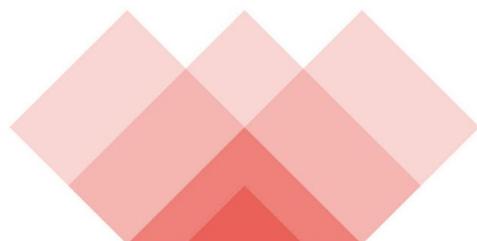
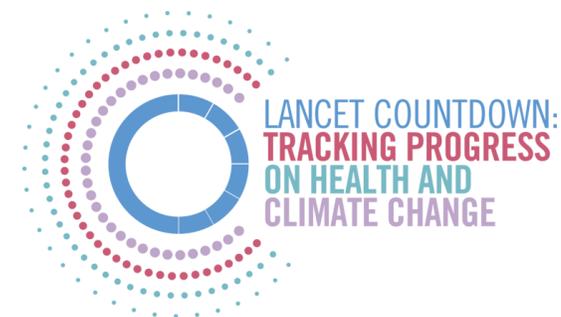
NHS Carbon Footprint Pathway (Scope 1 & 2)



NHS Carbon Footprint Plus Pathway (Scope 1-3)



Collaboration is key – Join us!



BERGEN SUMMER RESEARCH SCHOOL
GLOBAL CHALLENGES



Norwegian Research School of Global Health



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- 
- ‘Develop a national strategy for decarbonising Norwegian health care while maintaining and improving health outcomes.’

<https://www.gronhelsevesen.org/>

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- FOR ETHICS AND
- PRIORITY SETTING
- IN HEALTH



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Our current activities



A carbon-neutral health service: time for action!

DEBATT

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Anand Bhopal, medical doctor and PhD candidate at the Bergen Centre for Ethics and Priority Setting at the University of Bergen. His research focuses on climate and health in Ethiopia. The author has completed the ICMJE form and declares no conflicts of interest.

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Emily McLean, medical student at the University of Bergen and an MD-PhD at the Bergen Centre for Ethics and Priority Setting at the University of Bergen. For many years she has been involved in ClimateHealth, an organisation focusing on how climate change will affect health. The author has completed the ICMJE form and declares no conflicts of interest.

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Ola Løkken Nordrum, junior doctor at Galway University Hospital in Ireland. He is a board member of the Irish Doctors for the Environment and a deputy board member of the Norwegian group Doctors for Climate Action. The author has completed the ICMJE form and declares no conflicts of interest.

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Sara Soraya Eriksen, medical student at the University of Bergen and an MD-PhD at the Bergen Centre for Ethics and Priority Setting at the University of Bergen. She is the public health officer for the Norwegian Medical Student Association and a board member of the Norwegian group Doctors for Climate Action. The author has completed the ICMJE form and declares no conflicts of interest.



“Develop a national strategy for decarbonising Norwegian health care while maintaining and improving health outcomes.”

Grønt Helsevesen Jobb Med Oss



BEYOND OIL:

Prioritising climate action

Bergen and digital: October 20.–21. 2021

Call for papers!

Send your abstracts by April 30

– more information here:

www.tinyurl.com/beyondoil21



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Resources

- **Healthcare Without Harm. Healthcare Global Footprint report, 2020:** https://noharm-global.org/sites/default/files/documents-files/5961/HealthCaresClimateFootprint_092319.pdf
- **Lancet Countdown on Health and Climate Change,** <https://www.lancetcountdown.org/>
- **Lancet Pathfinder Commission,** <https://www.lshtm.ac.uk/research/centres-projects-groups/pathfinder-initiative#welcome>
- **World Health Organisation manifesto for a green recovery,** <https://www.who.int/news-room/feature-stories/detail/who-manifesto-for-a-healthy-recovery-from-covid-19>
- **NHS England Net Zero plan,** <https://www.england.nhs.uk/greenernhs/>
- **2021 Global Conference on Health and Climate Change, COP 26 Glasgow:** <https://www.who.int/news-room/events/detail/2021/11/06/default-calendar/2021-global-conference-on-health-and-climate-change>



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Why healthcare? Why Norway?

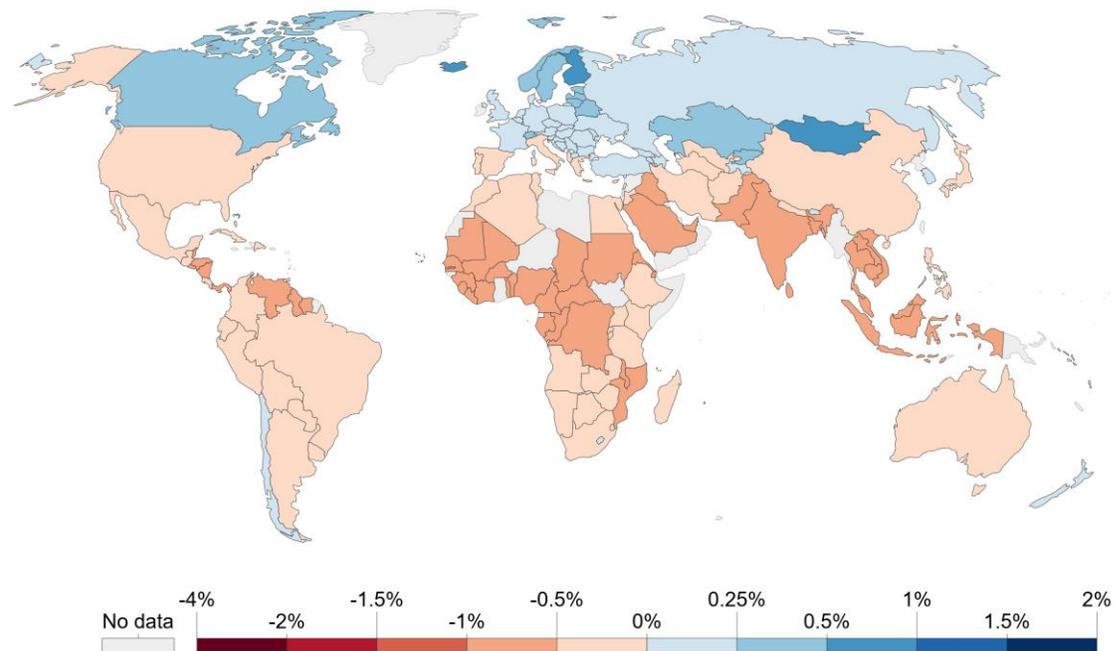


1.5°C or 2°C... does it matter?

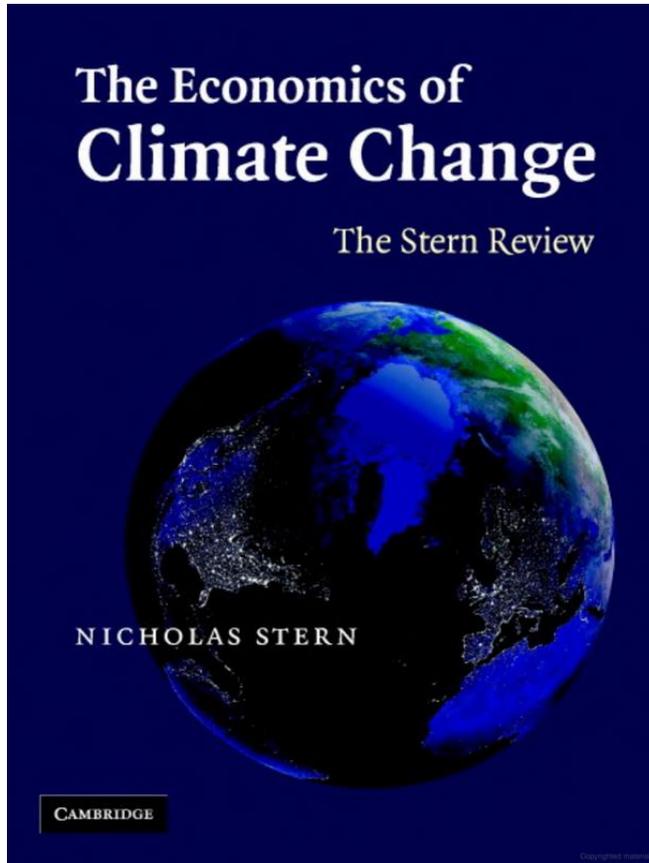
Economic Impacts of 2°C vs 1.5°C, 215

Difference in projected change in annual GDP per capita growth under 2°C versus 1.5°C global mean surface temperature increase relative to no additional warming. Projection from Pretis, Schwarz, Tang, Haustein, and Allen (in Phil Trans. 2018).

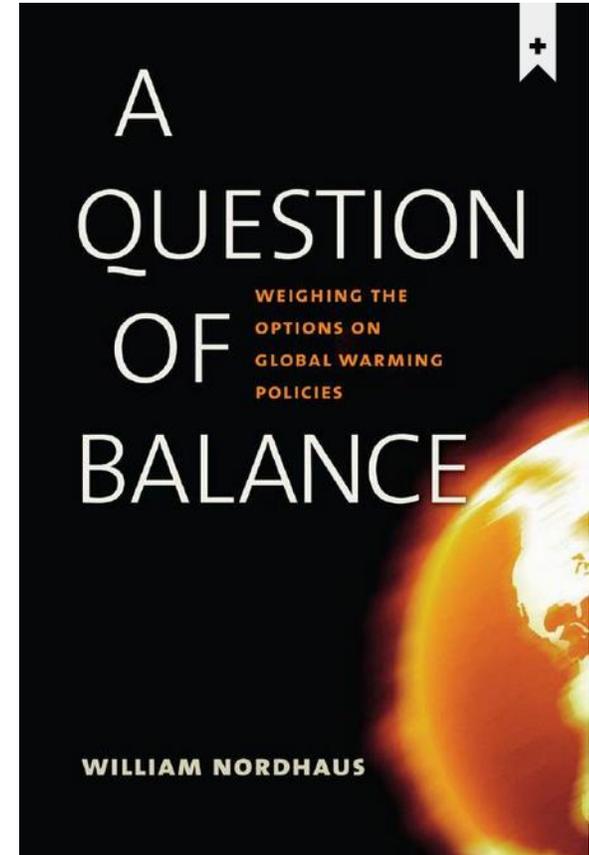
Our World
in Data



Economics of Climate change



vs.

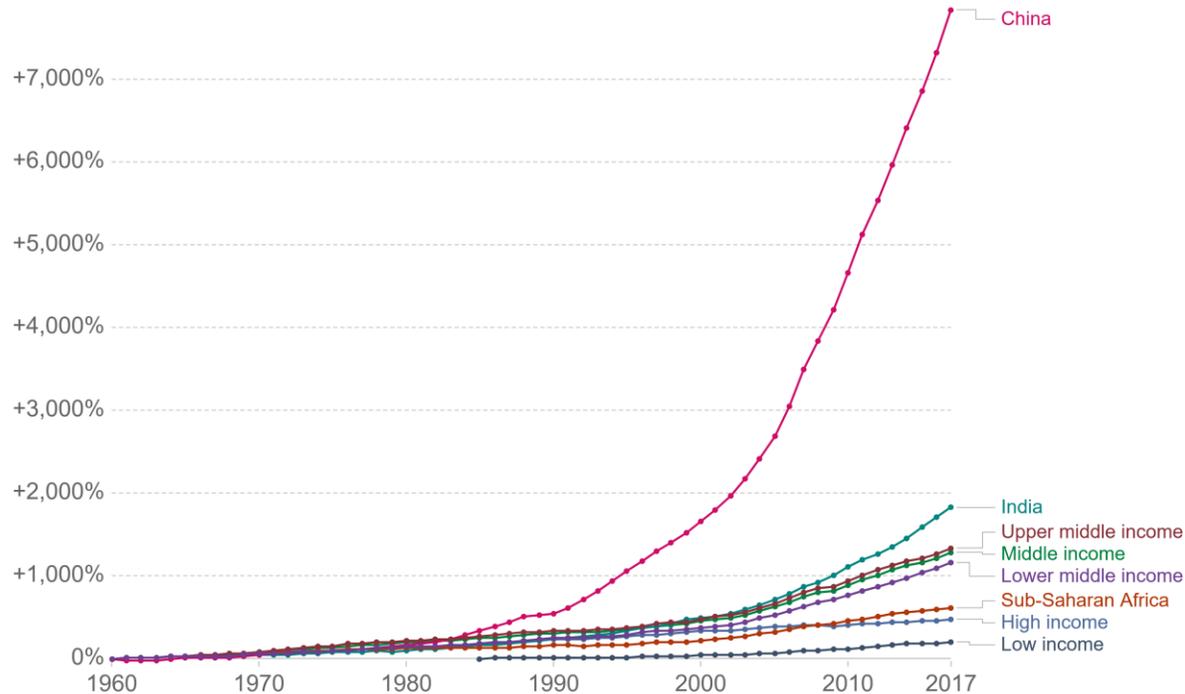


Who's calling the shots?

Change in gross Domestic Product, 1960 to 2017

Gross domestic product adjusted for price changes over time (inflation) and expressed in US-Dollars.

Our World
in Data

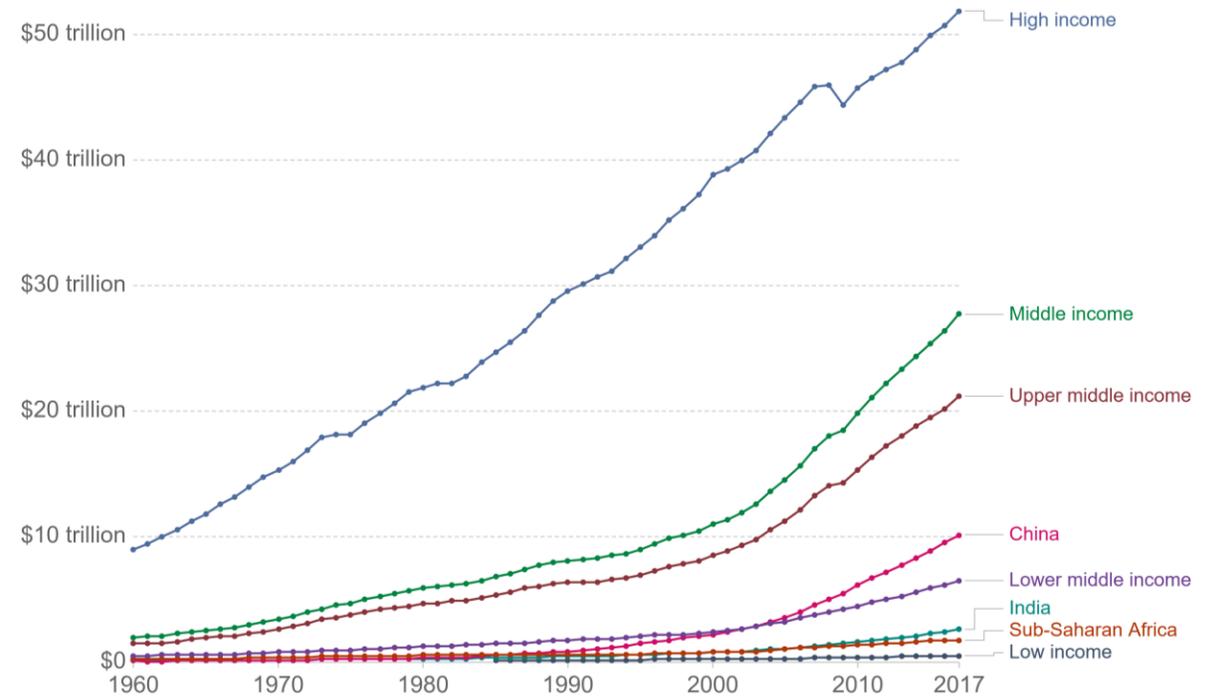


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Gross Domestic Product, 1960 to 2017

Gross domestic product adjusted for price changes over time (inflation) and expressed in US-Dollars.

Our World
in Data



Source: World Bank



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