



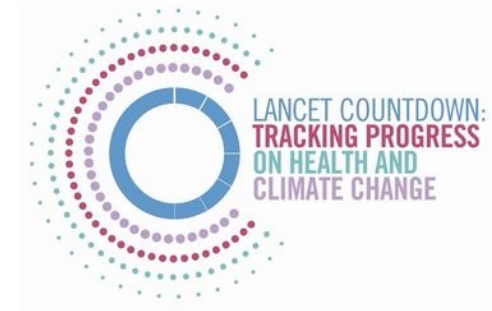
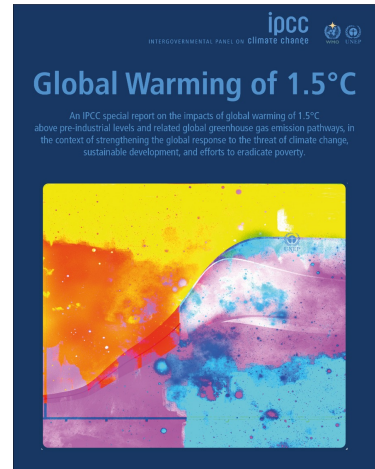
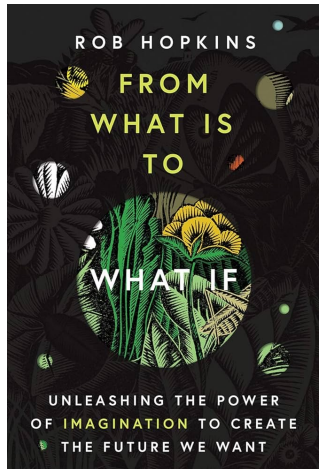
Climate Change and its Impact on Health

Challenges, opportunities & strategies

From out of the public health lens

Dr. Lucie Blondé

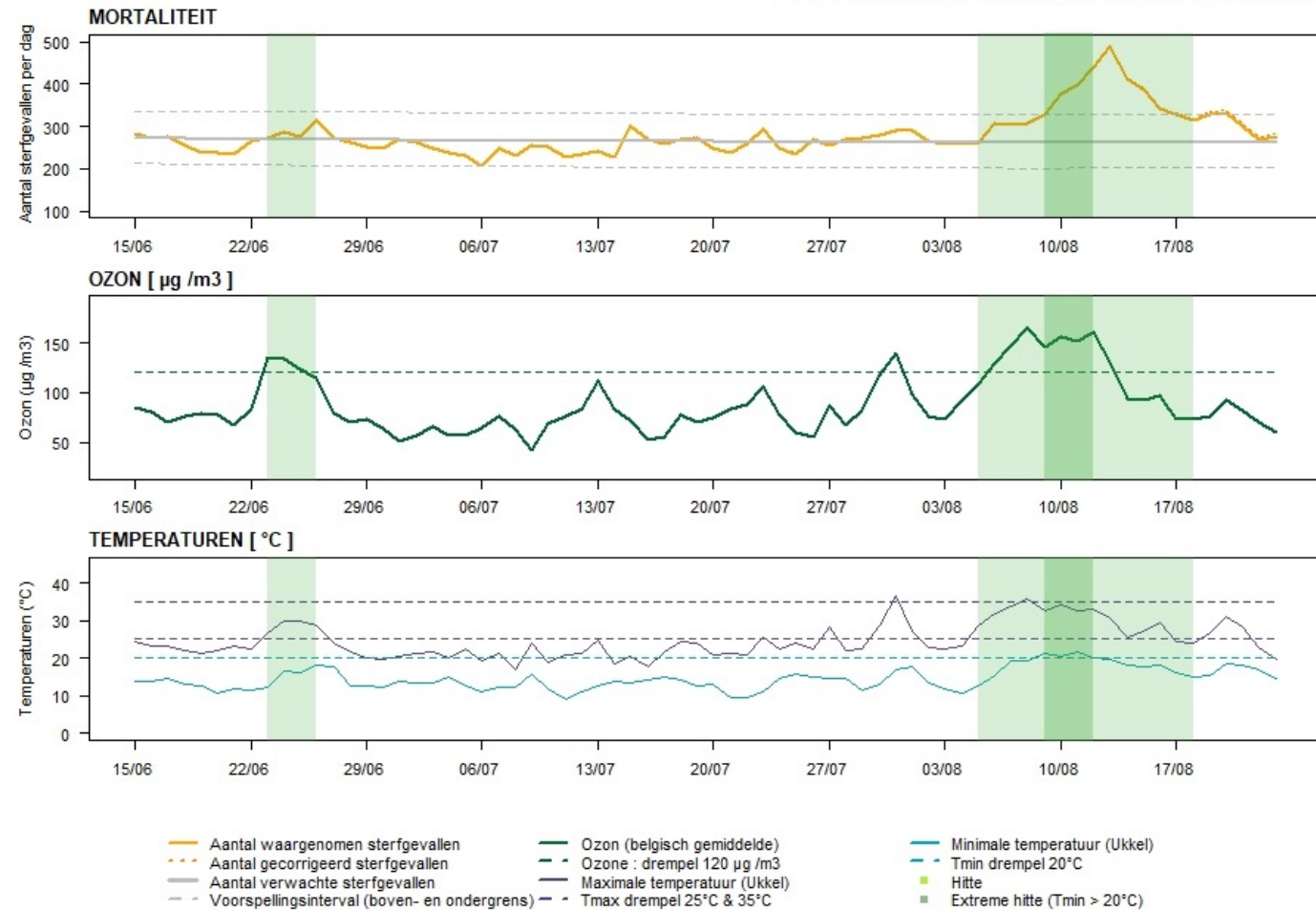
SOURCES



Sickness and health as a biological problem...?

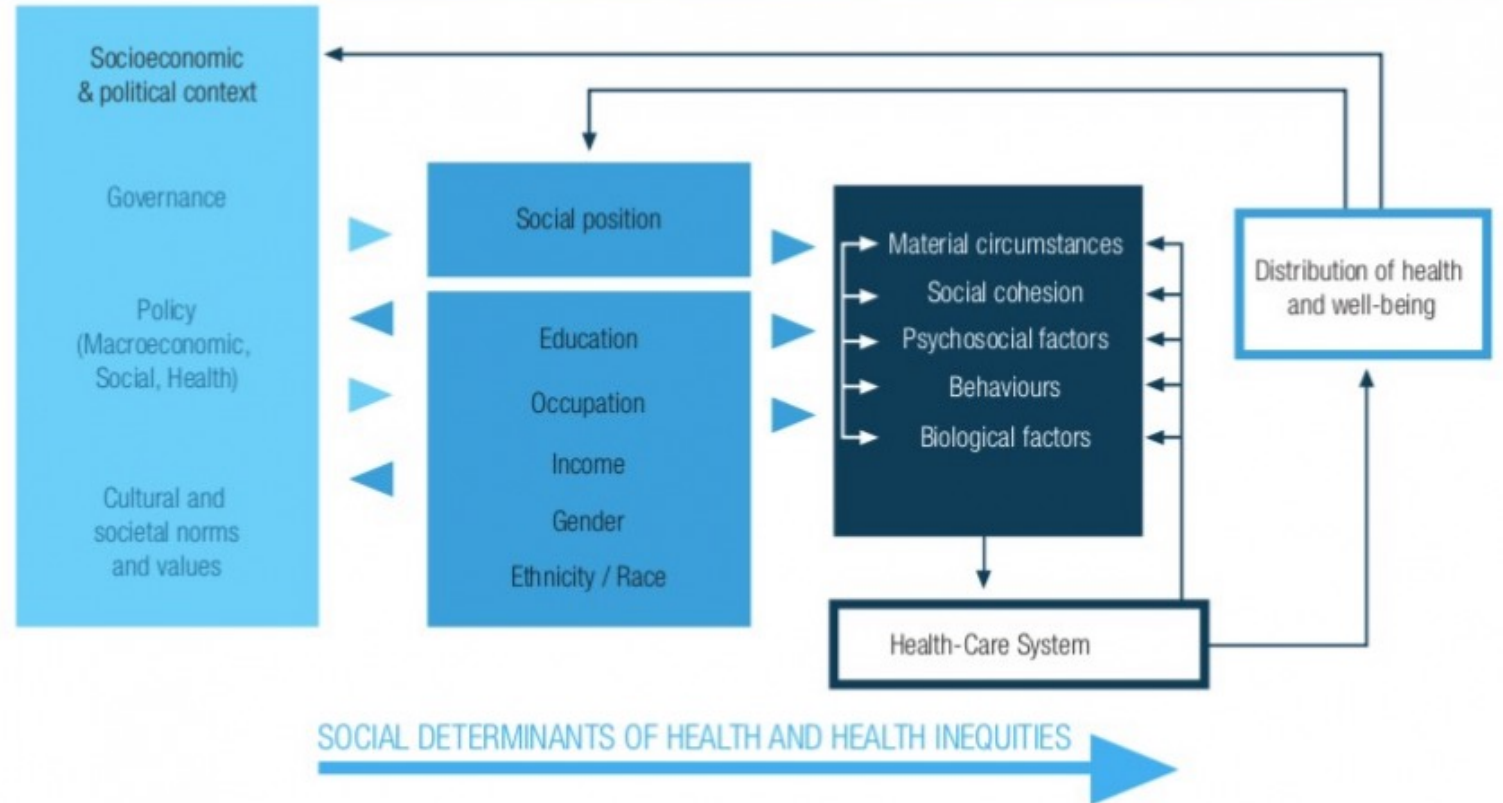


Be-MOMO (Belgium) - Zomer 2020, analyses van week 35, 2020



Determinants of Health...?

Figure 4.1 Commission on Social Determinants of Health conceptual framework.



Source: Amended from Solar & Irwin, 2007

AGENDA



Climate and health



Environment and Health



Planetary health



Stories



What if?



STRATEGIES

These are the 10 biggest threats to global health in 2019

Based on rankings from the World Health Organization

1. Air pollution and climate change
2. Noncommunicable diseases
3. Global influenza pandemic
4. Fragile and vulnerable settings
5. Antimicrobial resistance
6. Ebola and other high-threat pathogens
7. Weak primary healthcare
8. Vaccine hesitancy
9. Dengue fever
10. HIV

Source: World Health Organization

Impact of Climate Change on Human Health



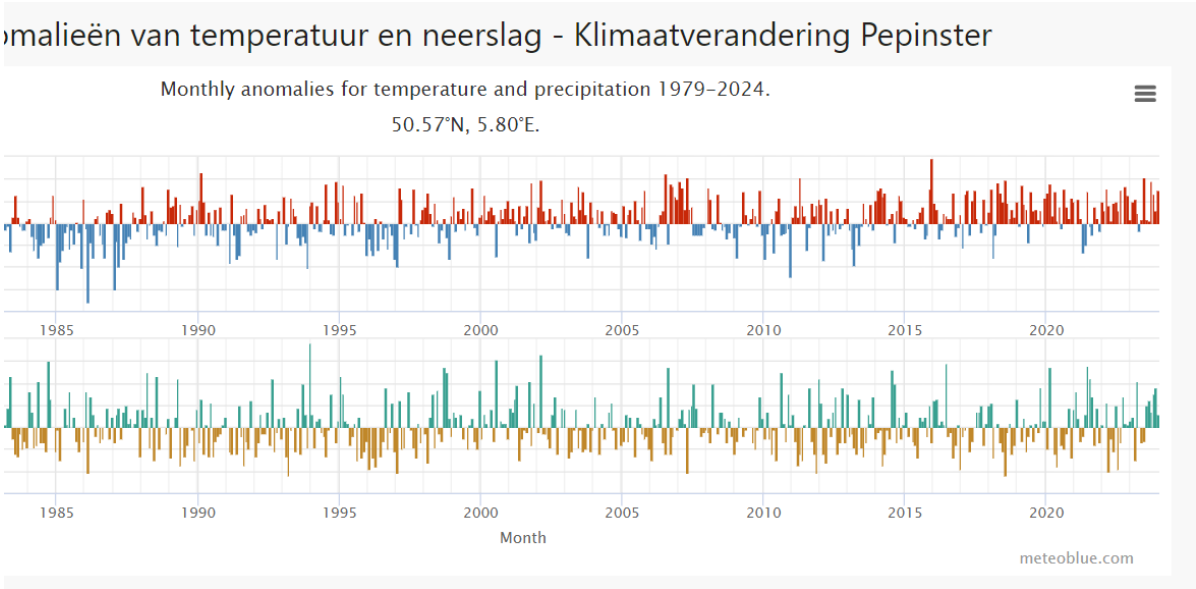
Cholera Vaccination Campaign Begins in Mozambique

Following Cyclone Idai devastation, nearly 900,000 people will receive the vaccine from the Gavi-funded stockpile.

GENEVA/BEIRA, 3 April 2019 – An oral cholera vaccination campaign to protect survivors of Cyclone Idai begins today in Beira, Mozambique. Funded by Gavi, the Vaccine Alliance, the campaign will be carried out by the Mozambique Ministry of Health, with support from the World Health Organization (WHO) and other partners, including UNICEF, the International Federation of the Red Cross and Red Crescent Societies (IFRC), Médecins Sans Frontières (MSF) and Save the Children.

There has already been one reported cholera death and almost 1,500 reported cases following the cyclone, which caused severe flooding in Mozambique, Zimbabwe, Malawi and Madagascar after making landfall in March. Nine cholera treatment centres, with 500-bed capacity, are already admitting patients.

“Cyclone Idai’s trail of devastation has left the city of Beira’s water and sanitation infrastructure in ruins, providing the perfect conditions for cholera to spread,” said Gavi CEO, Dr Seth Berkley. “This cyclone has already caused enough devastation and misery across south east Africa; we have to hope these vaccines will help stop a potentially major outbreak and prevent yet more suffering.”





Source: WHO

Droogte bedreigt drinkwater uit Maas

Vooraf Nederlandse drinkwaterbedrijven zijn bezorgd om de waterkwaliteit van de Maas, nu het waterpeil zo laag is.

Jef Poppelmonde

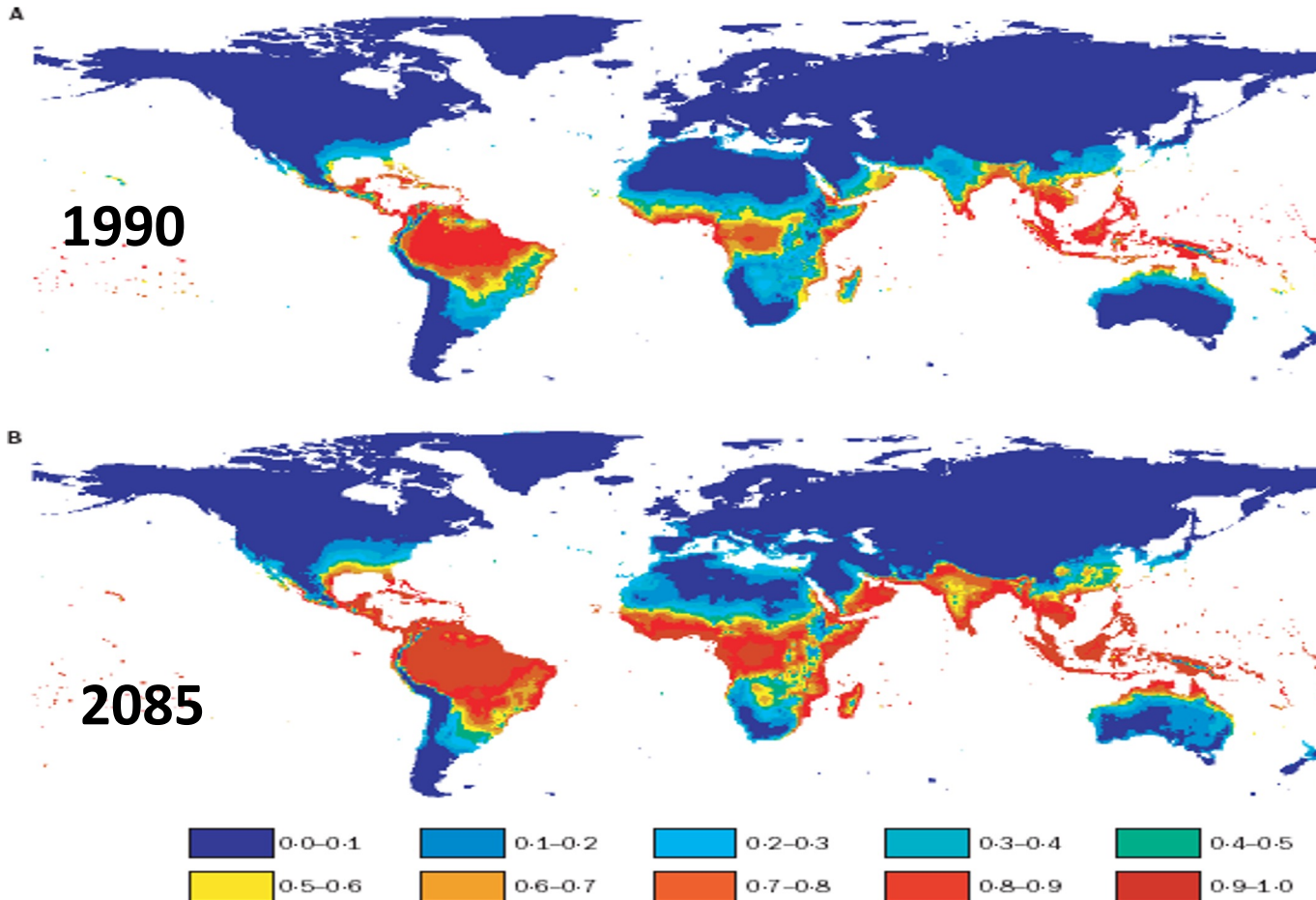
Dinsdag 6 september 2022 om 3.25 uur



Naarmate het debiet afneemt, neemt de impact van vervuilende stoffen toe

Zeven miljoen inwoners van België en Nederland zijn voor hun drinkwater afhankelijk van de Maas. De rivier voedt het Albertkanaal, de levensader van de Vlaamse economie en de bron van 40 procent van het drinkwater in Vlaanderen. Maar door de aanhoudende droogte is het debiet van de Maas naar een crisisniveau gezakt (DS 26 augustus). Dat weegt op de waterkwaliteit.

Change in vector habitat: DENGUE



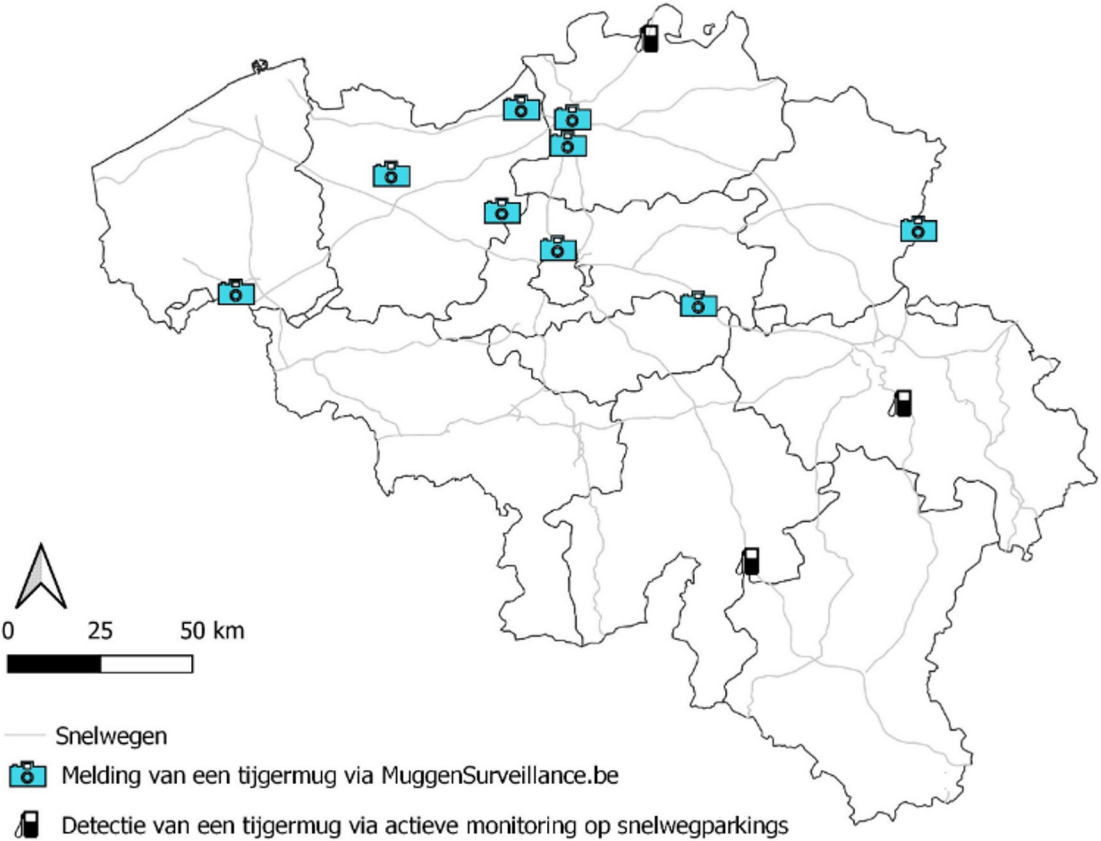
- Especially in urban areas due to poor water storage
- Heavy rains and rising temperatures increase the infection rate

- Transmission already increased by 9.4% and 11.11% for *A. Aegypti* and *A. Albopictus* since 1950
- The annual number of cases has doubled every decade since 1990

By 2085, 5 to 6 billion people would be at risk of dengue

Hales, de Wet, Maindonald, Woodward,
The Lancet, 2002, 360:830

Onderstaande kaart toont de verschillende locaties waar we de tijgermug aantreffen tijdens het 2022 muggenseizoen.



European Centre for Disease Prevention and Control

An agency of the European Union

All sections ▾ Enter y



Infectious disease topics ▾

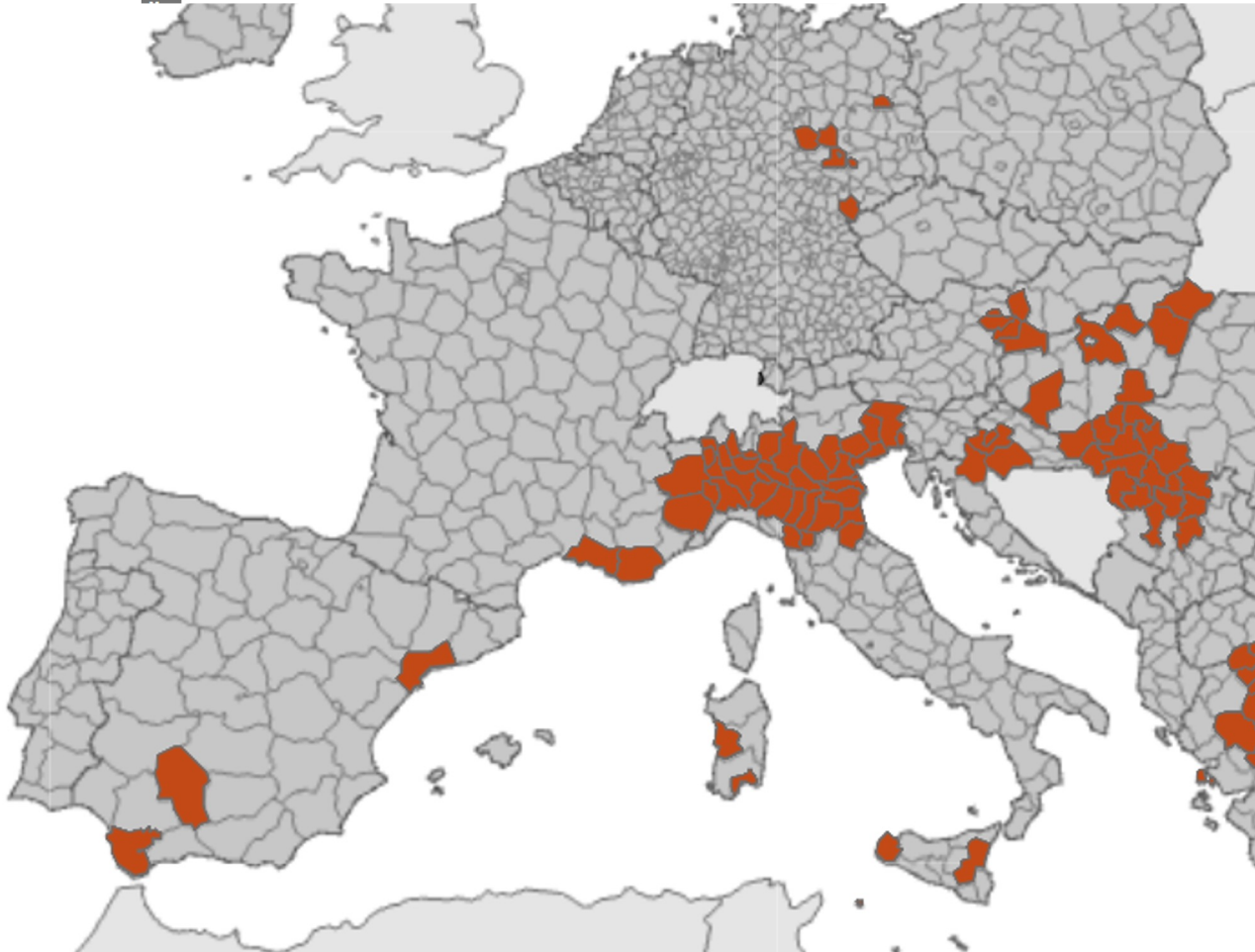
Data ▾

Analysis and guidance ▾

Training and tools ▾

Home > Infectious disease topics > A–Z disease list > West Nile virus infection > Surveillance and disease data
> Weekly updates: 2022 West Nile virus transmission season

Weekly updates: 2022 West Nile virus transmission season





Migration as a
determinant of health



MIGRATION POLICY THAT KILLS



Source: MSF



ENVIRONMENT AND HEALTH



Climate and health



Environment and Health



Planetary health



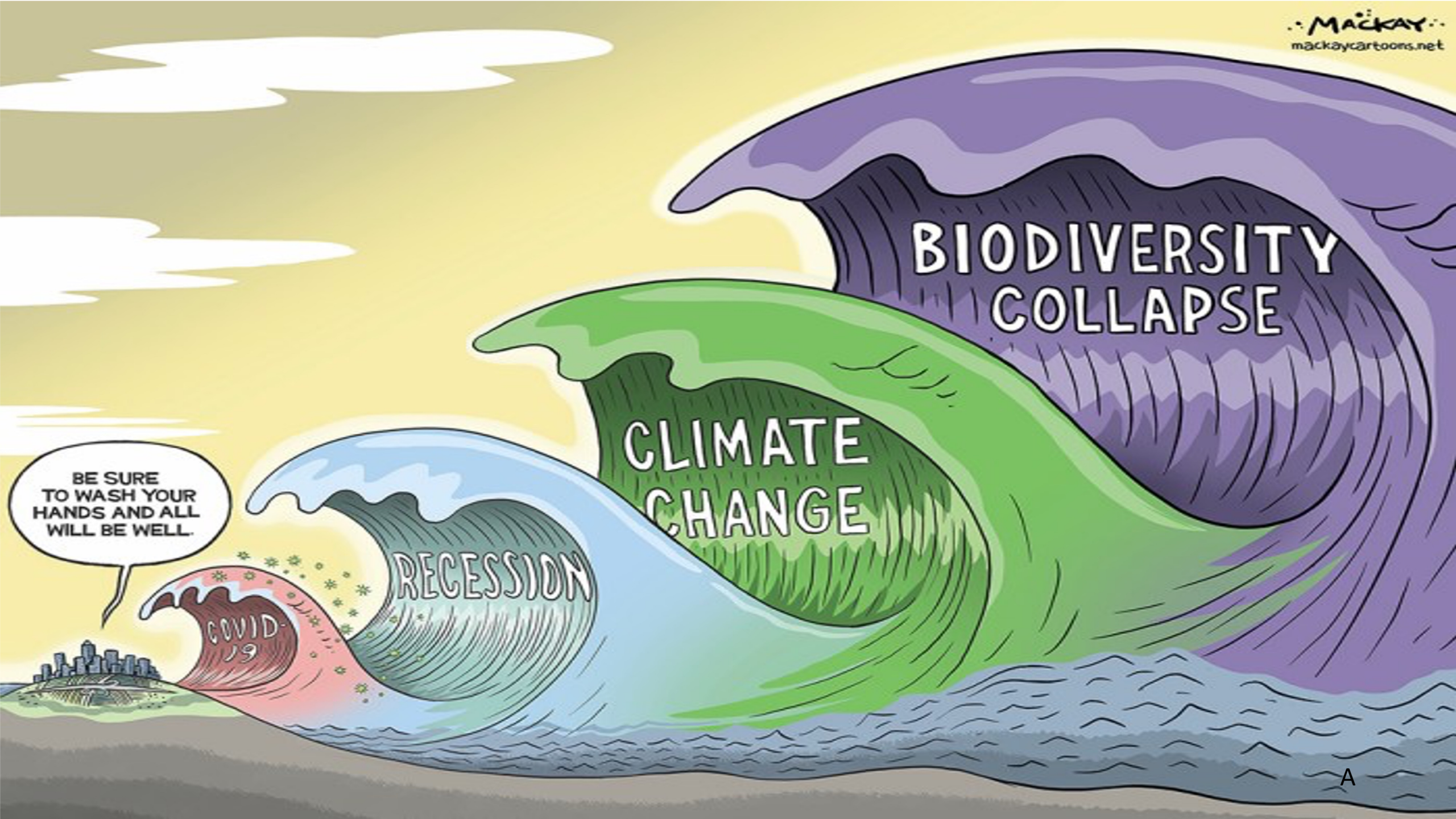
Stories



What if?



Strategies



BE SURE
TO WASH YOUR
HANDS AND ALL
WILL BE WELL.

COVID-
19

RECESSION

CLIMATE
CHANGE

BIODIVERSITY
COLLAPSE



PHYSICAL CHEMICAL ENVIRONMENTAL
HYGIENE (LIMITING EXPOSURE TO MUTAGENIC
OR ENDOCRINE DISRUPTING AGENTS) AND THE
IMPORTANCE OF EXPOSURES EARLY IN LIFE

MAY 2019
SHC № 9404



ENVIRONMENTAL POLLUTION as a determinant of health

1. Adverse effects observed in relation to exposure to pollutants and man-made products, in particular carcinogenic agents, mutagenic agents and endocrine disruptors	
1.1. Cardiovascular disease (CVD)	
1.2. Diabetes	
1.3. Obesity	
1.4. Female reproductive dysfunction	
1.5. Male reproductive dysfunction.....	
1.6. Disorders of neurodevelopment and cognition	
1.7. Immune system related diseases.....	
1.7.1. Endocrine disruption, risk of asthma, allergies and some autoimmune diseases	
1.7.2. Reactive substances directly interfering with immunological reactions	
1.8. Cancer	
1.8.1. A small increase in mutation rate leads to important increase in cancer risk.....	
1.8.2. Carcinogenesis also rests on changes in gene expression.....	
1.8.3. Endocrine disrupting agents and cancer.....	
1.8.4. Risk of cancer increases strongly with duration of exposure.....	

AIR POLLUTION – THE SILENT KILLER

Every year, around
7 MILLION DEATHS
are due to exposure
from both outdoor
and household air
pollution.

Air pollution is a major environmental risk to health. By reducing air pollution levels, countries can reduce:



Stroke



Heart
disease



Lung cancer, and
both chronic and acute
respiratory diseases,
including asthma

REGIONAL ESTIMATES ACCORDING TO WHO REGIONAL GROUPINGS:



CLEAN AIR FOR HEALTH

#AirPollution





The improper disposal of drugs can allow the active ingredients to leach into the environment. Image © AjayTvm

NEWS

Drug pollution is threatening the water quality of the world's rivers

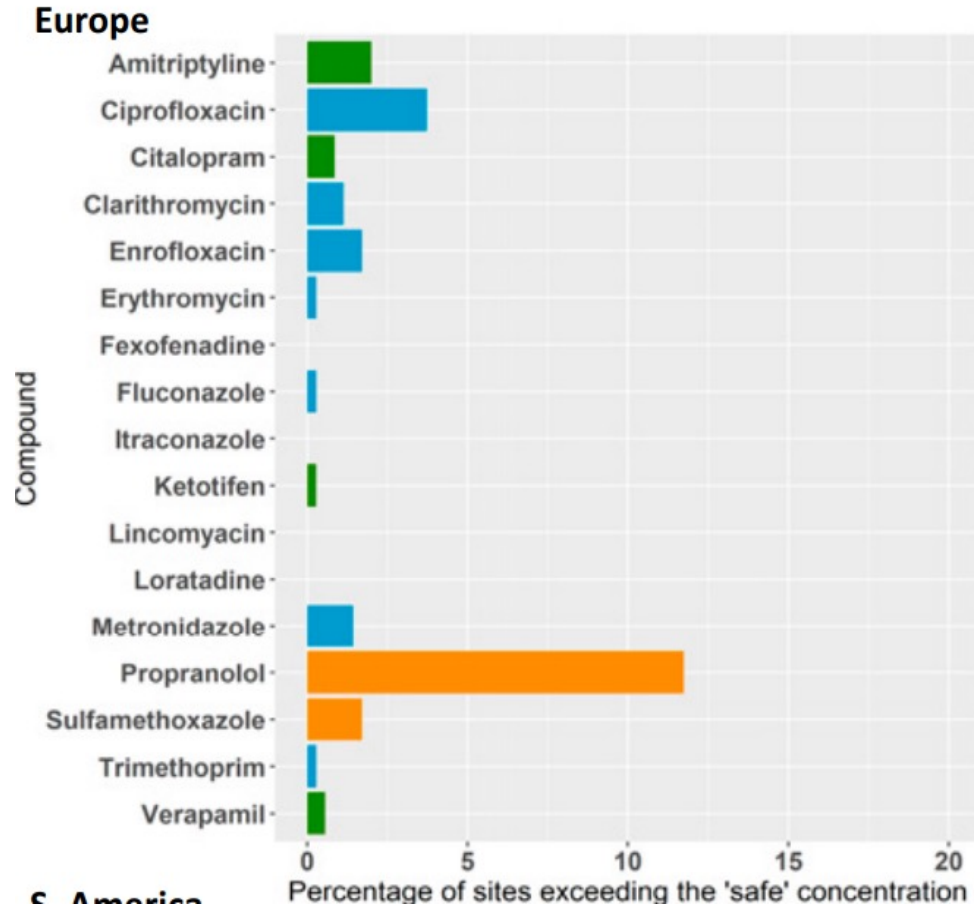
By James Ashworth

First published 6 July 2022



Over 40% of the world's rivers could contain harmful levels of drugs.

- Wilkinson, John L., et al. "Pharmaceutical pollution of the world's rivers." *Proceedings of the National Academy of Sciences* 119.8 (2022): e2113947119.



Exposure to pollution causes 10% of all cancer cases in Europe

Exposure to air pollution, second-hand smoke, radon, ultraviolet radiation, asbestos, certain chemicals and other pollutants causes over 10% of all cancer cases in Europe, according to a European Environment Agency (EEA) report published today. The good news is that these risks are preventable.

THE **INVISIBLE KILLER**

Air pollution may not always be visible, but it can be deadly.



29%

OF DEATHS FROM
LUNG CANCER



24%

OF DEATHS FROM
STROKE



25%

OF DEATHS FROM
HEART DISEASE



43%

OF DEATHS FROM
LUNG DISEASE

BREATHE LIFE.
Clean Air. Healthy Future.



World Health
Organization



CLIMATE &
CLEAN AIR
COALITION
TO REDUCE SHORT-LIVED
CLIMATE POLLUTANTS

ARTICLES | [VOLUME 2, ISSUE 9, E420-E437, SEPTEMBER 2017](#)

 [Download Full Issue](#)

Effect of tobacco control policies on perinatal and child health: a systematic review and meta-analysis

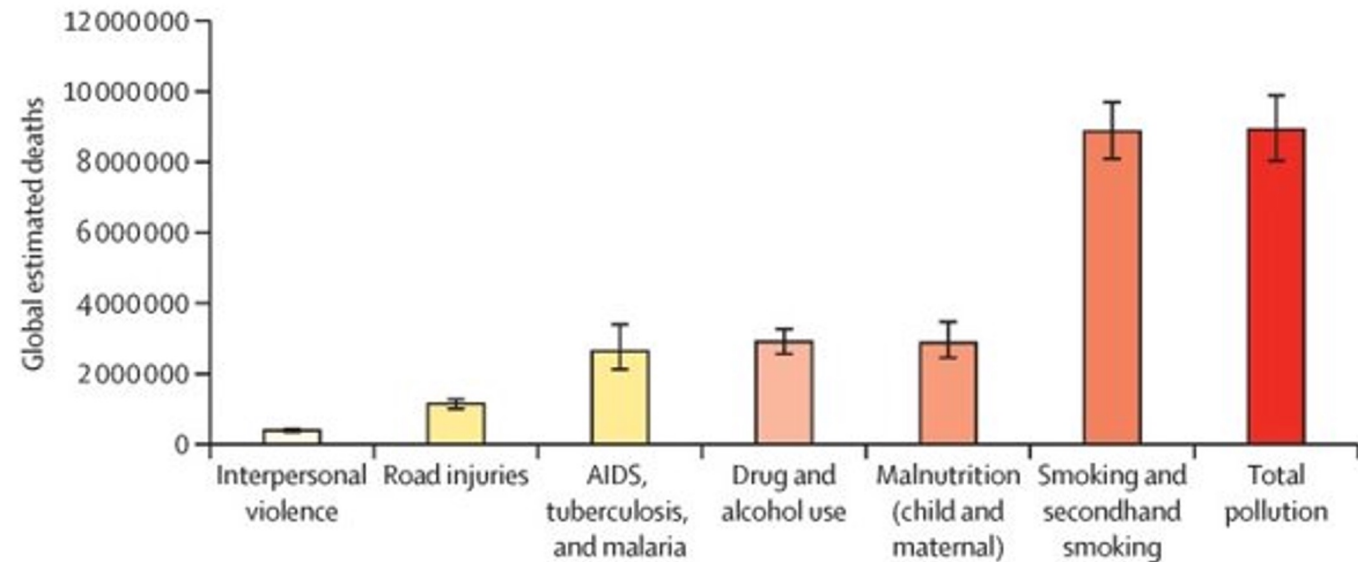
[Timor Faber, MPH](#) • [Arun Kumar, MSc](#) • [Prof Johan P Mackenbach, PhD](#) • [Prof Christopher Millett, PhD](#) •

[Sanjay Basu, PhD](#) • [Prof Aziz Sheikh, MD](#) • et al. [Show all authors](#)

ENVIRONMENTAL POLLUTION

'Pollution continues to be responsible for around 9 million deaths per year, equivalent to one in six deaths worldwide.'

(Total pollution = combination of household air pollution, water pollution, air pollution and toxic chemical pollution)



Fuller, R., Landrigan, P. J., Balakrishnan, K., Bathan, G., Bose-O'Reilly, S., Brauer, M., ... Yam, C. (2022). Pollution and health: A progress update. *The Lancet Planetary Health*, 6(6), e535-e547. doi:[10.1016/S2542-5196\(22\)00090-0](https://doi.org/10.1016/S2542-5196(22)00090-0)

PLANETARY HEALTH



Climate and health



Environment and Health



Planetary health



Stories

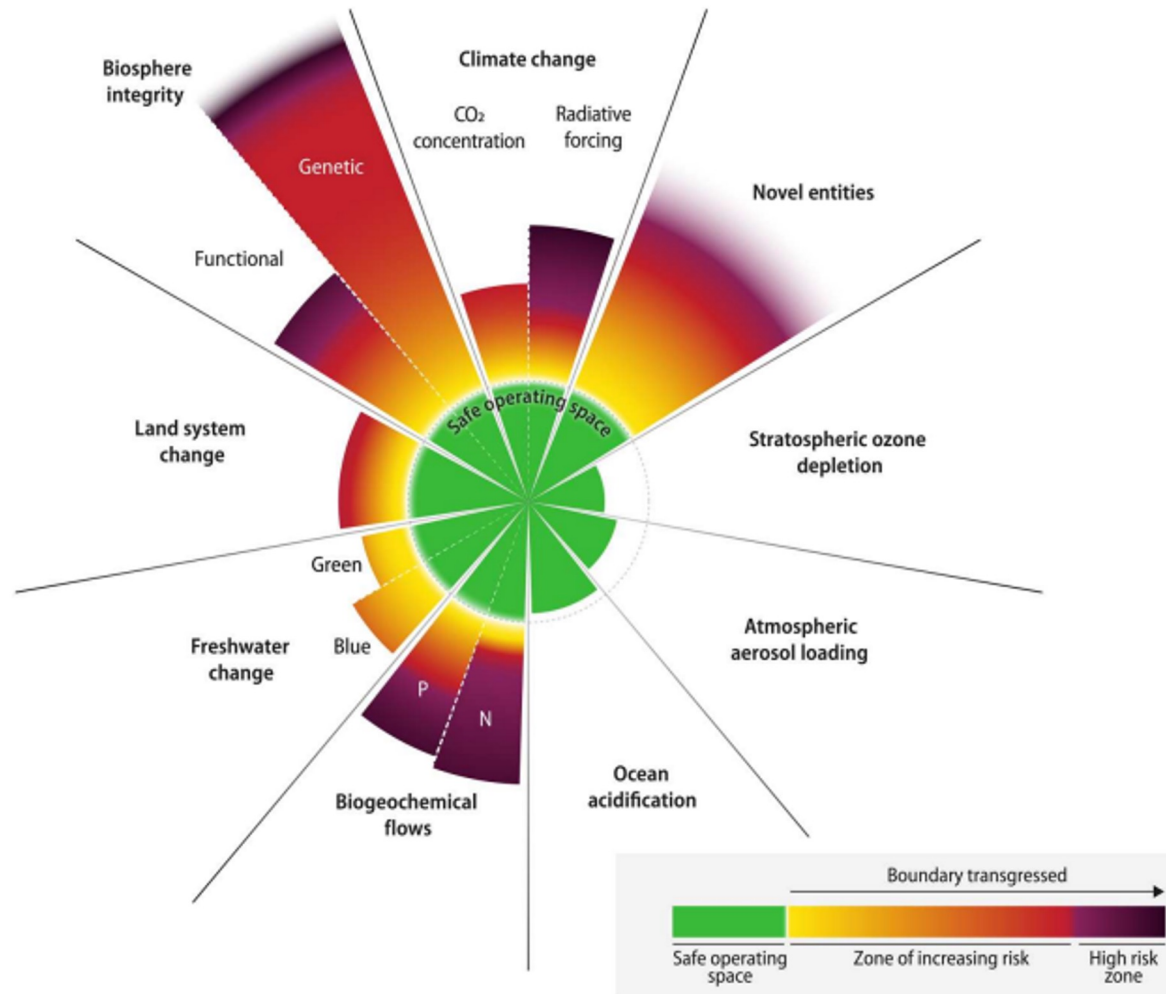


What if?



Strategies

PLANETARY BOUNDARIES



9 crucial ecosystems were defined for our planet (2015 the Lancet)

Safe operating space was calculated: a planetary boundary (PB)

Human activity endangers this balance by crossing the PBs
→ endangering humans depending on the ecosystem.

Healthy Planet
Healthy People

PLANETARY HEALTH

THE HEALTH OF HUMAN
CIVILISATION AND THE NATURAL
SYSTEMS ON WHICH
IT DEPENDS

DAMAGING THE PLANET DAMAGES HUMAN HEALTH



**CLIMATE
CHANGE**

If unchecked climate change related
impacts could cause an extra

250,000

deaths per year
between 2030 and 2050³

**BIODIVERSITY
LOSS**



Overfishing together with increasing
acidity and other environmental
changes threaten fish supplies



**UNDER
NUTRITION**

Millions of people are at risk of
under nutrition due to the
combined effects of
climate change and other
environmental changes



**WATER
USE**

By 2050 over

40%

of the world's population will
live in water-stressed areas



**SOIL
DEGRADATION**

This leads to a loss of

1-2

million hectares
of agricultural land
per annum

THE LANCET  

The Rockefeller Foundation-Lancet Commission on
planetary health



STORIES



Climate and health



Environment and Health



Planetary health



Stories



What if?



Strategies



EXPOSED

Energy Poverty in Europe

www.coldathome.today/exposed

1 NO
POVERTY



13 CLIMATE
ACTION



7 AFFORDABLE AND
CLEAN ENERGY

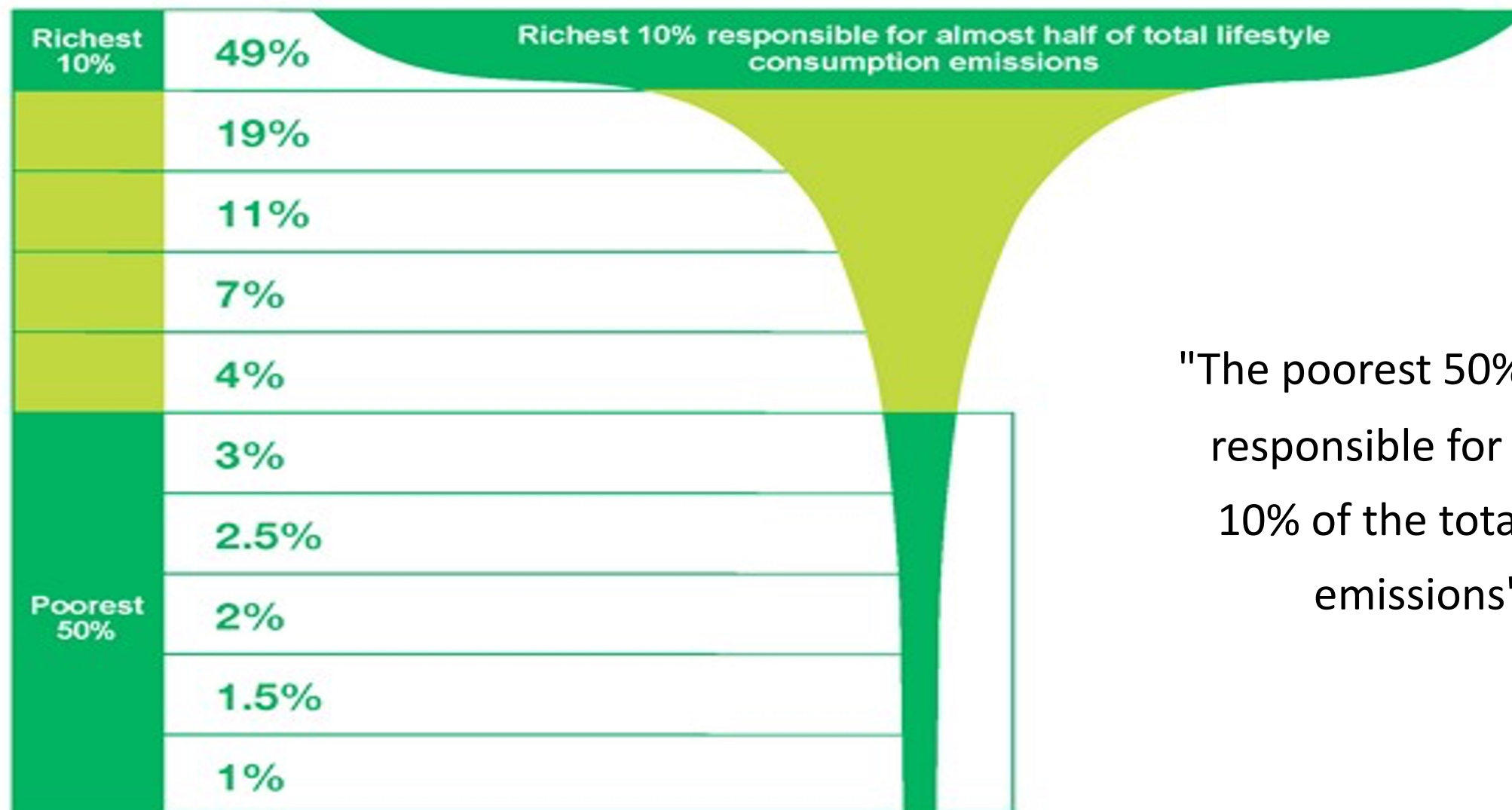


3 GOOD HEALTH
AND WELL-BEING



Percentage of CO₂ emissions by world population

World population arranged by income (deciles)



"The poorest 50% is only responsible for about 10% of the total CO₂ emissions"

WHAT IF



Climate and health



Environment and Health



Planetary health



Stories



What if?



Strategies



"A ruined planet cannot sustain human lives in good health. A healthy planet and healthy people are two sides of the same coin."

~ Dr. Margaret Chan

STRATEGIES



Climate and health



Environment and Health



Planetary health



Stories



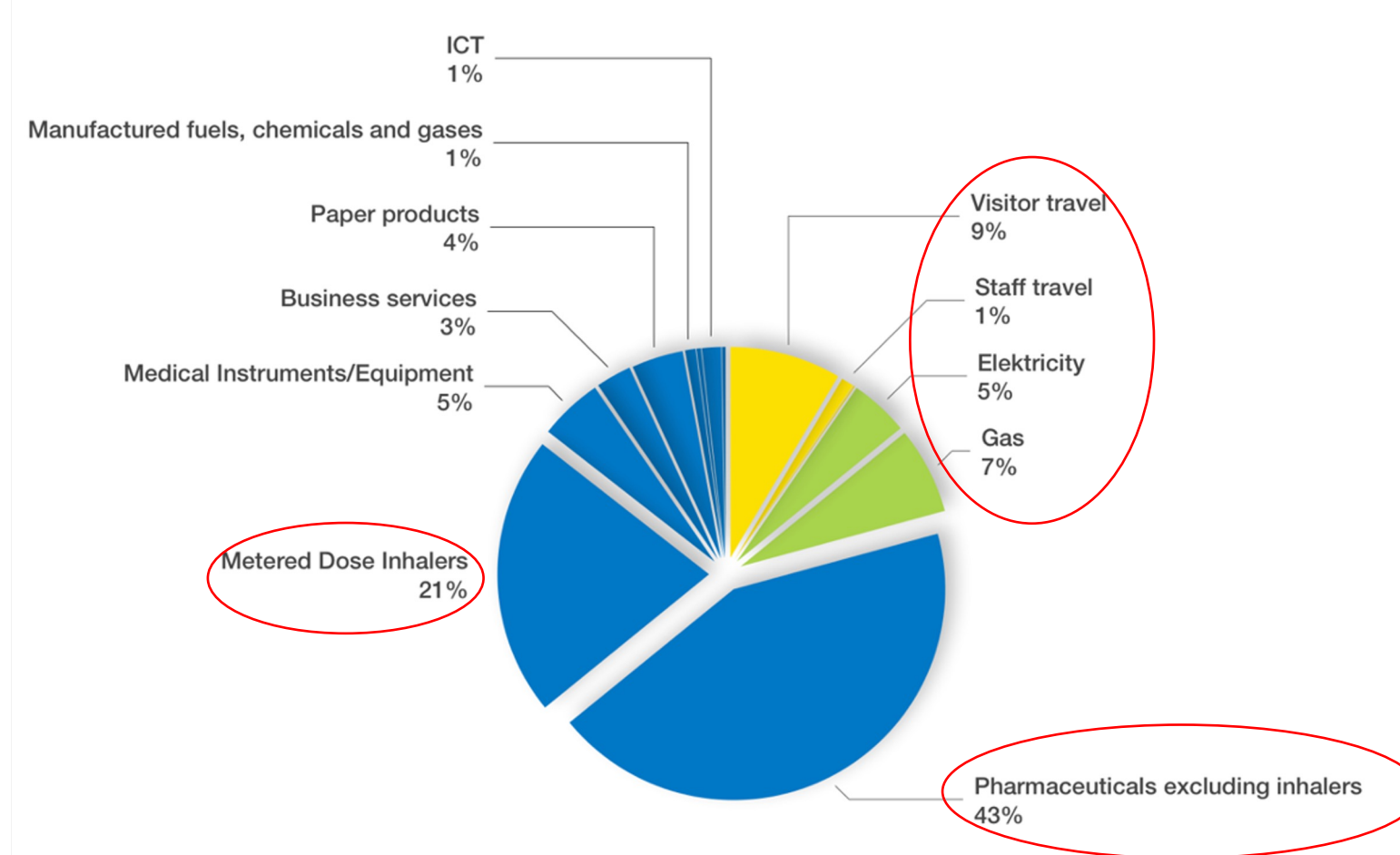
What if?



Strategies

CARBON FOOTPRINT OF PRIMARY CARE

- Carbon footprint of primary health care:
 - NHS (UK): care by GPs is responsible for **14% of NHS carbon footprint***
 - NHS (UK): relative contributions to GP carbon footprint:



Carbon Hotspots update for the health and care sector in England 2015. Cambridge: NHS Sustainable Development Unit; 2016

**excluding imaging, pathology testing, referrals,...*

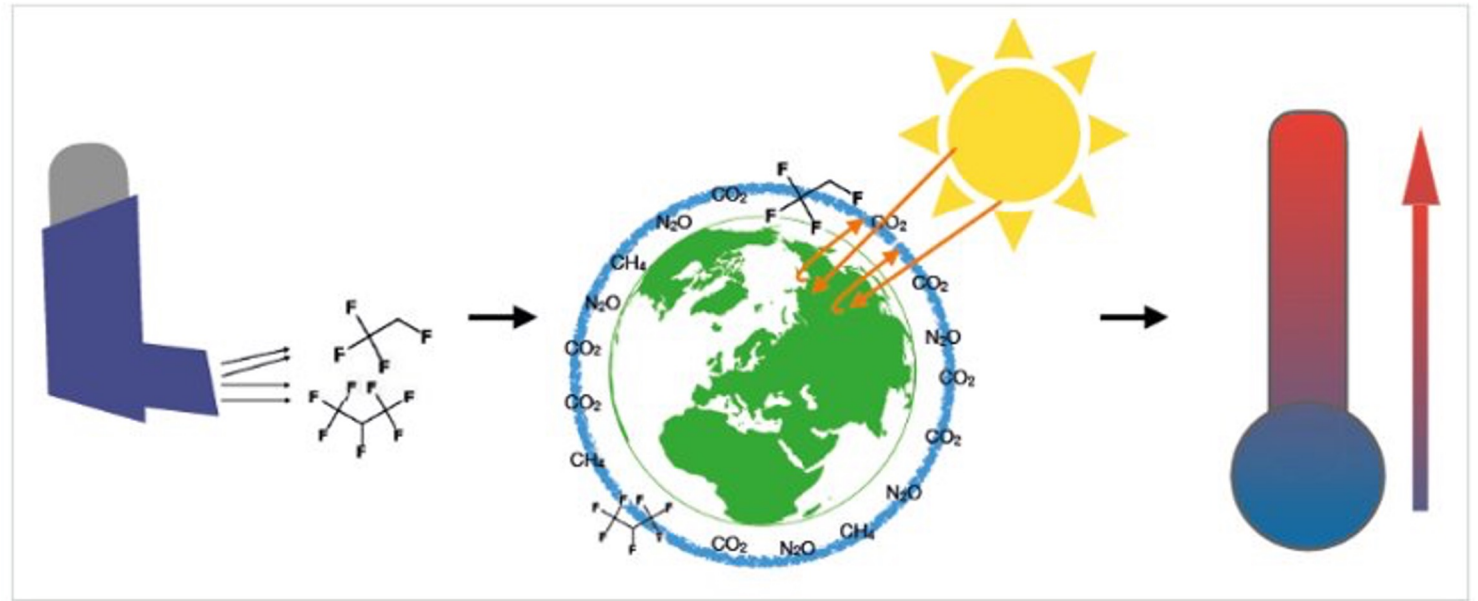
CARBON FOOTPRINT OF HEALTH CARE - INHALERS

MDI's contain **hydrofluorocarbons**, mostly norflurane (HFC-134a) and apafurane (HFC-227ea), with a **global warming potential 1430 to 3220 times stronger than that of CO₂**.

Norflurane containing MDI's (Ventolin®, Duvent®, Trimbaw®, Seretide®;) have a footprint of 10 - 20 kg CO₂ per inhaler.

Apafurane containing MDI's (Symbicort® and Flutiform®) have a footprint of over 35 kg CO₂ per inhaler.

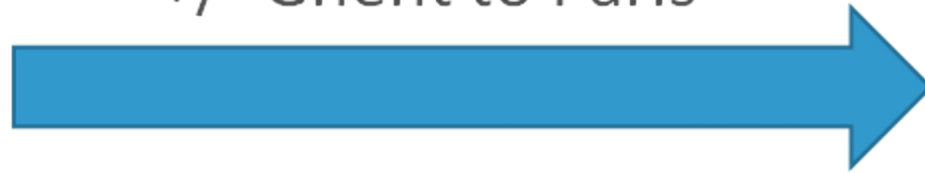
In comparison, the carbon footprint of an average car is 200 g CO₂ per km.



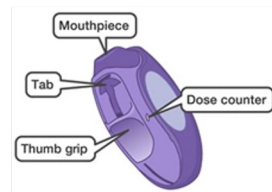
Bottom-up, quick wins



Equivalent to 281 km
+/- Ghent to Paris



Equivalent to 6 km



REDUCING UNNECESSARY CARE/DEGROWTH

30 beter-niet-doen aanbevelingen geprioriteerd door huisartsen

The JAMA Forum

November 14, 2017

The High Costs of Unnecessary Care

Aaron E. Carroll, MD, MS¹

» Author Affiliations | Article Information

JAMA. 2017;318(18):1748-1749. doi:10.1001/jama.2017.16193

In a recent study published in *PLOS One*, researchers surveyed physicians across the United States to ask about their perspectives on unnecessary medical care. These physicians reported that more than 20% of overall medical care was not needed. This included about a quarter of tests, more than a fifth of prescriptions, and more than a 10th of procedures.


Advanced care planning to prevent unplanned admissions

Simone A. van Dulmen, Ngoc Hue Tran, Tjerk Wiersma, Eva W. Verkerk, Jasmine CL Messaoudi, Jako S. Burgers and Rudolf B. Kool. Identifying and prioritizing do-not-do recommendations in Dutch primary care. *BMC primary care*

<https://doi.org/10.1186/s12875-022-01713-y>

Research | Open Access | Published: 03 June 2022

Identifying and prioritizing do-not-do recommendations in Dutch primary care

[Simone A. van Dulmen](#) , [Ngoc Hue Tran](#), [Tjerk Wiersma](#), [Eva W. Verkerk](#), [Jasmine CL Messaoudi](#), [Jako S. Burgers](#) & [Rudolf B. Kool](#)

BMC Primary Care **23**, Article number: 141 (2022) | [Cite this article](#)

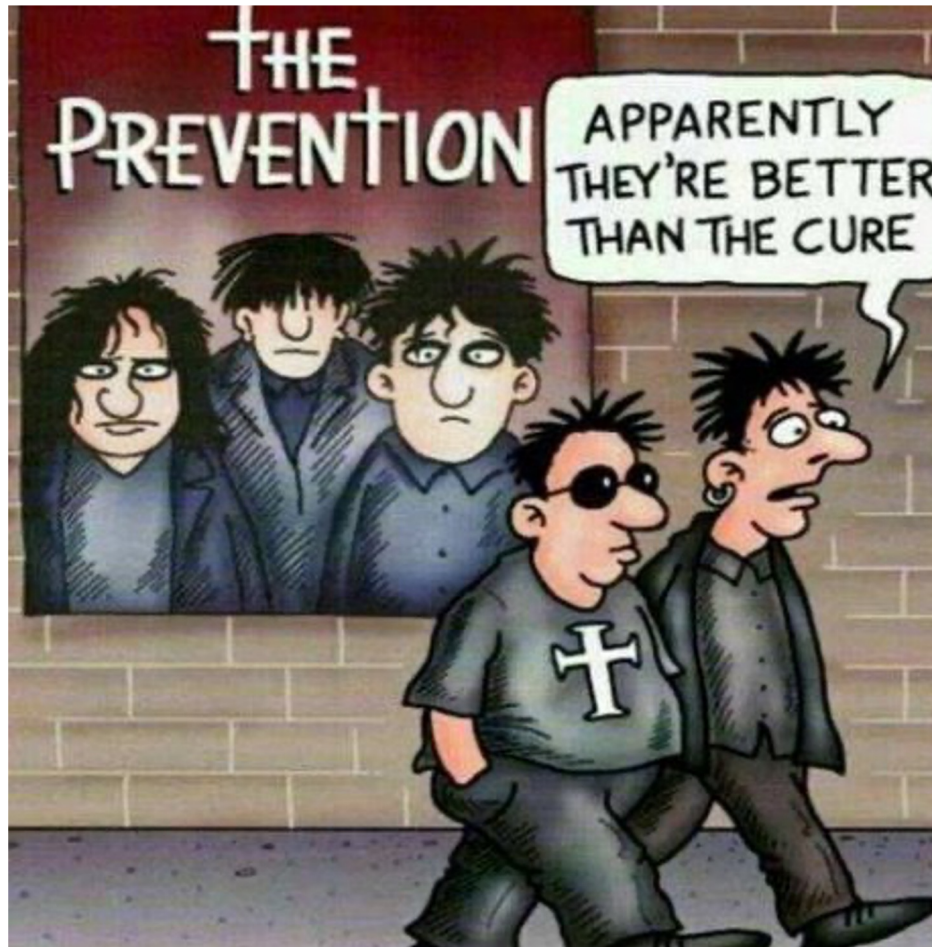
10k Accesses | 10 Altmetric | [Metrics](#)

Abstract

Background

Low-value care provides minimal or no benefit for the patient, wastes resources, and can cause harm. Explicit do-not-do recommendations in clinical guidelines are a first step in reducing low-value care. The aim of this study was to identify and prioritize do-not-do recommendations in general practice guidelines with priority for implementation.

HEALTH PROMOTION AND DISEASE PREVENTION



THE LANCET
Planetary Health

ARTICLES | VOLUME 5, ISSUE 2, E84-E92, FEBRUARY 01, 2021

Health care's response to climate change: a carbon footprint assessment of the NHS in England

Imogen Tennison, MEng • Sonia Roschnik, MSc • Ben Ashby, MEng • Richard Boyd, MEng • Ian Hamilton, PhD • Prof Tadj Oreszczyn, PhD • et al. [Show all authors](#)

[Open Access](#) • Published: February, 2021 • DOI: [https://doi.org/10.1016/S2542-5196\(20\)30271-0](https://doi.org/10.1016/S2542-5196(20)30271-0)

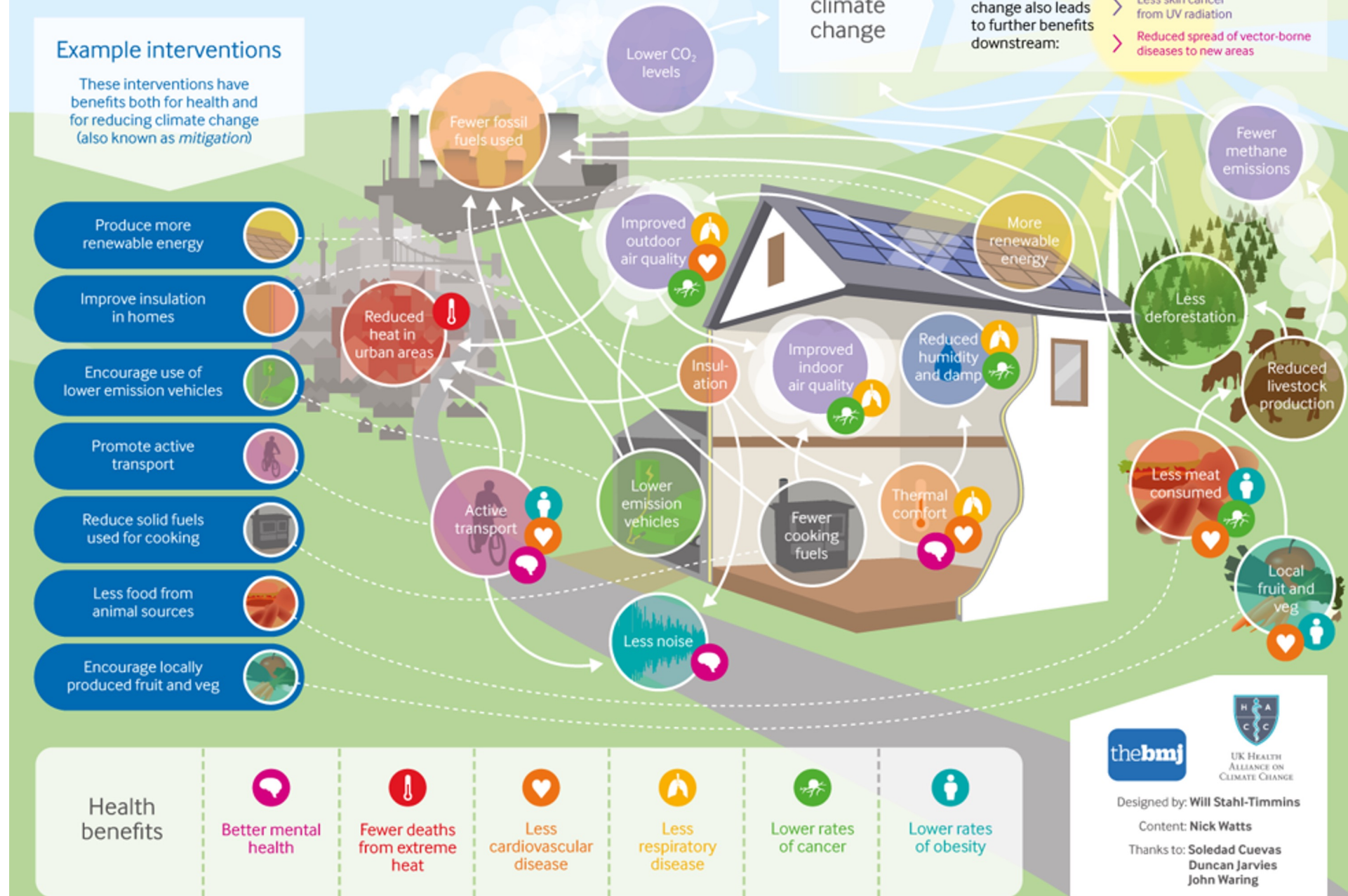
Importantly, health promotion and disease prevention programmes such as public health campaigns and social prescribing can reduce the overall demand for health care, while the selection of a less carbon-intensive and resource-intensive care practices where clinically appropriate can reduce both emissions and costs. The activity-based emissions results could be used to set priorities in disease prevention, as well as development and adoption of lower carbon best practices.

Health and climate: co-benefits

Example interventions

These interventions have benefits both for health and for reducing climate change (also known as *mitigation*)

- Produce more renewable energy
- Improve insulation in homes
- Encourage use of lower emission vehicles
- Promote active transport
- Reduce solid fuels used for cooking
- Less food from animal sources
- Encourage locally produced fruit and veg



Designed by: Will Stahl-Timmins

Content: Nick Watts

Thanks to: Soledad Cuevas
Duncan Jarvis
John Waring

Doctors increasingly prescribe nature as treatment

Thursday, 17 February 2022
By Lauren Walker



A forest in Flanders. Credit: Helen Lyons/ The Brussels Times

Doctors in Belgium are increasingly prescribing time in the great outdoors to patients in addition to medication and other treatments as the medical world becomes more aware of its positive health effects.



DIVEST

Is your money being used to fund
climate chaos?

📍 Belgium



🏦 Deutsche Bank



Check My Bank



Deutsche Bank

#5 in Europe for fossil fuel financing.

**Your money is funding
the climate crisis.**

Your bank doesn't top the charts, but it's still
using your money to lend to fossil fuel
companies and projects that are rapidly
accelerating the climate crisis.

Move Your Money

OR [Pledge to Move It](#)



Triodos Bank

Your bank is great.

Your money is definitely not funding the fossil
fuel industry. Your bank believes in
transparency and you can be sure that your
money is not enabling gas, oil, or coal
extraction. We hope this makes you feel
tremendous (boasting is encouraged), but don't
put your feet up just yet – scroll down to
discover the next step!



<https://bank.green/>


INVEST GREEN



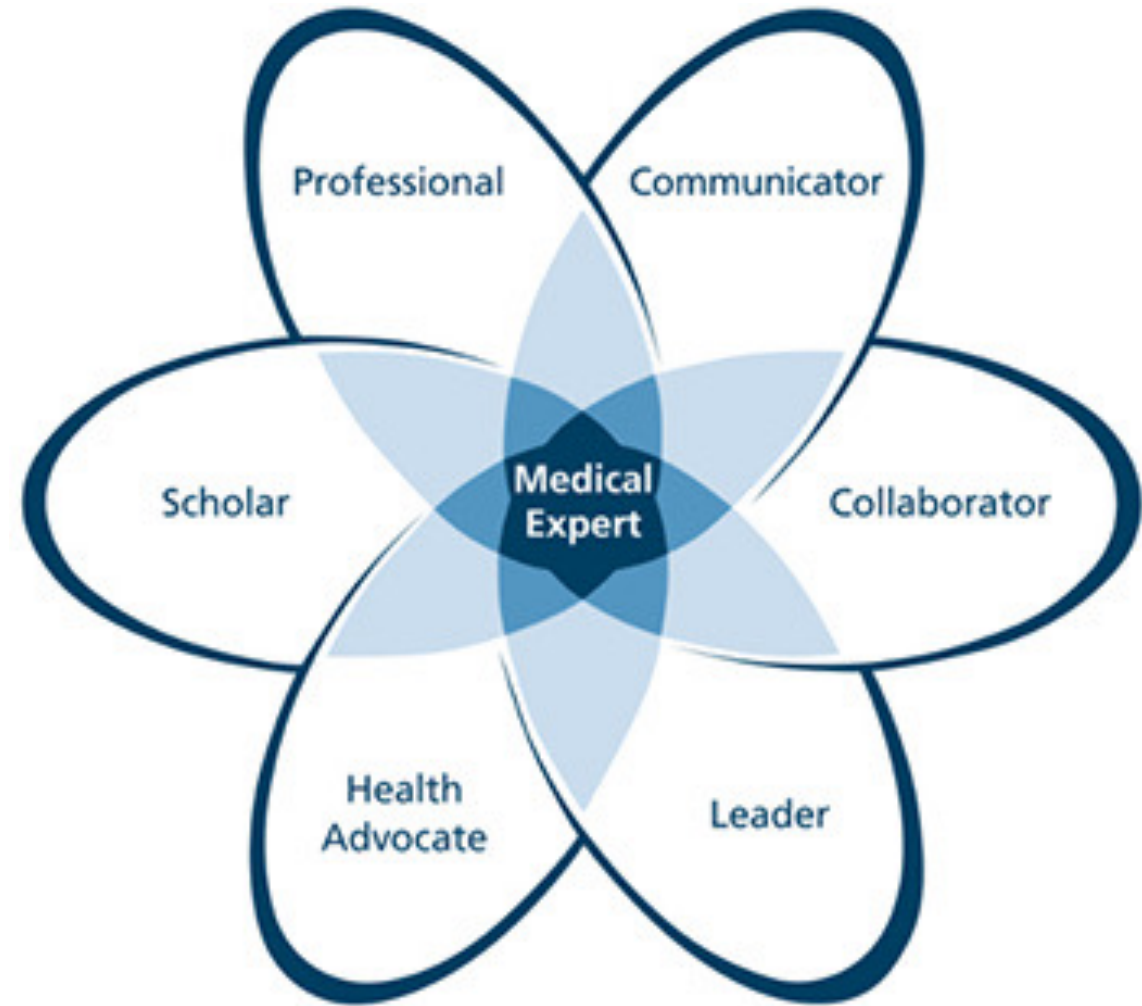
Duurzaam Pensioen voor zorgverleners

12 juni 2019, Anneleen De Bonte

Stel je voor dat we ons pensioengeld inzetten voor ecologisch duurzame en sociale investeringen. Zou d...

 Duurzaam Pensioen

Politising
medical
professionals



CANMEDS



Doctors, healthcare workers sound alarm over health risks of climate change



Issued on: 03/06/2021 - 10:16 Modified: 03/06/2021 - 10:19



Doctors for Extinction Rebellion movement hold a Globe covered with plasters during a march towards the WHO headquarters to stage a protest on the sidelines of the WHO's World Health Assembly on May 29, 2021 in Geneva. AFP - FABRICE COFFRINI



(PLANETARY) HEALTH ADVOCACY



This content was last updated on 4 December 2023.

The year 2023 has been marked by a surge in climate catastrophes. Wildfires, heatwaves and droughts are displacing people, killing crops and livestock, and worsening air pollution. A boiling world is increasing the likelihood and spread of killer diseases like cholera, malaria and dengue.

Recognizing the growing climate and health emergency, the 28th Conference of the Parties (COP28) Presidency will host the first-ever Day dedicated to Health in the history of the climate negotiations, on 3 December in Dubai.

As stated by Dr Tedros: *"Addiction to fossil fuels is not just an act of environmental vandalism. From the health perspective, it is an act of self-sabotage."*

A COP28 Climate and Health Declaration will be delivered by health ministers and governments gathered in Dubai in December 2023.

WHO urges health professionals, groups and individuals to unite in a call for world leaders to meet the commitments they have already made, and to raise their ambition for a healthier, fairer and greener future:



Non violent direct
action

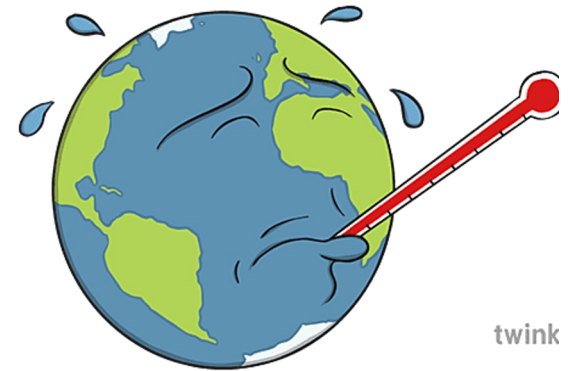
- Ende gelände
- Code rood
- INEOS
- ...

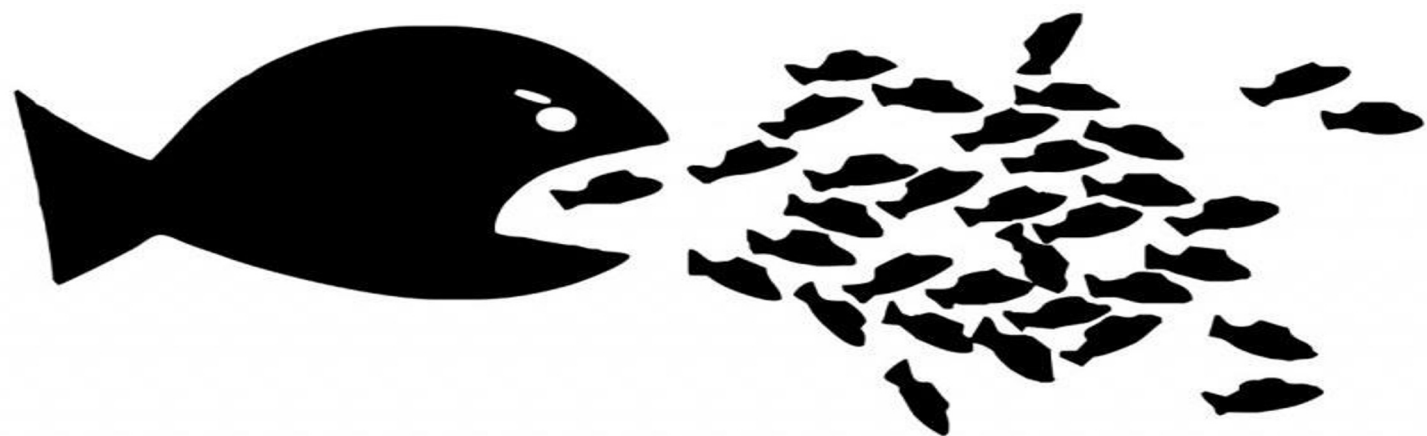
KLIMAATZAAK



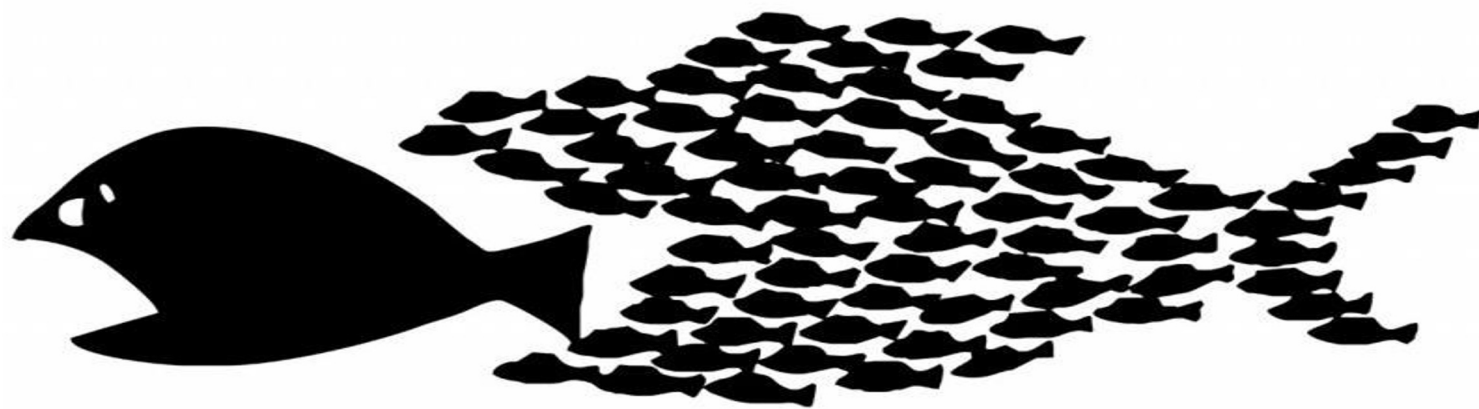
TAKE HOME MESSAGES

- Healthy Planet; Healthy People
- We all have a big role to play
- Change is possible, change is happening, let's go
 - Deprescribing and humanising
 - Divesting
 - Advocacy
 - Juridical





ORGANIZE



FURTHER READINGS

- Planetary Health Alliance
 - <https://www.planetaryhealthalliance.org/>
- Greener Practice (UK)
 - <https://www.greenerpractice.co.uk/>
- Health Care Without Harm Europe
 - <https://noharm.org>
- NHS Sustainable Development Unit (UK)
 - Delivering a 'Net Zero' National Health Service <https://www.england.nhs.uk/greenernhs/>
- Wonca Working Party: Environment
 - WONCA & PHA. Declaration calling for family doctors of the world to act on planetary health.
 - Planetary Health Course
- Nederlandse Huisartsengenootschap & Landelijke huisartsenvereniging Nederland (NL)
 - Handboek 'De Groene Huisartspraktijk'
- <https://doc-durable.fr/>
- Le Collège de la Médecine Générale (FR)
 - Santé planétaire en médecine générale <https://lecmg.fr/sante-planetaire/>
- The Lancet Planetary Health
 - <https://www.thelancet.com/journals/lanplh/home>
- Royal College of General Practitioners (UK)
 - Green impact for Health